

# Photovoltaic phc pipe pile connection bracket welding

Is a PHC pile foundation a reliable support structure for heliostats?

A comprehensive design program is proposed based on field tests and numerical simulations, considering deformation and bearing capacity. The study confirms the reliability of the PHC pile foundation as a support structure for heliostats, aiming to offer valuable insights for practical applications.

How are PHC piles connected?

Piles are connected by welding the steel joint plates together to the required total length. PHC piles are historically known as Daido piles in Hong Kong although the name may be technically incorrect.

Can gas arc welding be used for PHC piles?

For PHC piles, as no tension is generated in the pile during jacking, gas arc welding can be used to connect sections of pile, resulting in a significant reduction in construction time and potential damage to the pile. Many construction problems associated with percussion of PHC piles are also eliminated.

What is a PHC pile?

PHC piles are historically known as Daido piles in Hong Kong although the name may be technically incorrect. The original Daido piles were made in Japan where they are installed as replacement piles, as they are inserted into prebored holes followed by grouting of the annular void space between the pile and the prebored hole.

Is the PHC pile still elastic under cyclic loads?

Clearly, under cyclic loads of 6 kN·m and 12 kN·m, it could be considered that the PHC pile was still in the elastic stage. This indicated that the loading and unloading stiffness of the foundation structure was not degraded by repeated action under normal operating conditions.

How is a PHC pile spliced?

The pile is technically a non-displacement pile. PHC piles are mechanically spliced by screws. The required tightening torque exerted on the screws is measured by a torque meter. The screw tightening sequence is also clearly indicated as shown in Figure 3 and it is strictly followed on site.

support load of the PHC pile is approximately a half that of the steel H-pile. Typically, the required length of the PHC pile is shorter than that of the steel H-pile to achieve the similar design load-carrying capacity on site, as the side resistance normally developed along the shaft of the PHC pile is higher than that of the steel H-pile.

A technology of PHC pipe piles and photovoltaic brackets, which is applied to the support structure of photovoltaic modules, photovoltaic modules, photovoltaic power generation, etc., ...

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Bridge. High-strain dynamic load tests were carried out for extra-long PHC pipe piles to test and record the pile penetration, elastic deformation, bearing capacity, hammering efficiency, and other parameters. The pile number of the prefabricated pipes pile was P X to P, and test sections were set at different locations.

Pile foundation has unique advantage in reducing the settlement of the upper structure and improving the foundation bearing capacity, while Drilling with PHC Pipe Cased Pile (DPC Pile) is a newly ...

A pretensioned prestressed high strength concrete pipe is called a PHC pile for short [1,2,3,4] s bearing capacity includes vertical bearing capacity, horizontal bearing capacity and seismic bearing capacity [5,6,7,8,9,10,11,12]. A single pile static load test is currently the most reliable method for a quality inspection of pile foundation engineering, and it is also a method ...

Prestressed high-strength concrete (PHC) pipe piles have been widely used in engineering fields in recent years; however, the influencing factors of their ultimate bearing capacity (UBC) in ...

In this study, an innovative PHC-steel composite (PSC) pipe pile was proposed, and static load tests were conducted on three PSC pipe piles in the field. Fibre Bragg grating ...

Prestressed high-strength concrete (PHC) pipe piles have been widely used in engineering fields in recent years; however, the influencing factors of their ultimate bearing capacity (UBC) in multilayer soil need to be further studied. In this paper, a static load test (SLT) and numerical analysis are performed to obtain the load transfer and key UBC factors of pipe ...

The seismic performance of PHC pile-to-pile cap connections was tested by Wang et al. (2014a, b), and the failure modes ... (2014) Experimental study on seismic behavior of PHC pipe piles with steel fibers. Build Struct 44:10-14. Google Scholar Xian R (2013) Experimental research on aseismic behavior of prestressed high strength concrete pipe ...

Where a welded pipe can often be repaired in place, a screwed system requires disassembly and reassembly for repair. This obviously increases labour costs and downtimes for the pipe system. 5. Fewer Leaks. A welded pipe is generally ...

Yang et al. [14, 15] carried out experimental and numerical investigation on the seismic performance of PHC piles under lateral cyclic loadings, and the results showed that the concrete infilling could only enhance the bearing capacity of PHC piles, whereas adding non-prestressing deformed rebars could markedly improve the bearing capacity as well as ...

Helical piles have become the go-to foundation system for freestanding solar arrays. Helicals offer a wide variety of terminations to adapt to virtually any solar array connection detail. In addition, helical piles can resist compressive, tensile, and lateral forces making them more versatile.

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Full penetration butt welds or fillet welds shown are commonly used for splicing pipe piles. Pipe piles can also be spliced with patented splicers similar to the one shown. This splicer is fabricated from ASTM A 36 steel and is designed with a ...

PHC pipe pile is a finished pile, and the concrete has already reached the age when it leaves the factory, while other pile types (such as cast-in-place piles) cannot be inspected until the concrete ... quality problems of pile connection and weld, inconsistency between the loading center of pile frame and the pile center, blind increase of ...

Wei and Wang (2017) investigated the influence of the corrosion of the welded joint on the PHC pipe pile, and found that as the corrosion degree increases, the horizontal bearing capacity ...

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This paper presents a detailed exposition of the field test results of PHC short piles under lateral load, coupled load, and cyclic load conditions. Eleven PHC short pile ...

high-strength concrete pipe piles (PHC pipe piles) and cap beams. Usually, finite element analysis or numerical simulation is used to numerically analyze the connection, pull-out performance,

Prestressed high-strength concrete (PHC) pipe pile has the advantages of high single pile bearing capacity, a wide range of applications, good driving resistance, fast construction speed, etc.

Pile points that are welded to pile toes are often used for this application. A steel load transfer cap is not necessary if the head of the pile has been sufficiently embedded in a concrete cap. ... Steel Pipe Piles. Pipe piles are usually made of seamless, welded, or spiral welded steel pipes that vary in wall thickness and diameter. Larger ...

As a result, only PHC piles of diameter 500mm and thickness 100mm or 125mm can be inserted into the steel temporary casing. Moreover, 8 50-mm diameter reinforcement bars can be ...

Plaxis 2D software (V22.01.00) was used to establish a PHC pipe pile composite roadbed model and investigate the effects of tie beam form, pile lengths, pile spacings, pile verticality, and ...

Based on the bending performance test analysis of the hollow and grouted PHC pipes, suggestions about correcting the cracking moment calculation method for PHC pipe piles are proposed.

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Subsequently, the upper steel plate is welded to the reinforcement of the filling core, and connection bars are welded to the upper steel plate. Finally, the prefabricated cap beam is connected to the piles via UHPC grouted ducts. ... The CIP specimen was prepared following the construction procedure typical for conventional PHC pipe piles ...

To study the effect of welding misalignment on the seismic performance of pre-stressed high strength concrete pipe pile, a numerical model of pre-stressed high strength concrete pipe piles with ...

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