



# O-Cell® BI-DIRECTIONAL LOAD TESTING

**The Osterberg Cell® (O-Cell®) is the premier method of static load testing for drilled shafts and piles. Through research and hard work, Loadtest has redefined the science of load testing with the O-cell.**

No job is too big or too small to enjoy the advantages of the Osterberg Cell. To date, Loadtest has conducted thousands of successful O-Cell tests in over 60 countries. Numerous world records for load testing have been set using the O-Cell including the current world record of 72,600 kips set in Louisville, Kentucky in 2013. Many ultra-high capacity piles and mono-piles are being designed today as a direct result of Loadtest's ability to verify their capacity.

## O-CELL TECHNOLOGY

Dr. Jorj O. Osterberg, Professor Emeritus of Civil Engineering at Northwestern University, invented and developed the Osterberg Cell, or O-Cell, to meet the construction industry's need for an innovative, effective method for testing high-capacity drilled shafts and piles. No longer do engineers need to rely on small, scaled down test shafts due to the enormous expense of conventionally testing large diameter shafts. Non-conservative scaling errors can now be eliminated by testing the full-sized shafts used in production.



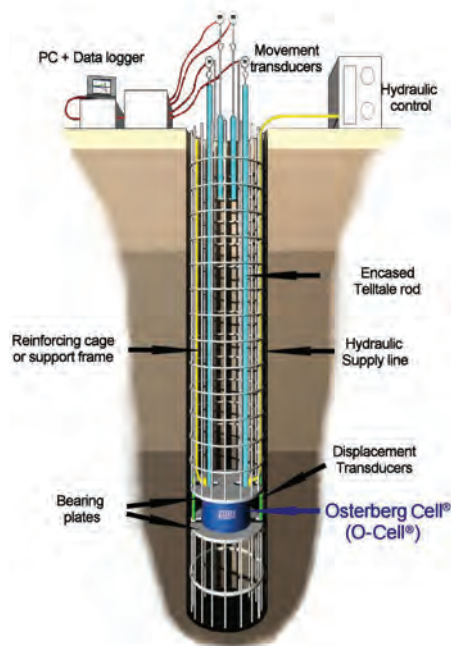
*Cage installation*



The O-Cell is a hydraulically driven, individually calibrated, sacrificial loading device installed within the foundation unit. Working in two directions, upward against side-shear resistance and downward against end-bearing resistance, the O-Cell automatically separates the resistance and displacement data for each component of the pile. By virtue of its installation within the foundation member, the O-Cell load test is not restricted by the limits of overhead structural beams and tie-down piles. Instead, the O-Cell derives all reaction from the soil and/or rock system with each respective pile component of resistance providing reaction for loading the other.

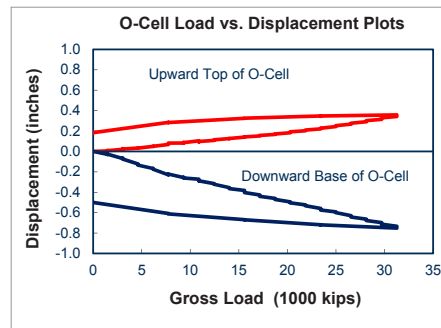


Multiple O-Cells on a single plane.

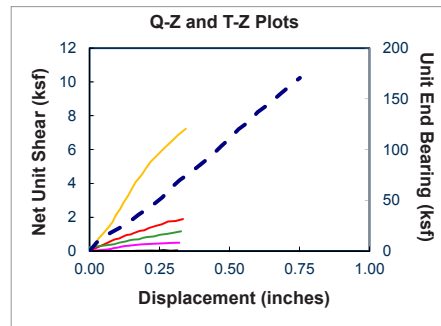


## TEST RESULTS

With the typical O-Cell location very close to the foundation tip, determination of side shear and end bearing resistance is straightforward. Testing is performed until either ultimate upward or downward capacity is reached or the maximum O-Cell stroke or load capacity is reached. Use of strain gages within the foundation can help to determine the distribution of load throughout the foundation length. Analysis of the test results is left to the O-cell testing experts at Loadtest, who prepare a complete report presenting all test data and analyses for immediate use by the design engineer.



Load movement plots



Unit shear and end bearing plots

## Loadtest

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