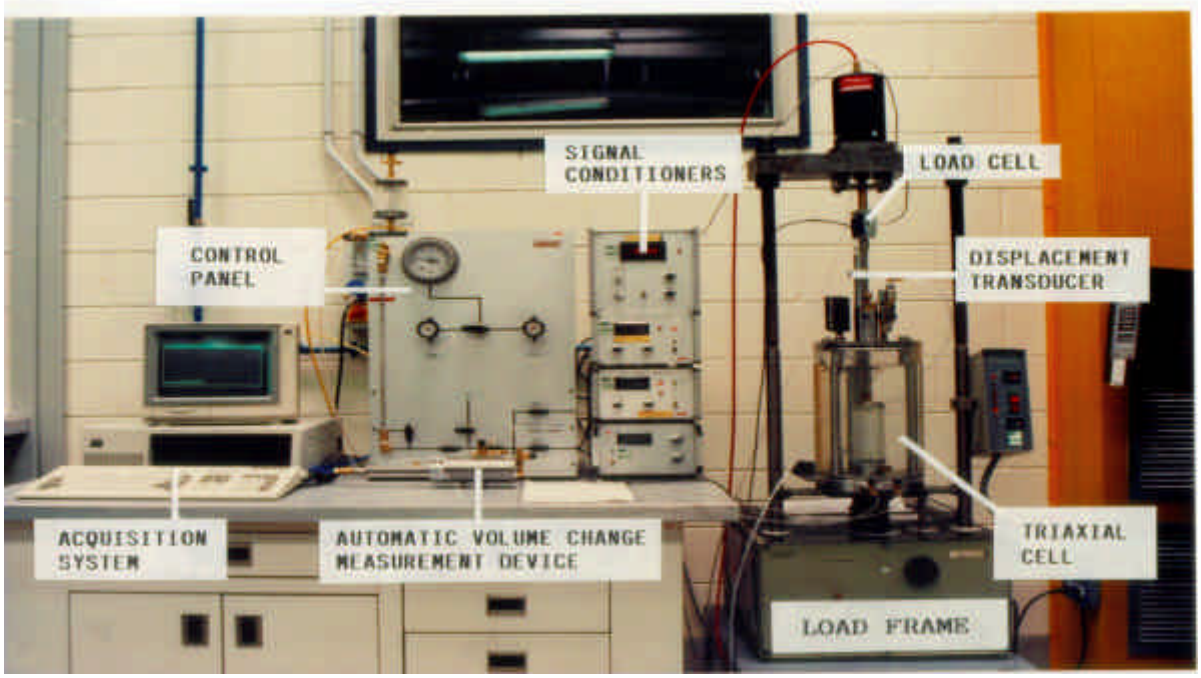
TRIAXIAL SYSTEM

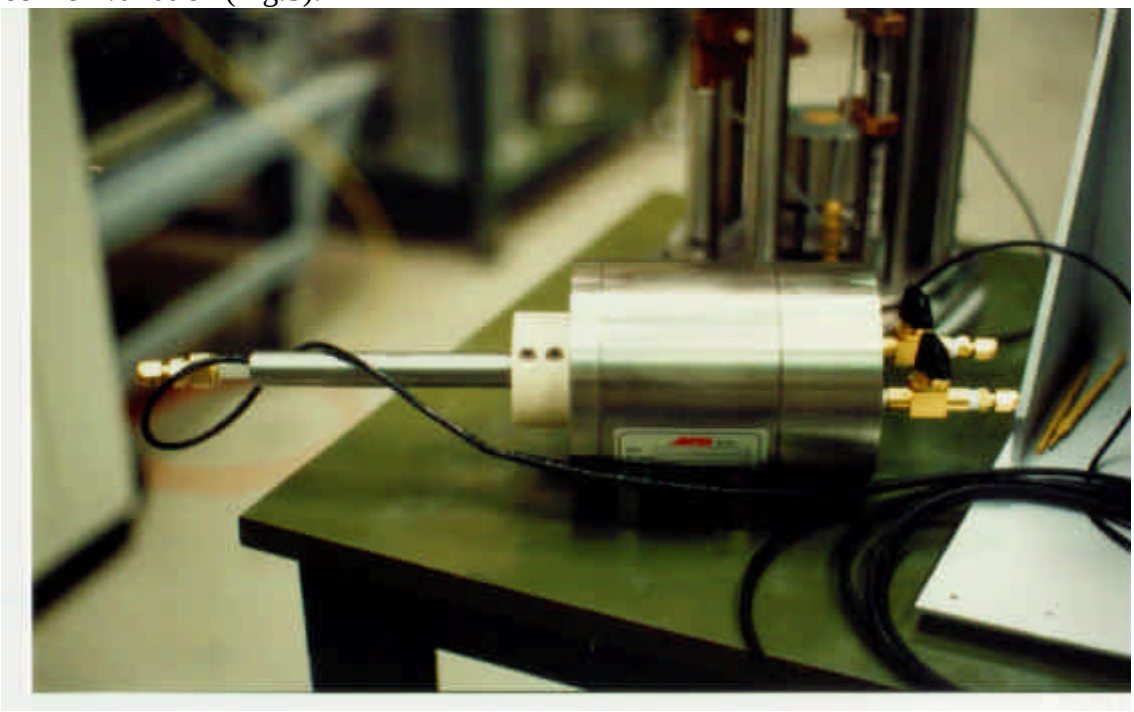
For mechanical characterization of shear strength of soils, Ismes has developed a particular triaxial system to isotropic and anisotropic consolidated specimens.
Standard triaxial configuration of apparatus is showed in Fig. 1.



It is constituted of a Triaxial cell with n. 2 flange assembled with 3 columns. A cylinder of Plexiglas is mounted on the cell for confined pressure (max 1 MPa; for pressure until 10MPa a steel cylinder is used). Both top and bottom plates (available dimension of diameter are: 38.1, 50, 70 and 100 mm) have possibility of drainage. A low friction load piston system is available to piston of ½" and ¾" in diameter.
All the saturation and consolidation triaxial test processing is controlled by a panel which endow the follow equipment (Fig.2):

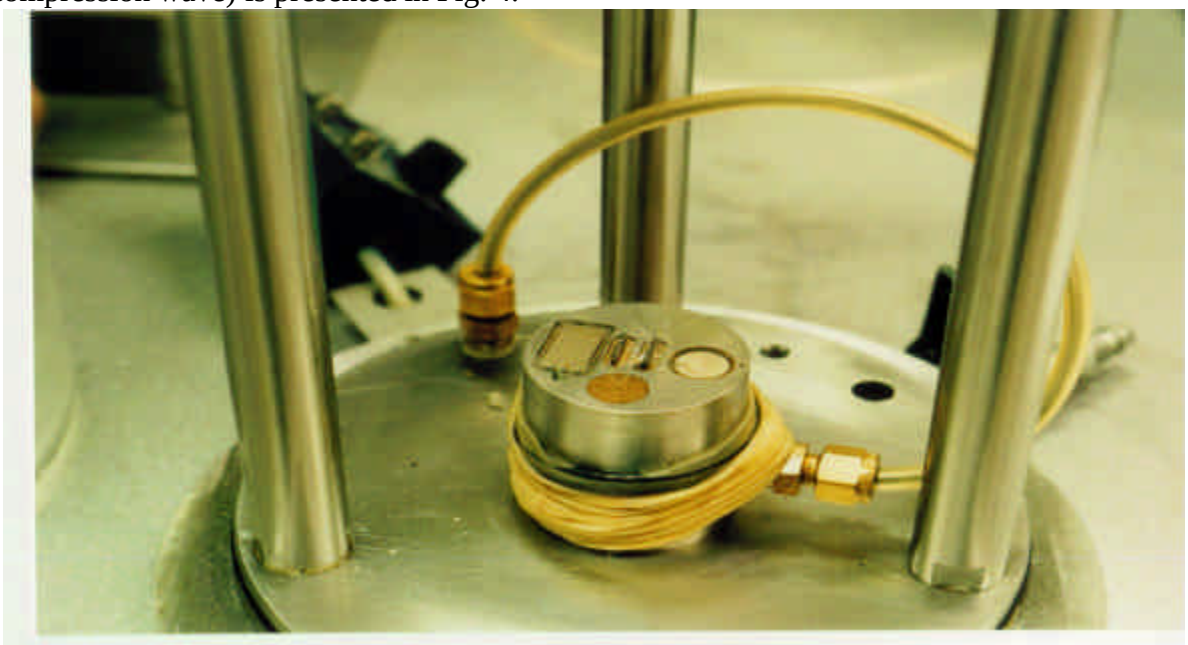
- Pressure regulator for cell pressure,
- Pressure regulator for back pressure,
- Burette for volume variations,
- transducer for pore pressure with conditioner and amplifier,
- prearrangement to load, displacement and automatic volume changes device installation
- pipe and taps.

For the undrained failure phase, pore pressure transducer is used for monitoring ΔU. For the drained failure phase, automatic volume changes apparatus is connected instead of burette for monitoring volume specimen variation (Fig.3).

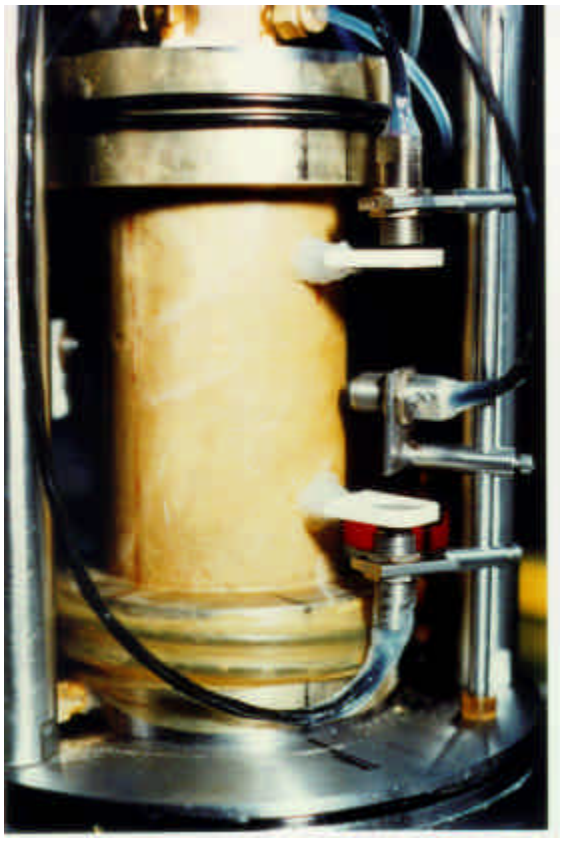


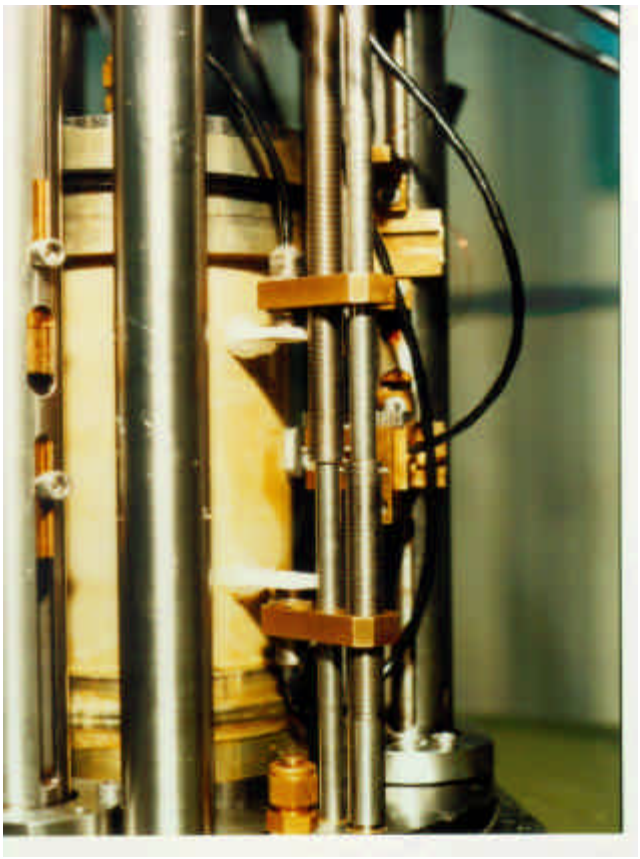
Our triaxial system can be also configured to follow technical characteristic:

- automatic control of cell pressure, axial load, back pressure, rate of axial deformation performed with electro-pneumatic proportional valve on the panel;
- lubricated top and bottom plates;
- piezoelectric transducer to propagate shear wave velocity mounted in top and bottom plates. A detail of bottom base with endowed drainage and three different kind of transducer (shear and compression wave) is presented in Fig. 4.



- mobile proximity transducer to measure axial and radial deformation directly to the specimen. A detail of fixed point (adjusting before begin the test) is viewed in Fig. 5; mobile point (capabilities to adjusting also during the test) is in Fig. 6.





Various kind of software is available for monitoring acquisition and elaboration triaxial test.
It's possible perform test for direct permeability coefficient determination with our flow pump device connected in triaxial system. Follow photo shows the system: