Pfahl+

Pile Foundation

With the new FRILO programme Pfahl+, the internal and external load-bearing capacity can be verified for bored piles with rectangular and circular cross-sections.

By linking the FRILO programmes SBR+ Soil Settlement and EDB+ Earth Pressure Calculation, both the soil settlements in the pile surroundings and the lateral pressure acting on the piles can be taken into account. By comparing the pile settlements and the soil settlements along the pile shell surface, an action from negative shell friction up to the neutral point can be optionally applied.

The axial pile resistances due to shell friction and peak pressure can be derived either by evaluating static pile test loads or on the basis of empirical values according to the “EA-Pfähle” (Recommendations of the working group on piles, published by Deutsche Gesellschaft für Geotechnik e.V.), separated according to the two limit states SLS and ULS. For a resulting tensile load in the pile, the axial pile resistances from shell friction are verified analogously. For tension piles, the verification of the safety against uplift (UPL) is optionally carried out with an attached soil prism.

When verifying the external pile load-bearing capacity in the horizontal direction, the user-defined pile bedding is transferred to deeper soil layers until the resulting stresses in the bedding no longer exceed the maximum possible earth resistance stresses.

The design of the reinforced concrete cross-sections is based on a non-linear calculation taking into account the additional loads according to theory II. order and the actual pile stiffnesses due to a freely selectable reinforcement.

Standards

- DIN EN 1997 / DIN EN 1992
- ÖNORM EN 1997 / ÖNORM EN 1992

Model

Any number of horizontal soil layers and a groundwater horizon can be defined.

A single pile or an entire group of piles with a circular or rectangular cross-section can be considered as a pile system. The design is always carried out on the individual pile without taking into account a pile group effect. By defining a pile group, the decisive lateral pressure on the individual pile can be derived according to EA-Pfähle.
A belled bored pile can optionally be taken into account for circular piles.

Interfaces to other FRILO- programmes

- SBR+
- EDB+
- B5+