

## Triaxial Press Triroc

The behaviour of discontinuous rock masses, layered or fissured, remains a main research topic.

As in situ experimental studies are often neglected due to high cost, laboratory equipment must be supplemented with presses able to test large scale samples representative of the rock mass.

In this framework, the LRM has conceived and constructed a large triaxial press which permits the testing of specimens 60 cm high with either a square base 30 cm per side, or with a circular base 30 cm in diameter (fig. 1). It allows the study of continuous media, such as soils and homogeneous rocks, or discontinuous media such as layered or fissured rocks.

The capacity of the Triroc press is 3.5 MN of vertical force and 5 MN/m<sup>2</sup> confining pressure. This press also offers high rigidity (1,5 GN/m) and its servo-control system permits the study of the post-failure behaviour of rocks, for example.

The lower movable plate rests on two levels of crossed rollers, allowing perfect freedom of movement in the horizontal plane and also permitting the elimination of parasitic forces after the formation of the failure plane.

The lateral frames which apply the intermediate stress are linked around the specimen, which is first placed in a rubber membrane.

The application of the confining pressure is guaranteed by a watertight sliding cylinder, equipped with three windows and a lighting, which permits the observation of the tests while they are being carried out.

This press has been used to study the strength and deformability of reinforced jointed rock masses, especially the influence of the orientation of steel bars with respect to the discontinuities.

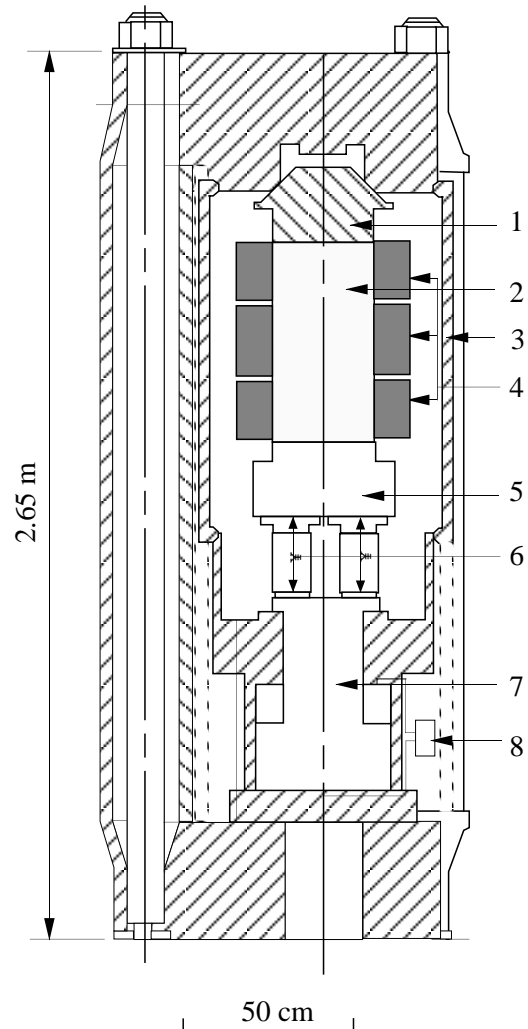


Fig. 1 Cross-section of the Triroc press

- 1) top plate with spherical seat
- 2) specimen (30/30/60 cm)
- 3) sliding cylinder
- 4) 3 lateral movable plates
- 5) lower plate
- 6) 3 load cells
- 7) double-effect jack
- 8) servovalve

## Publications

Egger P., Fernandes H., 1983. Nouvelle presse triaxiale - Etude de modèles discontinus. C.R. 5<sup>e</sup> Congrès SIMR, Melbourne: 171-175

Pellet F., 1993. Résistance et déformabilité des massifs rocheux stratifiés renforcés par ancrages passifs. Thèse no 1169 EPFL, Lausanne