Simplexpile

Full soil displacement
Driven pile
Fast construction progress
Possible applications

The FRANKI Simplexpile is a low-cost driven cast-in-situ concrete pile. It can be used in every case where vibrations and noise emissions are not a decisive criterion. It can be employed as a deep foundation element for construction works of all types, such as e.g. logistics centers, industrial buildings, crane tracks, wind energy systems and many others.

The Simplexpile can be equipped with polyester pipes so that the pile can also be used as an energy pile. With energy piles, geothermal heat can be used for the heating and cooling of buildings. Vertical piles as well as sloping piles tilted up to 4:1 are available.

The dimensioning and the manufacturing of Simplexpiles is implemented in accordance with DIN 1054 and DIN EN 12699.

Manufacturing process

The Simplexpile is a cast-in-situ concrete pile with recoverable driving pipe. This is closed off watertight below with a base plate. A hydraulic and diesel ram drives the pipe into the ground by means of head pile-driving.

The pile-driving work performed in this case (number of impacts/m) is a measure for the load-bearing capacity of the ground at the respective pile location. On reaching the set-point depth and/or the pile-driving criteria, a reinforcement cage is adjusted into place, filled with concrete and the advance pipe is extracted again, where the base plate remains in the ground in this case.

Environment friendliness

Due to vibrations and the noise emission, the pile system can be employed only with restrictions in case of neighboring developments. Because of the full soil displacement, the removal of ground is dispensed with and loosening of the ground is thus excluded. The pile system has proved itself many times with projects in contaminated locations.

Cost-effectiveness

Due to the short manufacture time with corresponding boundary conditions, the Simplexpile is particularly suitable for foundations with a large pile item number, as well as specified large binding lengths in the load-bearing foundation soil.

For the manufacture of the Simplexpiles KC pile-driving systems are available to FRANKI Grundbau with a possible pile-driving depth up to 40 m and Junttan hydraulic rams with a fall weight of 140 kN.

Frontispiece: 1.839 Simplex piles for Offshore-Wind factory from Siemens in Cuxhaven (Germany)

PCH Packing Center Hamburg, Wollkämmereistrasse, Hamburg: 1.400 Simplexplies

Construction of a new factory in southern Germany: 2.500 Simplexpiles

Monopile factory "Steel Wind", Nordenham: 2.950 Simplexpiles
**Foundation soil • Load**

Test loading on a Simplexpile Ø 42 cm

### Ground profil CPT

<table>
<thead>
<tr>
<th>Depth [m]</th>
<th>0</th>
<th>5</th>
<th>10</th>
<th>15</th>
<th>20</th>
<th>q [MN/m²]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concrete</td>
<td>0</td>
<td>5</td>
<td>10</td>
<td>15</td>
<td>20</td>
<td>25</td>
</tr>
<tr>
<td>Course clay</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medium-grain sand</td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>Course clay</td>
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<td></td>
<td></td>
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<tr>
<td>Fine-grain sand</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

### Resistance - Settling line

- **Pile resistance [MN]**
  - 0
  - 1
  - 2
  - 3

**Technological Data**

**Characteristic influence Eₘ**

<table>
<thead>
<tr>
<th>Diameter [cm]</th>
<th>Non-cohesive ground [kN]</th>
<th>half-solid cohesive ground [kN]</th>
</tr>
</thead>
<tbody>
<tr>
<td>42</td>
<td>1.400</td>
<td>1.000</td>
</tr>
<tr>
<td>51</td>
<td>1.800</td>
<td>1.300</td>
</tr>
<tr>
<td>56</td>
<td>2.100</td>
<td>1.600</td>
</tr>
<tr>
<td>61</td>
<td>2.400</td>
<td>1.800</td>
</tr>
</tbody>
</table>

The loading and pile diameters are to be coordinated to the respective soil conditions.

We would be glad to provide you with advisory services in this case!
Finished constructions

Logistic center, Hamburg-Billbrook: Simplexpile

“Elbcampus”, Hamburg: Simplex- and Atlaspiles

Sail City, Bremerhaven: FRANKI, Simplex- and Atlaspiles with geothermal use

Hamburg-Altenwerder 1 Logistic Center Kühne+Nagel, 2 Logistic Center Altenwerder II, 3 Logistic Center BUSS, 4 Cool Center FRIGO: Simplexplies

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