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Centrum Prefab Screw Pile - CPSP

A prefabricated displacement pile with noiseless and vibration free installation

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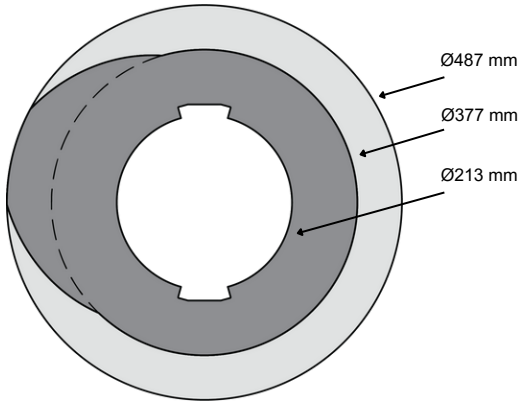
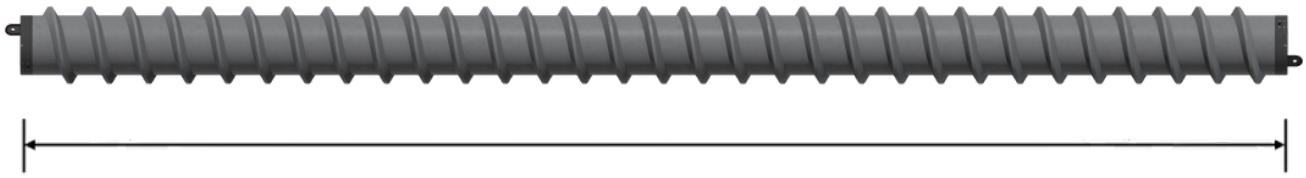
The screw pile is a prefabricated concrete foundation pile. The pile is designed with an external thread along the entire length and a steel tip connected to the bottom. It has a center void for installation by means of a custom-made drive rod mounted on a drilling rig. The screw pile is a displacement pile with noiseless and vibration-free installation.

Standard element length	8 m
Diameter on external thread	487 mm
Diameter on exterior center	377 mm
Diameter on interior center	213 mm
External thread pitch	250 mm
Nominal cover on the outside	35 mm
Nominal cover on the inside	25 mm
Cover tolerance	+/- 5 mm
Exposure classes on the outside	XC4, XD1, XS2, XA2 (agressive environment)
Exposure classes on the inside	XC4, XA2 (moderate environment)





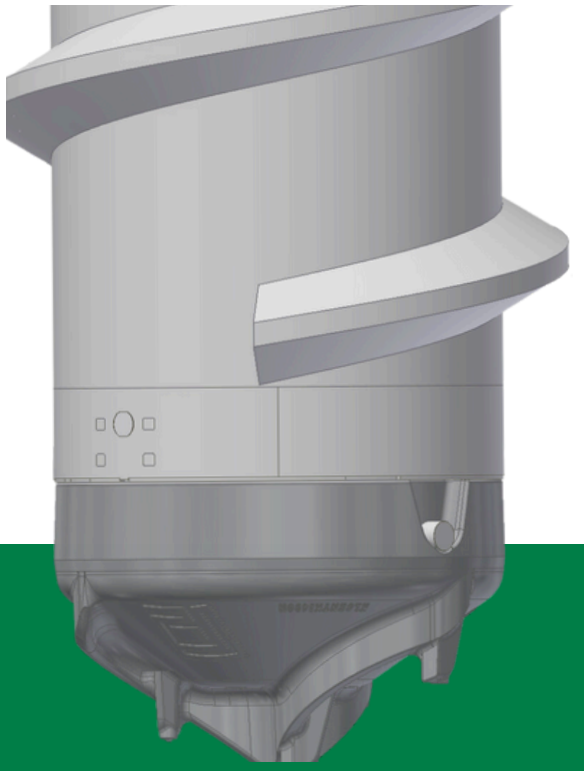
Standard length: 8 m per segment

Advantages of CPSP

The screw pile has several advantages, depending on whether it is compared to in-situ or impact driven prefabricated piles.

The restrictions on noise and vibration levels for the realization of pile foundations in densely populated areas increase. Therefore, the Centrum screw pile is now being introduced in Northern Europe.

In addition to the many advantages of prefabricated piles enabled by modern industrial manufacturing, with a high level of quality and value chain control, stringent environmental considerations during installation can now also be accommodated.



CPSP system benefits

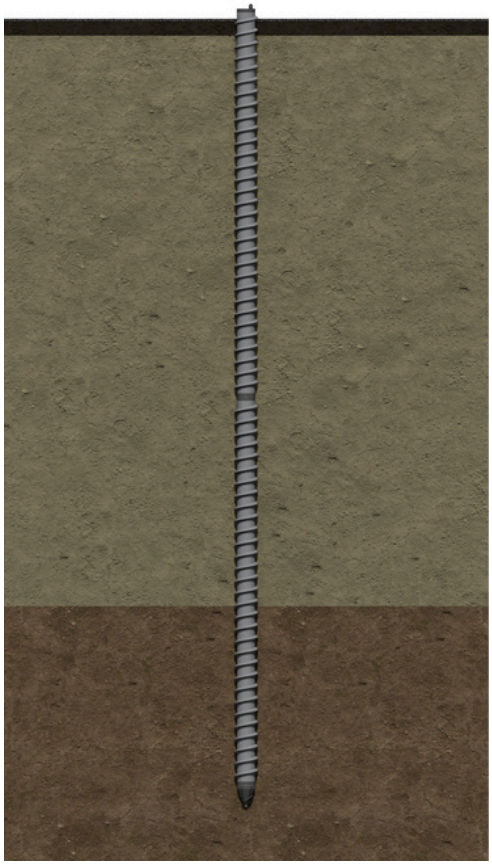
- **Low noise during installation without noise peaks**
- **Vibration free installation as the pile is screwed into the soil**
- **No leaching to surrounding soil**
- **No excavation of soil and handling of spoils**
- **Well-defined cross-section**
- **Center void saves concrete**

Scope of Application

CPSP is particularly suitable as a pile foundation element in cohesive soil types with shear strengths up to 200-300 kN/m^2 and in non-cohesive soils with CPT cone penetration test q_c values up to 10-15 MPa.

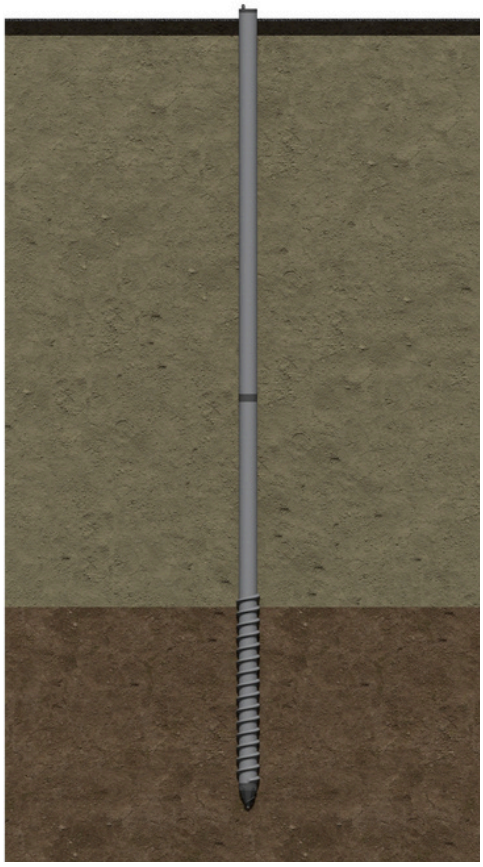
Standard application

The standard application is suitable for compression and moderate bending loads. Pile segments can be coupled using pile joints. External thread along the entire lenght.



Application with a smooth top pile

Upper segment without threads, to reduce negative skin friction in fills and/or soft soils.Pile segments can be coupled using pile joints. Segment of smooth upper pile and lower pile segment with external thread.



It is reccomended to verify the design with static and/or dynamic tests.

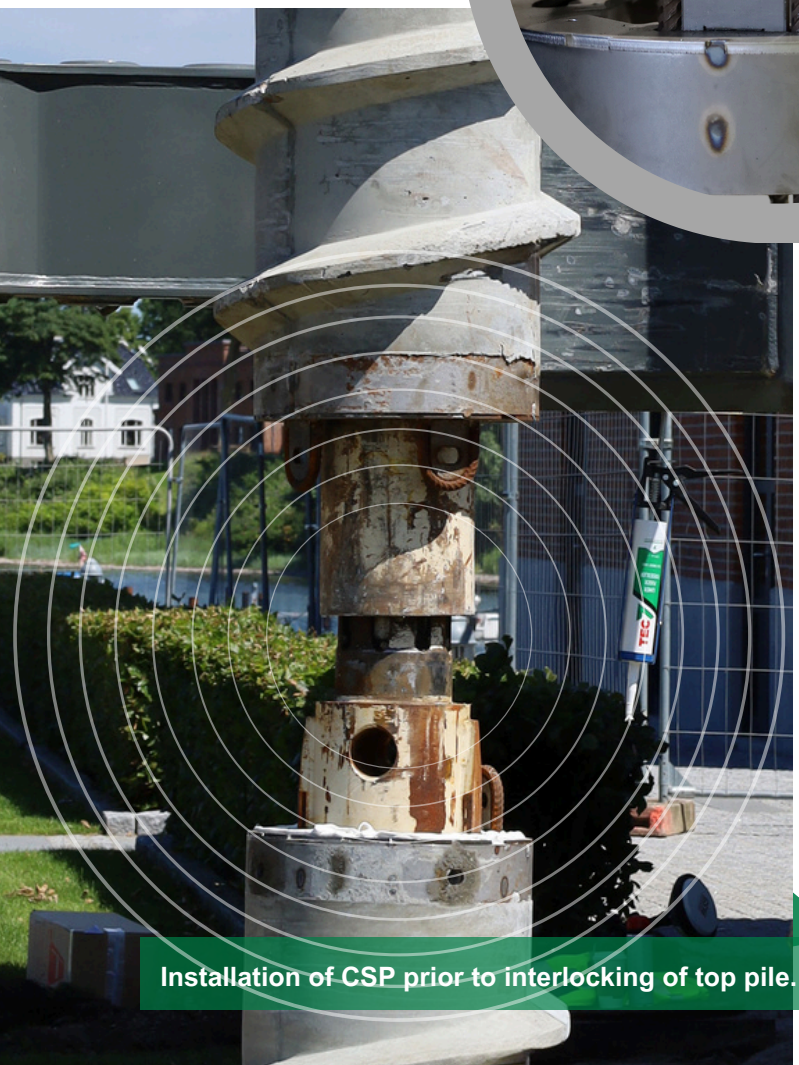
Installation

For the installation of CPSP, a special driving rod is required for the installation of the CPSP, and a drilling rig with a torque capacity of at least a BG 28, or equivalent, is needed.

By means of a specially developed pile joint solution, the CPSP elements are fitted with a drilling point at the bottom and, at the top, connected to the next pile element if pile lengths exceeding 8 m are required. Furthermore, the top pile joint serves as a lifting point during the installation when connected to a special lifting bracket.

During installation, a pitch of 250 mm/rotation shall be maintained to avoid overdrilling.

Installation of bottom pile



Installation of CSP prior to interlocking of top pile.

CPSP

Pile joint principle

The CPSP pile joint solution is developed and patented by Centrum Pile.

The pile joint ensures tensile and compressive strength, as in equivalent piles without pile joints. The tip is mounted to the pile using the pile joint.

The installation process

In 4 simple steps

1 Insertion of drive rod.

The double key drive rod is installed through the entire length of the pile, resting at the steel tip.

2 The pile is screwed into the ground with the drive rod.

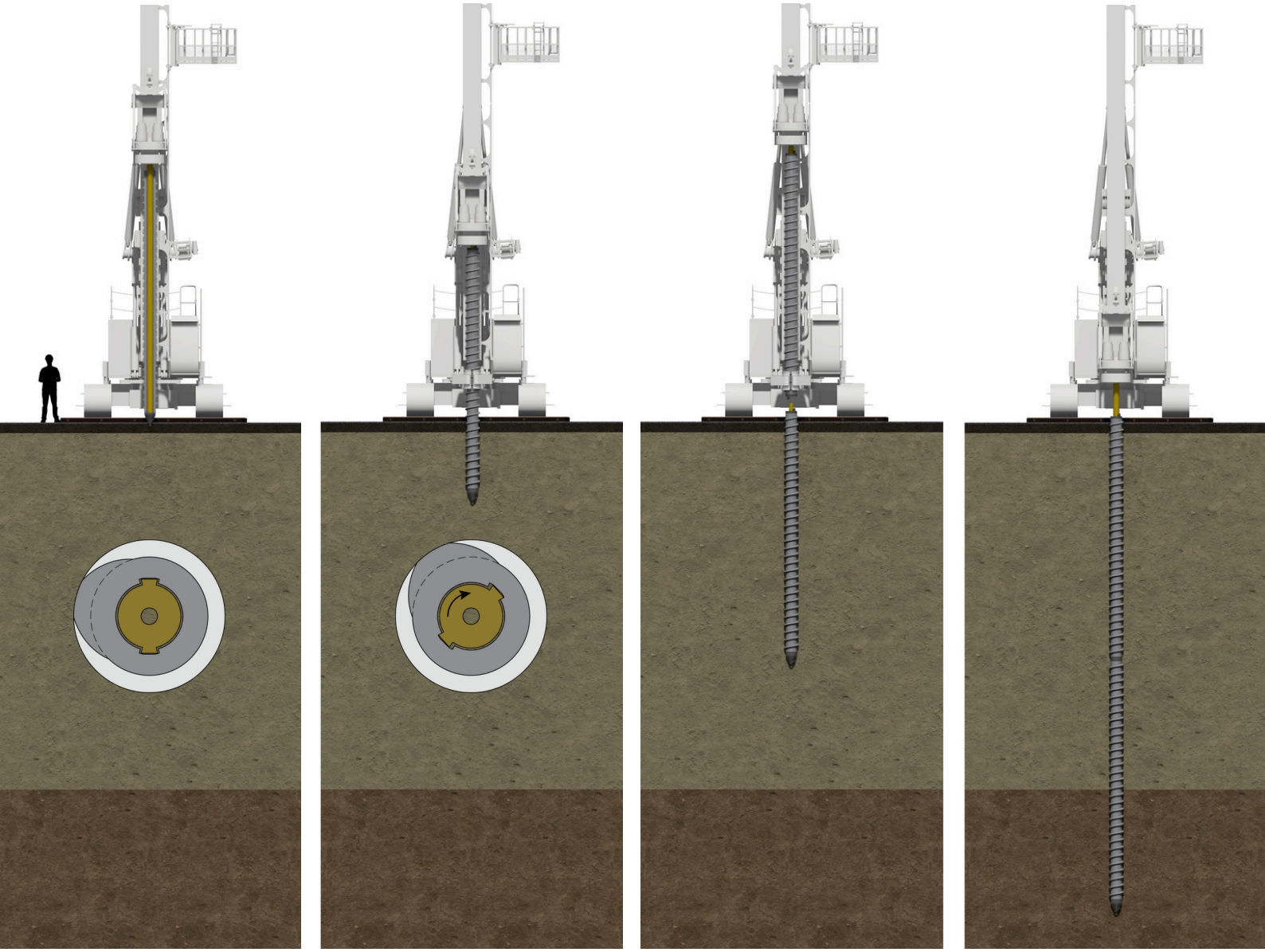
Above bearing ground level, installation pitch (advancement per rotation) less than 250 mm is allowed.

3 Joining of pile segments.

For a total pile length greater than 8 meters, multiple pile segments are used. The drive rod and pile are joined using a pile joint.

4 Installation continues to the specified depth.

Embedding below bearing ground level must be done with a pitch (advancement per rotation) of 250 mm, corresponding to the pitch of the external thread.



CENTRUM

Our team of experts are happy to advise on the suitability of the CSP concept and assess appropriate pile lengths for your project.

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