INTERNATIONAL DRILLING EQUIPMENT, INC.

SIP & T

Rotary Drilling Tools

FDP tool *Full Displacement Piles*

Soil Displacement piles are bored cast in situ concrete piles constructed by advancing a displacement boring tool into the ground with a rotary drilling rig using both torque and crowed force.

The technique is ideally suited for a wide spectrum of soil conditions ranging from sandy gravel, sand, silt and clay to soft organic soils, so long as the soil is displaceable.

The particular advantage of Full Displacement Pile is the relatively simple technology, in which no temporary casings are used.

While the full displacement tool is screwed into the ground with the lower opening plugged by a bottom plate. The soil gets completely displaced and thus compacted.

The boreholes stays dry without any excavation taking place. This silent and vibration free drilling method is highly suitable for jobs where the existing ground water table cannot be disturbed, or if the soil is contaminated. Contaminated soil is excluded on jobs so that adjacent buildings are protected.

The borehole wall is supported at all times and the risk of collapsing is eliminated. During the concreting process the full displacement auger continues to turn clockwise while being extracted, so that the tangential reamers create spiral-like grooves in the borehole wall.

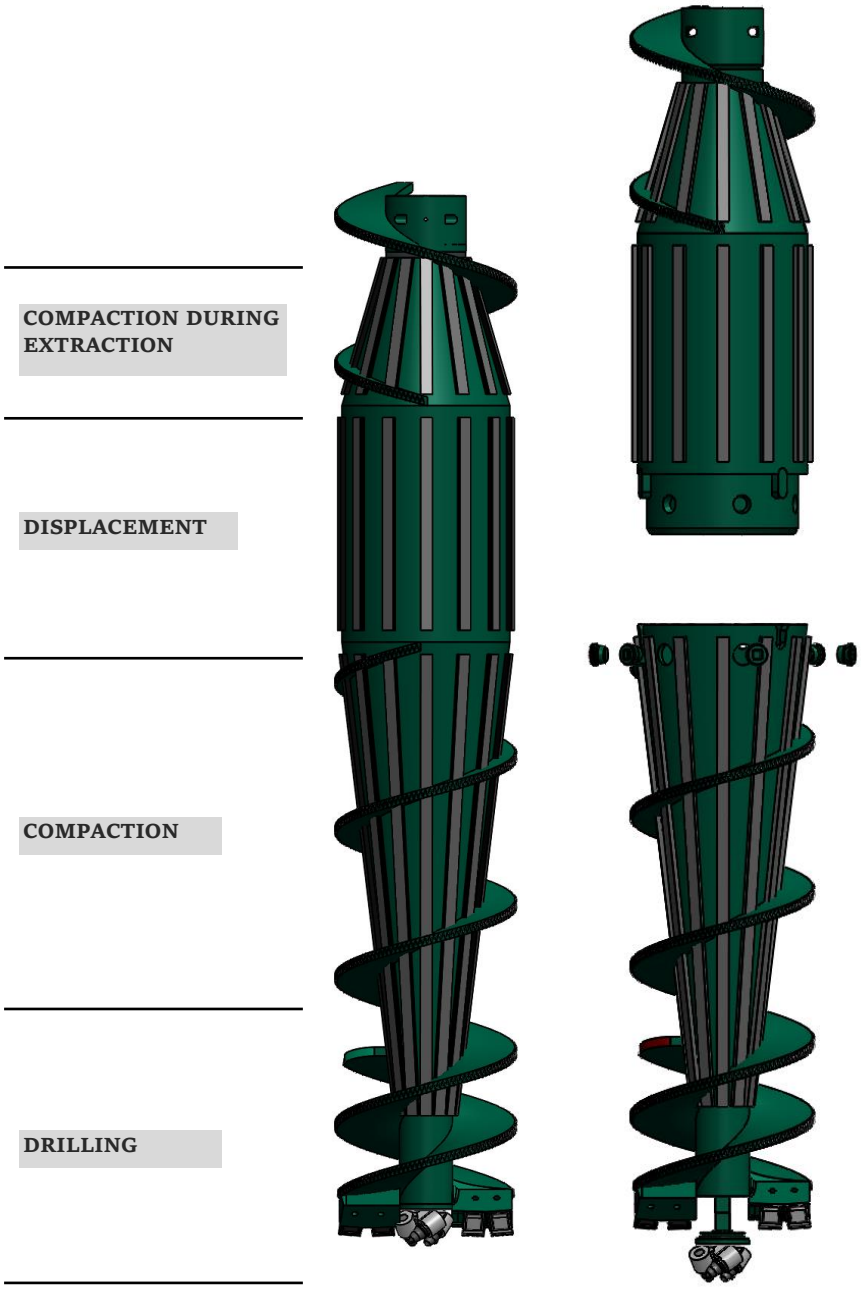
These grooves are filled by the static pressurized concrete and thus the load-carrying capacity of the pile increases considerably.

With FDP technique it is possible to have piles in diameters between 250 and 1000 mm.

Under normal working condition Full Displacement Pile can be produced to an inclination ratio of up to 4:1. The use of IDE joints allows it to transfer torque moments up to 600 kNm.

The IDE Full Displacement Tools guarantee a cost efficient, environmentally friendly and safe production of cast-in-situ concrete piles with a vibration-free drilling method.

FDP – STANDARD METHOD



FDP Standard: a hollow steam auger displaces the material of the pile diameter laterally into the adjacent ground. After reaching fi nal depth, the auger is retracted (it is rotated in drilling direction) whilst simultaneously concreting through the hollow stem. Subsequently the reinforcement cage is installed using a vibrodriver.

FDP tool can be manufactured as one piece or in two parts so that with an extended starter auger it is possible to drill through thinner non displaceable formations.

Main technical details are indicated below

- Hollow Stem with single or double wall
- Pipe steel quality ASTM 516/70
- Stem outer diameter and its thickness on request
- Stem inner diameter and its thickness on request
- Couplings size on request
- FDP with Male or Female coupling on request
- One auger flight 360° anticlockwise
- Displacement body length on request
- Displacement diameter on request
- Flights thickness and pitch on request
- Tung Studs HB 900 on the flights
- Antiwer bars in Ni-Cr-Mo
- Blades in special steel
- Double cutting head
- Teeth or Round Shank Chisel on request
- Pilot bit on request
- Concrete opening system with chain, mechanical system or lost plate
- Different usable lengths are available on request

DRILLING DIAMETER (mm)	350	400	450	500	550	600

FDP – LOST BIT

FDP Lost Bit: It differs from the standard technique by a detachable (sacrificial) bottom drill bit, a hollow drill stem with a larger internal diameter and a concrete hopper that is mounted at the top of the hollow stem.
Drilling the displacement tool into the ground causes the soil to loosen by the use of the starter auger. It is then pushed laterally into the surrounding soil by the displacement body.
On reaching the final depth the reinforcement cage is inserted into the hollow drill stem so that the bottom drill bit is lost.
During extraction of the displacement tool, concrete is simultaneously discharged by the concrete hopper and placed unpressurised in the pile trough the hollow drill stem.

DRILLING DIAMETER (mm)	450	500	550	600	650	700

Specifications shown are only indicative and subject to alterations without prior notice

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