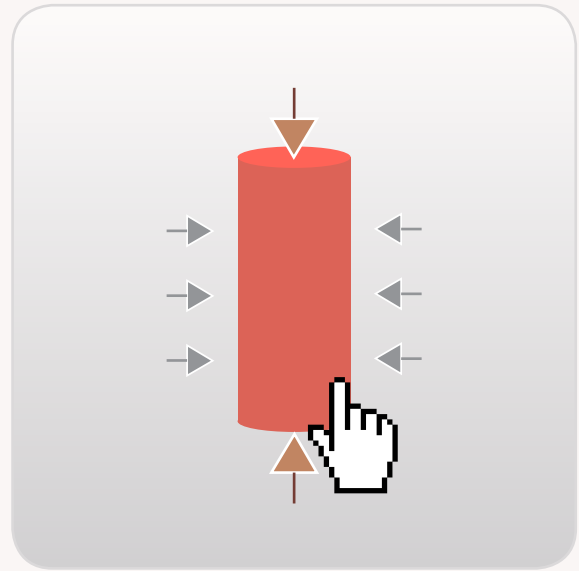


# Our New Soil Testing Tool



**Rocscience is currently developing a tool** that simulates lab testing in order to demonstrate the behavior of materials and calibrate material properties using lab test results. The tool can be used to analyze the behavior of different material models under several different lab tests. Materials are calibrated by running numerical analyses on lab test data.

## Multiple Material Constitutive Models

Eight different constitutive models and six different stiffness types are supported. The constitutive models are:

- Mohr Coulomb
- Hoek Brown
- Generalized Hoek Brown
- Drucker Prager
- Cam Clay
- Modified Cam Clay
- Softening-Hardening with Cap
- User-Defined

The six stiffness types are:

- Linear Isotropic
- Non-Linear Isotropic
- Transversely Isotropic
- Orthotropic
- Duncan-Chang Hyperbolic
- Custom

## Five Lab Tests and One General Test

Five lab tests can be simulated – uniaxial, triaxial, biaxial, simple shear, and oedometer. The general test can also be simulated, which accepts stress and strain from all directions.

- Uniaxial test is performed by applying stress to the specimen axially until failure. The loading direction is either compression or extension.
- Triaxial test is similar to uniaxial test, but a pore water pressure is applied to the surrounding of the specimen. Axial compression or extension is then applied to the specimen.
- Biaxial test applies pressure on Z-axis vertically and on X-axis horizontally. The stress and strain on the Y-axis is ignored.
- Simple shear test is a laboratory testing method used to directly determine the shear modulus of the soil.
- Oedometer test is performed by applying load to the specimen vertically while restricting the horizontal strain of the specimen by using a metal ring.

Stress paths of the materials can be easily plotted and animations can be viewed for all five lab tests. Lab test data can also be imported into the program.

Let us know what you think! If you would like to see a certain feature included in the tool, email us at [support@rocscience.com](mailto:support@rocscience.com).