

1994 NOVA AWARD WINNER

Osterberg Load Cell

The Osterberg Load Cell allows geotechnical engineers to determine the capacity of drilled shafts, piers, and driven piles. It is used to test for the bearing and skin friction forces that can be developed in the soil through which the shaft, pier, or pile is placed.

The Osterberg Load Cell is a specialized pressure cell that is placed at the bottom of the excavation for a drilled test pier or pile. It has a hydraulic line extending from the cell to the top of the excavation. After placement, the pier excavation is filled with concrete. The cell is designed to expand both upward and downward when it is pressurized by way of the hydraulic line. The downward force from the bottom of the cell is resisted by the bearing stratum while the upward force from the top of the cell is resisted by the weight of the pier and by skin friction along the sides of the pier. The test pier is instrumented with telltales to measure the upward and downward displacements of the cell.

A load test made with the Osterberg Load Cell is different from a conventional load test, since there is a separation of the end bearing and skin friction components for resisting applied loads. Consequently, this test method allows geotechnical engineers to more accurately estimate pier capacity and to design and construct more cost-effective foundations. The expense of unnecessary conservative designs can be reduced and the risk of underdesigned foundations can be minimized.

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