

LOADTEST O-Cell® Technology in Barrettes



O-cells are installed within the barrette reinforcement



Test in progress – safety at high loads



O-cells ideally suited for restricted areas



T – shaped section preparation



Cage Placement with O-Cell assembly

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In the world of foundation load testing there have been many challenges. Full scale testing of barrettes has, until now, been one of the hardest to overcome because of the large test loads required. Loadtest has been engaged in numerous barrette projects and has developed an efficient, cost-effective method for full scale static load testing of barrettes by using the bi-directional O-cell testing technique.

Barrettes are often used as a single load carrying foundation element capable of sustaining very high loads. Full scale static loading by traditional top loading has often been impossible. Large loads and deep foundations are not a problem with bi-directional testing and the arrangement of the O-cells can be selected to evenly distribute the load evenly throughout the cross section of the barrette.

To date, rectangular barrettes of up to 7m wide, 95m deep, T shaped sections and shafts with two levels of O-cells have been tested. A group of three multi-level adjacent barrettes have been tested simultaneously. The maximum mobilised load achieved in a single barrette loading test is 237 MN.

Since O-cells can be placed at any level within the reinforcing cage of the barrette, it is possible to measure load distribution for specific soil strata or foundation levels. Instrumentation may be installed which can also allow the stress distribution throughout the barrette to be determined.

By use of the bi-directional O-cell method, it is possible to test barrettes when the design concrete cut-off level is far below barrette construction level. So, where the concrete of the barrettes is terminated at basement level, testing can take place from working platform level, prior to excavation. This can be vital for preliminary testing to prove design.

Foundation design depths can be optimised as required based on results achieved long before the building construction starts. The financial savings that may result from full scale load testing can be substantial.

Post test grouting allows working barrettes to be integrated into the structure after O-cell testing.

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