

## Effect of Installation Method on the Ratio of Tensile to Compressive Shaft Capacity of Piles in Dense Sand

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**Abstract :** It is generally accepted that the shaft capacity of piles in the sand is lower for tensile loading than for compressive loading. So far, very little attention has been paid to the role of the influence of the installation method on the tensile to compressive shaft capacity ratio. The objective of this paper is to analyze the effect of installation method on the tensile to compressive shaft capacity of piles in dense sand as observed in tests on half-circular model pile tests in a half-circular calibration chamber with digital image correlation (DIC) capability. Model piles are either monotonically jacked, jacked with multiple strokes or pre-installed into the dense sand samples. Digital images of the model pile and sand are taken during both the installation and loading stages of each test and processed using the DIC technique to obtain the soil displacement and strain fields. The study provides key insights into the mobilization of shaft resistance in tensile and compressive loading for both displacement and non-displacement piles.

**Keywords :** digital image correlation, piles, sand, shaft resistance

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