

LOADTEST

Self-testing Pre-Cast Concrete Piles with O-Cell™ Technology



DESCRIPTION

For pre-cast concrete driven pile applications, an O-cell is cast into the pile and the pile driven to design depth or refusal as per normal installation procedures. Subsequent pressurizing of the O-cell simultaneously loads the capacity below the assembly and the side-shear above the assembly.



An O-cell assembly positioned in a 600 mm square pile casting bed

ADVANTAGES

A key benefit of using bidirectional testing is the elimination of additional anchor piles or reaction systems. The O-cell allows one portion of the pile to react against the other as it is loaded. In ground conditions where the end bearing may be comparable or greater than the friction, the O-cell may be located at the bottom of the precast pile and the test will measure end bearing and skin friction directly and independently.



300x300mm O-cell before concreting

For friction piles, the O-cell can either be cast into a single section of pile or conveniently at a joint. This allows the optimum selection of depth of the first element to position the O-cell at the most favorable position for the test.

The test is particularly advantageous where the driving of additional anchors piles might not be desirable such as in congested areas or where the influence of driving anchor piles is not advantageous.

Tests may be performed on vertical and batter/raking piles.

The influence of the tests on subsequent behavior of working piles can be minimized by releasing the locked in stresses.

APPLICATIONS

Driven precast pile tests may be performed to the full structural capacity of the pile providing there is sufficient resistance.

Tests have been performed on square precast piles of 300 mm, 450 mm, 600mm and 750 mm.



300x300mm O-cell concreted

Any size and capacity pile can be accommodated.

RESULTS

Because the test is a full scale static loading process all creep and time effects are accounted for.



O-cell test on a 600 mm square pre-cast concrete pile being performed over water

The data enables calculation of unit end bearing and friction, as well as equivalent top-load behavior.