

Suction Bucket Foundation (Multi-type) Experiment

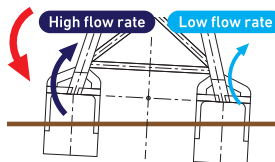
サクシヨンバケット基礎(マルチタイプ)実証実験

Laboratory Test

Soil tank experiment (Insertion and pull-out)

As in the monotype experiment, we verified the penetration of the bucket by pumping and draining water inside the bucket, and also conducted an experiment to control the inclination and vertical penetration by adjusting the drainage volume of each bucket. The model size was 0.7 m in diameter by 0.8 m in height, and each bucket was of the tripod type.

Tilt Control



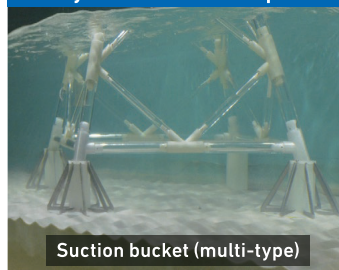
Soil tank experiment



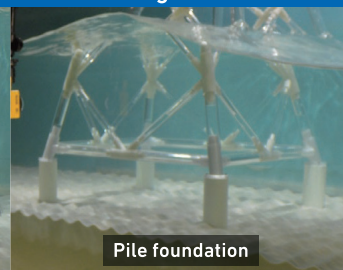
Hydraulic model experiment (Scour)

Since multiple suction bucket foundations (multi-legged type) are installed on the seabed in close proximity to each other, the water flow around the foundation is more complicated than that of a mono-legged type foundation, and there is concern that they may interact with each other in response to scouring phenomena. Hydraulic model experiments were conducted to understand such scouring characteristics.

Hydraulic model experiment for multi-leg foundations



Suction bucket (multi-type)



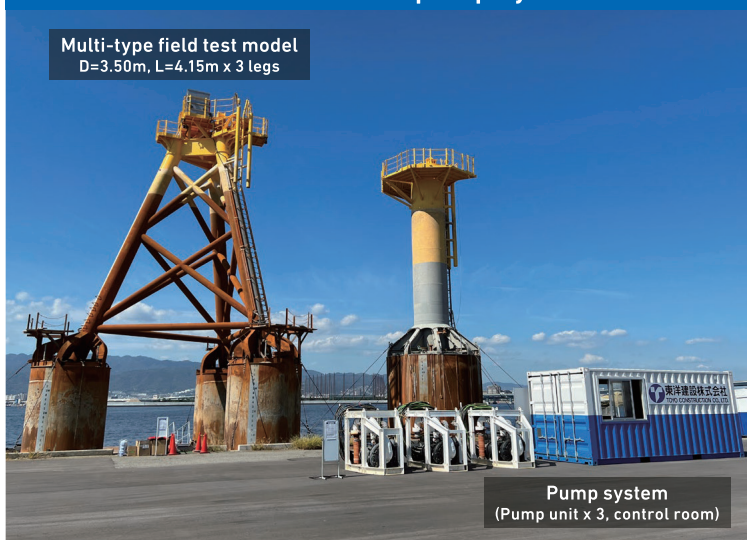
Pile foundation

Field Demonstration Test

After conducting laboratory soil tank tests, we conducted a demonstration test of a suction bucket test model (multi-type) about a 1/5 scale model size in order to verify the workability of a larger-scale model. For the penetration and pull-out work, a pump system developed in-house was installed on each bucket, and multiple pump units were operated and controlled from a control room located on board the work vessel. Since the multi-type can independently control the amount of penetration by adjusting the drainage volume of each individual bucket, we confirmed that the structure has sufficient control capability for the vertical accuracy required for offshore wind power foundations.

Field test model & pump system

Multi-type field test model
D=3.50m, L=4.15m x 3 legs



Pump system
(Pump unit x 3, control room)

Field test

