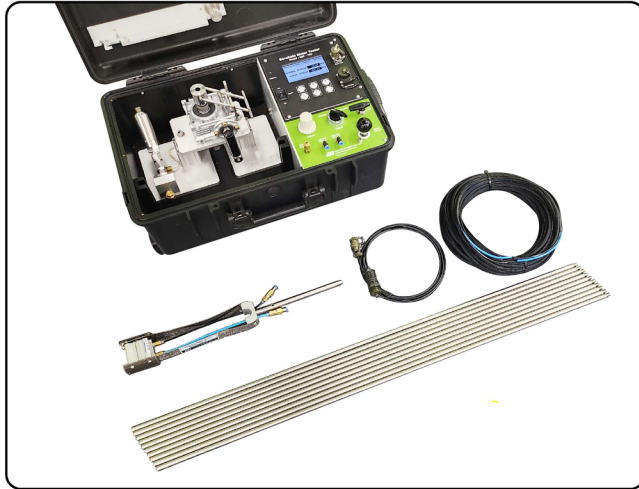


## Digital borehole shear tester



### Description

Model **BST-75D Digital borehole shear tester** inserts the head of the expanding type shear tester up to the desired depth into the borehole and loads pressure on the borehole wall by pressurizing shear plate. The pressurized shear plate consolidates the contacted ground, and it takes time to completely drain the water.

The pressurized shear tester head is slowly pulled out from the ground through the connected extension rod to measure the shear force. At this time, the maximum pullout force and the shear tester head measure the expanded vertical pressure through the data logger and the pressure sensor mounted on the pulling assembly.

The series of test processes increase the vertical pressure acting vertically on the borehole wall at the measurement location without replacing or resetting the shear tester, and measure the maximum pullout force at each step to measure the shear strength of the ground.

The data logger stores the measured data and analyzes the relationship between the shear stress and vertical pressure. The measured data can be checked immediately as stress values and graphs, and the internal friction and adhesion are calculated and displayed and saved as a file.

### Applications

- Estimating adhesion power and internal friction angle for the original ground by measuring the shear resistance inside of the borehole.

### Features

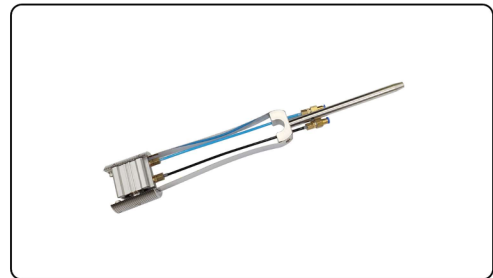
- Borehole shear testing can measure the shear strength of the ground in a short time, separating the internal friction angle and adhesion power.
- The pressure sensor and data logger are applied to measure the digital pressure value and immediately check the internal friction angle and adhesion.
- Thanks to its small size and light weight, one person can perform the test at the site.
- The test can be made at different places in one borehole.
- It can be used for the ground for which the data cannot be easily obtained by laboratory testing as the sample is disturbed or the core recovery is difficult.

### Components

Model **BST-75D Digital borehole shear tester** is composed of following components.

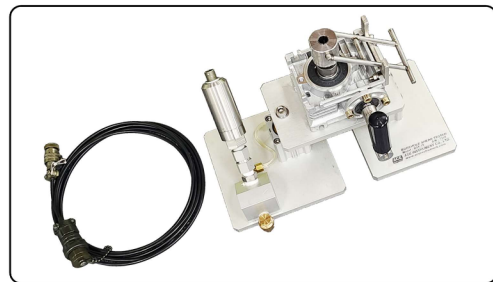
#### [Testing head]

It generates vertical pressure and pullout force, contacted tightly to the wall of the borehole.



#### [Pulling assembly]

It generates pullout force and makes measurement by fixing the extension rod connected to the testing head and pulling it out by turning the handle.



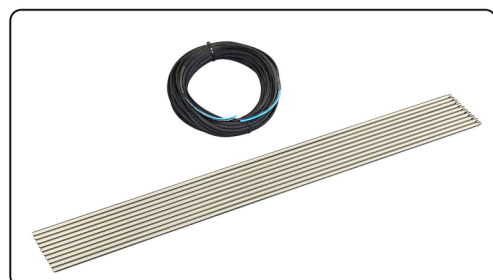
#### [Data logger\_BST-75D]

Air pressure is applied to the shear tester head using a hand pump or foot pump, the vertical pressure is measured, and the shear stress and vertical pressure are digitally measured, displayed and stored on a large LCD screen.



#### [Extension rod & air hose]

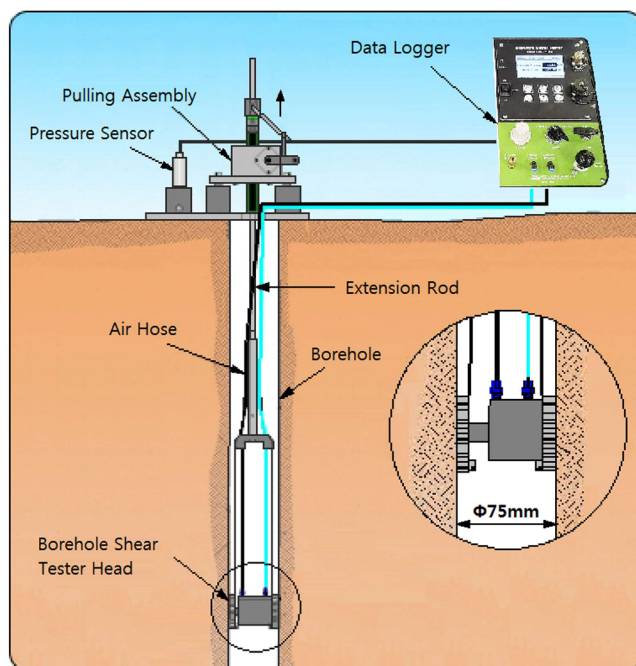
They are the standard components to generate vertical pressure and pullout force depending on the measurement depth.



## Digital borehole shear tester

### Specification

Model		BST-75D	
Measuring device	Data logger	Display	Graphic LCD (Pressure)
		Accuracy	$\pm 0.05\%$ FSR
		Resolution	0.01kPa
		Memory	15000 Data points (Max. 100 points / Hole)
		Power	7.2VDC / Rechargeable Ni-MH battery
		Operating time	14 Hours continuous (When fully charged)
		Accessories	Charger (12VDC 3Ah)
	Horizontal pressure device	Range	1.0MPa
		Resolution	0.01kPa
		Pressure device	Hand pump, foot pump (Optional : DC air compressor)
	Vertical pressure device	Range	1.0MPa
		Resolution	0.01kPa
		Pressure device	Pullout pressure of rod throughout reducer
		Min. pullout	0.034mm / 1circle
Testing head	Dimensions		$\varnothing 70 \times 52\text{mm}$
	Max. pressure		1.0 MPa
	Hose		Working pressure : 2 MPa (extension : black, contraction : blue) $\varnothing 4\text{mm}$ one touch fitting
	Material		Stainless steel, aluminum
	Case		ABS case, test head set bag
Accessories	Extension rod		$\varnothing 10 \times 1000\text{mm}$ stainless still rod ( STD : 20m )
	Air hose		$\varnothing 4\text{mm}$ working pressure : 2 MPa STD length : 2 wires (each 20m)
	Foot pump		1.0 MPa
	Weight of all set		23.8 kg (Included extension rod of 20m)



[Installation diagram of BST]

### [DC air compressor]



The optional 3L electric air compressor and regulator for DC 12V, which is an alternative to the hand pump and foot pump, makes it very convenient to apply pressure to the shear tester head through regulator adjustment.

For stable testing in the field, we recommend the use of DC 12V batteries with larger capacities, such as automotive batteries (over 50A).