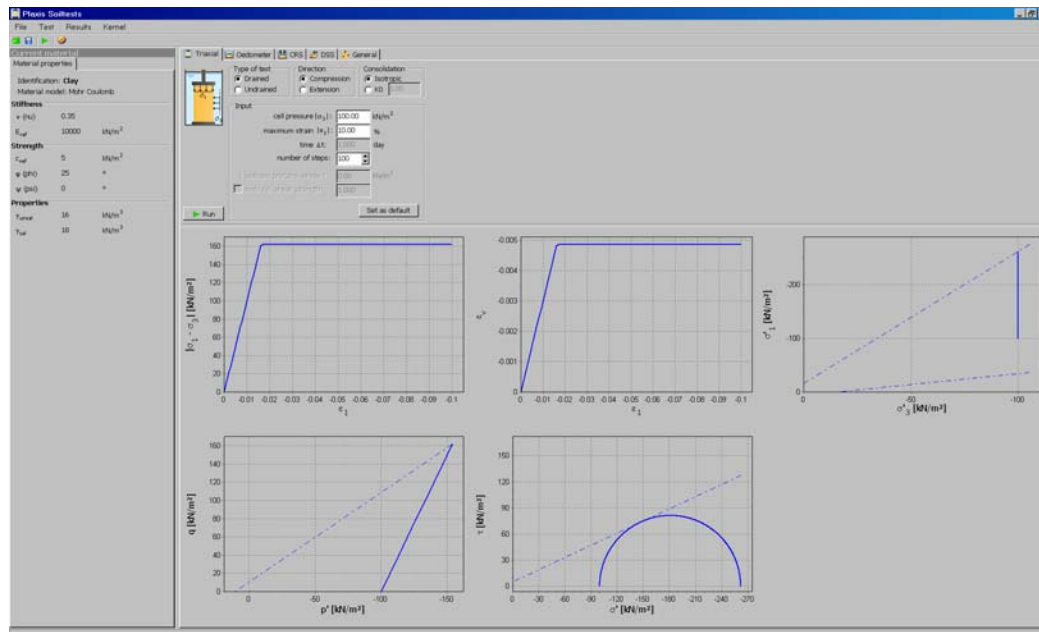


Advanced soil models: As a general second-order model, an elastoplastic type of hyperbolic model is available, which is called the Hardening Soil model. This model allows for plastic compaction (cap hardening) as well as plastic shearing due to deviatoric loading (friction hardening). To account for the increased stiffness of soils at *small strains*, the Hardening Soil model with small-strain stiffness is available.

Staged construction: This powerful PLAXIS feature enables a realistic simulation of construction and excavation processes by activating and deactivating clusters of elements, application of loads, changing of water pressure distributions, etc. This procedure allows for a realistic assessment of stresses and displacements as caused, for example, by soil excavation during an underground construction project. When changing the geometry (e.g. changing the position of points or lines or adding new objects), the program will *automatically regenerate initial stresses, pore pressures and staged construction settings for previously defined calculation phases* when the mesh is regenerated. In case of pore pressures generated by a groundwater flow calculation the user will be prompted to regenerate these pore pressures by hand. Even though the regeneration of the stresses and staged construction settings will be successful in the case of small changes to the geometry (e.g. introduction of a few additional geometry points or lines), it is strongly recommended to check the settings when geometric changes have been made. The calculation process must restart from the first phase.

Soil tests: The soil test option in PLAXIS is a convenient procedure to check the behaviour of the selected soil material model with the given material parameters. After entering the model parameters, the user can quickly simulate several standard soil tests and compare the results against the results from actual laboratory tests.

Parameter variation: This feature assists the user in checking the sensitivity of the calculation results to variations in the material parameters. Based on a given range of possible values for the material data input parameters Plaxis will automatically calculate the resulting variation in selected output values, such as displacements, stresses or structural forces.



Soil test window showing drained triaxial test