

Study of continuous flight auger pile behavior loaded by compression.

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Abstract

In order to measure allowable load values of continuous flight auger, it was monitored the execution of performance of maintained load test (compression) of a work in Rio Claro/SP/ Brazil. From the results, it was built a curve load versus displacement, it was determined the ultimate load, by extrapolation of the curve, and it was analyzed the use of prediction methods (theoretical and semi-empirical). These values were compared and through the results it was possible better understand the behavior of this foundation element when subjected to compressive loading.

Key words: continuous flight auger pile, compression efforts, load test.

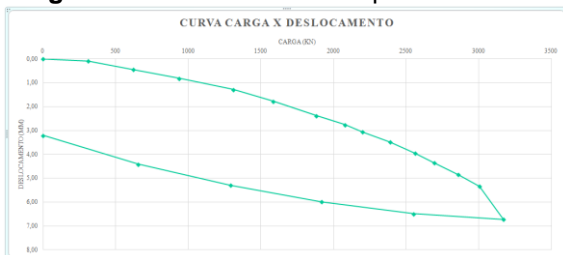
Introduction

The requirements regarding loads to be transferred to the soil in civil construction are increasing, which leads to high costs to work. So it is necessary to research the real values of soil parameters in order to achieve proper sizing for each type of foundation.

It was concluded that most methods with theoretical or semi-empirical formulas show ultimate loads below the actual load which can withstand the subsoil. If comparing the ultimate load test with the average of three methods of semi-empirical formulas, it is revealed that the realization of the load test may indicate a soil carrying capacity 20% higher than originally planned, which generates significant economy at work.

Results and Discussion

Image 1. Curve load versus displacement.



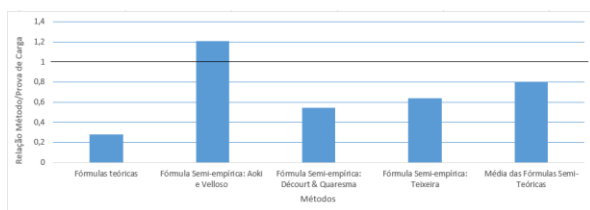
The analysis of the figure does realize that the executed load test not approached of the breaking load. Therefore, it was necessary to perform the extrapolation of the curve to determine the ultimate load. This was done by three different methods and they have generated very close values. This way, we can consider them as the average real value of ultimate load (Q_{ult}) equal 4978 kN. So if, it was confronted such a result with theoretical methods and semi-empirical:

Acknowledgement

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Schulze, T. *Análise da capacidade de carga de estaca escavada instrumentada de pequeno diâmetro por meio de métodos semi-empíricos*. 2013. PhD Thesis. Dissertação (Mestrado)-Faculdade de Engenharia Civil, Universidade Estadual de Campinas, Campinas, 30,168.

Image 2. Load test compared with other methods



Conclusions