

SystemFS - geological survey

With a ground-mounted solar plant with driven piles, the subsoil must be regarded as part of the structure, as the effective forces of the plant are transmitted by the soil. In order to safeguard the structural safety of the plant, a foundation ground expertise is compulsory. For this purpose, load tests on the piles are carried out.

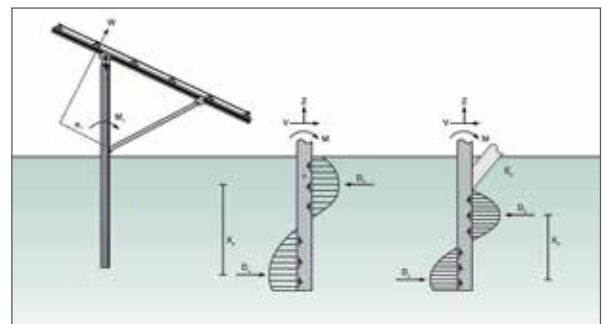
The piles that are driven into the ground and pulled out afterwards provide samples for the determination of the likeliness of corrosion in the soil.

- Inclined traction tests
- Horizontal pressure tests
- Creation of soil profiles
- Chemical analysis in a laboratory

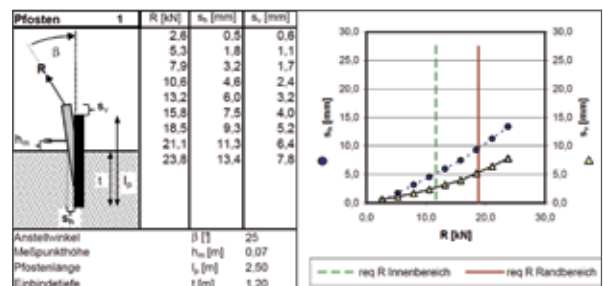


Inclined traction tests

The basic idea of inclined traction tests is that the wind impacts the inclined module area almost vertically. Thus, a surface pressure is created from the application of the bending moment in the form of a pair of forces. With inclinations higher than 15°, the frictional resistance between the pile and the surrounding soil is usually higher than the jacket friction which results in a greater pull resistance.



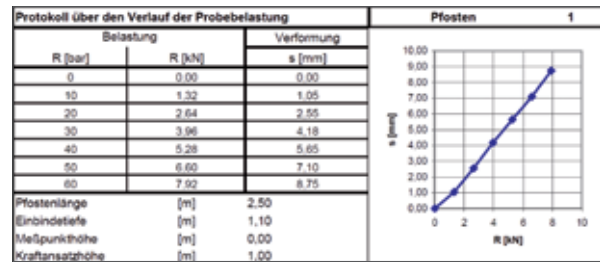
The position of the test points depends on the respective terrain and special geological situations like wet areas. According to the inclination of the modules, the load at the pile is assumed. With stepwise increase of the load, the deformation behaviour of the pile is documented.



Depending on the deformation behaviour, the anchoring depths of the tests were changed during the test in order to determine the optimum anchoring depth. The homogeneity or inhomogeneity of the soil determines the concentration of test points. Different soil behaviour leads to a differentiation of the construction ground with different anchoring depths. If the soil is very weak, the solar plant must be stabilized with reinforcements.

Horizontal pressure tests

Horizontal pressure tests. This procedure serves for the determination of the bedding modulus (horizontal compressive strength) of the subsoil. In this case, the pile is pressed horizontally against the ground with different load levels.



Creation of soil profiles

In order to get detailed information about the composition of the layers, the driven piles are pulled out again and after that the individual layers of the soil are determined by our experienced geologists on the basis of the soil sample gained by pile-driving. Moreover, it is determined whether or not pile-driving is possible.



Chemical examination

If steel or galvanized steel are inserted into the soil, the soil must be tested regarding its corrosive behaviour. For this purpose, a representative soil sample is taken out of the driven pile. Due to the procedure in the laboratory, the analysis of these samples takes at least 7 days. The evaluation of the results allows an exact conclusion regarding the expectable durability of the steel foundations in the ground (usually much longer than 50 years).

Evaluation

The results of these tests are compiled and displayed in a report. The company Schletter can offer the report in 10 different languages. If required, the customer can get the report in several languages.

