

# **Soil & Rock Testing Apparatus** *Seiken, Inc.*

## **RESONANT COLUMN TRIAXIAL TEST APPARATUS**

**Model DTC-158**

P. No. 1/2

**DUE TO THE PRECISION MANUFACTURING TECHNOLOGY AND INGENUOUS CONSTRUCTION METHODS, THIS APPARATUS WILL ENABLE YOU TO PERFORM THE RESONANT COLUMN TRIAXIAL TEST VERY EASILY AND CORRECTLY.**



**(Actual product differs from the above.)**

### **FEATURE:**

Electro-Magnetic Torsional  
Vibration : 20 to 300 Hz  
Strain Level :  $10^{-3}$  to  $10^{-6}$   
Hollow & Solid Specimen :  
Dia.70mm  
Vertical Load : 2kN  
Confining Pressure : 1MPa  
Pore Water Pressure: 1MPa

**APPLICATION: Resonant column triaxial test for cohesive & cohesionless soils  
(Shearing modulus and Damping modulus).**

### **SPECIFICATIONS:**

- 1. Triaxial Cell (Combined with Loading Unit) 1SET**  
Specimen size: Dia.70mm x Dia.30mm x 100mmH (Hollow), Dia.70mm x 100mmH (Solid)  
Vertical load (Max.): 5kN (Transducer capacity 2kN),  
Confining pressure: 1MPa (Normal operation 0.8MPa)
- 2. Loading Unit 1SET**  
Resonant torsional loading: Electro-Magnetic vibrator (2 units), Capacity: 10N x 2  
(Torque: 0.5N\*m x 2), Vertical loading: Self-compensated for confining pressure effective,



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Capacity: 2kN, Pressure chamber: Removable clear acryl type, Max. pressure 1MPa  
(Normal operation: 0.8MPa)

### **3. Air-Water Unit**

**1 SET**

Air & Water pressure system with use of precision air regulators

Capacity: Both Confining & Back pressures: 1MPa (Normal operation: 0.8MPa)

Measuring: Master gauge system(Dia.200mm, 1000kPa, 1/500 divisions) and Slave pressure gauge for each function unit (Dia.100mm)

Volume change: Double tube volume meter (25ml) with electric measurement

Special equipment: Vacuum type De-Aired water system (5L Dual reservoir type)

### **4. Electric Measuring & Control Unit**

**1 SET**

#### **1) Transducers**

Acceleration (30G), Velocity (30cm/sec.), Vertical load (2kN), Vertical displacement (20mm),

Pore water pressure & Confining pressure (1MPa, one for each), Volume change (25ml)

#### **2) Amplifier**

5CH. for Vertical load, Displacement, Pore water pressure, Confining pressure & Volume change

#### **3) Vibration Controller**

Electro-Magnetic control type

Vibration frequency: 10 to 2000Hz (Normal operation: 20 to 300Hz),

Continuously frequency variable with adjuster

Vibration measurement: 3 measuring elements:

1 Acceleration: 6 ranges between 0.1to 30G

2 Velocity: 6 ranges between 0.1 to 30cm/sec.

3 Displacement amplitude: 6 ranges between 0.01 to 3mm P-P

Output: 1 For recording above elements one at a time, 5V Full scale & 10mA Full scale,

2 For Resonant lissajous figure, Velocity & Vibration frequency 5V Max.

#### **4) Data Acquisition System**

High speed 8CH. Type IEEE 1394 Interface with optional PC

#### **5) Oscilloscope for Observing Resonant Lissajous figure (1)**

2CH. type

#### **6) Cabinet**

Standard floor type with casters, Cooling fan & main switch

### **5. Accessories**

**1 SET**

Hollow specimen former for cohesionless soil: (1), Hollow specimen former for cohesive soil:(1)

Rubber membrane: Dia.70 & Dia.30mm, (10 for each), Membrane jacket (1), Miter box (1)