

# Cementation

## SKANSKA

Further information:  
**Cementation Skanska**  
skanska.co.uk/cementation  
cementation@skanska.co.uk

# Auger Displacement Piles

### Application

Suitable for use in loose to medium dense granular soils and soft cohesive strata.

Nominal diameters available 400, 500 and 600mm, carrying loads of up to 1200kN

### Advantages

- Minimal spoil to remove
- Quiet, vibration-free installation



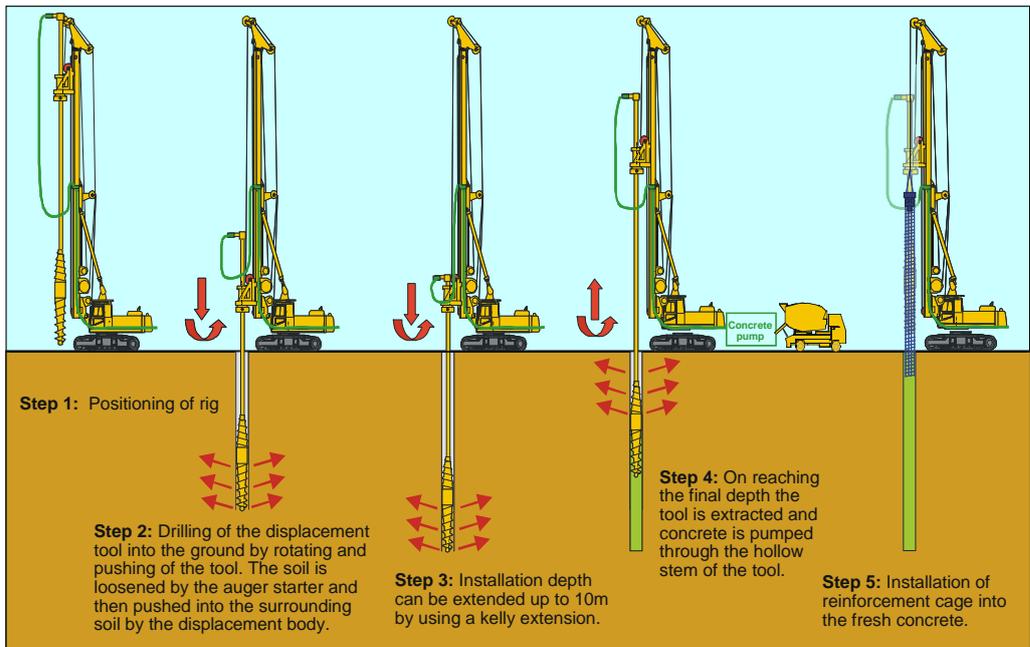
Our auger displacement piling (ADP) system offers a quick, quiet and virtually vibration free alternative to driven type piles, for use in urban situations. Like driven type piles, the ADP system generates minimal spoil reducing the costs of disposal, an important consideration in the regeneration of brownfield sites. The system is ideally suited to loose to medium dense granular soils and soft clays and silts, and notably is very effective in soils that are susceptible to "fighting".

Like the CFA method, the tool for the ADP system is built around a hollow stem auger but is differentiated by the tapered shaft and full-displacement body, immediately behind the tip of the auger (see photo above). As the auger is introduced into the ground, the soil within the auger flights is displaced outwards over the tapered

section, and the surrounding soils compacted. As a consequence of this displacement action, the soil is densified and the shaft resistance of the pile enhanced.

Once the tool has reached the desired depth and/or installation criteria, it is extracted with concurrent concreting of the pile under pressure via the hollow-stem auger, in a similar manner as for a CFA type pile. Boring and concreting parameters are captured by onboard instrumentation (an example of which is illustrated overleaf) enabling the consistency of the installation process to be monitored and to ensure that a quality load bearing element is produced.

Our installation process is illustrated in the schematic diagram overleaf.



| PRODUCTION LOG, SOIL DISPLACEMENT PILES |                                |   |                                    | Cementation<br>SKANSKA                  |  |
|---|--------------------------------|---|------------------------------------|---|--|
| Jobsite: Clvde St Glasgow               |                                | Client: Cementation Skanska                                       |                                    | Project No.: GLASGOW                    |  |
| Drilling Rig: BG18 H #443               | Rotary Drive: I-No.:           | Pile No.: TP420   | Plan No.:                          | Date: 07.11.2002                        |  |
| Operator: David Tallintye               |                                | Diameter: 420mm   | Inclination: 0°                    | Elevation MSL: 4 m                      |  |
| Concrete: 30 N/mm <sup>2</sup>          | Cement: OP-BLEND               | Nominal pile toe: -6m   | Actual pile toe: -6.13m            | Nominal pile length: 10m                |  |
| Grain size: 5 - 20 mm                   | SFA: 46%                       | Actual pile length: 10.13m  | Empty bore length: 0.00 m          | Act. concrete consumpt.: 1.8 cbm        |  |
| Consistency:                            | WIZ: 0.55                      | Nom. concrete consumpt.: 1.4 cbm                                  | Excess consumption: 0.4 cbm        | Reinforcement acc. to Plan No.: 4T25 FD |  |
| Test cube: Yes                          |                                | Vibrating aid: No   |                                    |   |  |
| Delivery note No.: .....                |                                |   |                                    |   |  |
| Drilling start: 11:39:50                | Start of concreting: 11:51:19  |   |                                    |   |  |
| Drilling end: 11:50:40                  | End of concreting: 11:54:42    |   |                                    |   |  |
| Total time: 00:14:51                    |                                |   |                                    |   |  |
| <b>Pile profile</b>                     | <b>Concrete pressure [bar]</b> | <b>Penetration Rate [min/m]</b><br><b>Withdrawal Rate [min/m]</b> | <b>Number of rotations [U/min]</b> |   |  |
| 0,0                                     | 0,0                            | 0,0   | 0,0                                |   |  |
| 1,13                                    | 1,13                           | 1,13  | 1,13                               |   |  |
| 2,25                                    | 2,25                           | 2,25  | 2,25                               |   |  |
| 3,38                                    | 3,38                           | 3,38  | 3,38                               |   |  |
| 4,5                                     | 4,5                            | 4,5   | 4,5                                |   |  |
| 5,63                                    | 5,63                           | 5,63  | 5,63                               |   |  |
| 6,75                                    | 6,75                           | 6,75  | 6,75                               |   |  |
| 7,88                                    | 7,88                           | 7,88  | 7,88                               |   |  |
| 9,0                                     | 9,0                            | 9,0   | 9,0                                |   |  |
| 10,13                                   | 10,13                          | 10,13   | 10,13                              |   |  |
| Soil profile No.: CPT 4                 |                                |   |                                    |   |  |
| Comments                                |                                |   |                                    |   |  |
| Supervisor:                             |                                | Client:   |                                    | <br>X:0.00mm<br>Y:0.00mm                |  |