MAGNUM PIERING® Grouted Helical Piles

Method #1: Pressure Grouted Helical Pile with Grout Ports
Used to Create Up to 12" Grout Columns

Advantages

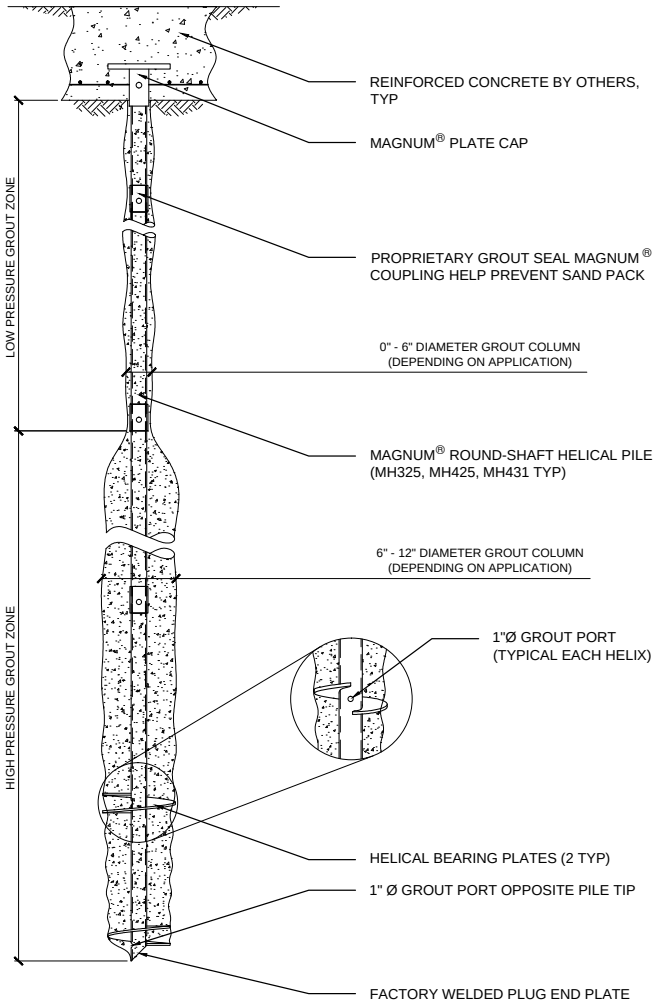
- Control grout-take to reduce downdrag effects
- No practicable depth limitations
- Avoid excess grout-take
- First used in 1952 by Franz Dyche

Description

Magnum®'s Grouted Helical Piles utilize round-shafts with grout ports at each helix and at the pile tip. Pressure grouting ensures grout-take occurs as pile advances. This method has been successfully used to create up to 12" diameter grout columns to provide additional lateral and axial capacity. Pressure grouting is accomplished using a grout swivel attached to the torque motor. By pumping grout actively under pressure at a controlled rate, this method helps ensure a consistent diameter grout coumn throughout the length of the pile during installation.

The Magnum Piering® Grouted Helical Pile consists of a factory welded plate at the pile tip with a 1" diameter grout port opposite the mitre, followed by a 1" diameter grout port located at each helix. Grouted helical piles typically have 2 helices. Any Magnum® helical pile can be used. The most common helical pile types are the: MH325, MH425, and MH431 Magnum® helical piles. To prevent sand pack, extension couplings are equipped with Magnum®'s proprietary grout seal.

Downdrag can reduce pile capacity due to negative skin friction along the upper grouted section should settlement/consolidation occur of the surrounding soft soil under its self-weight and any applied loads at the surface. To help minimize the effects of downdrag a smaller grout column can be formed in the upper soft soil zone by using a lower pressure and grout-take at the beginning of pile installation, and then increasing both the pressure and grout-take at some depth below grade.



Installation

Attach grout swivel to torque motor per manufacturer's recommendations. Begin pumping grout through pile after all grout ports are below grade. Grout shall be pumped at a controlled rate and pressure to ensure a consistent diameter grout column the desired length of the pile. Once the pile has been installed to the desired depth the pile is terminated and cut to elevation. A Magnum® plate cap is then installed for attachment to structure.

Contractor shall keep complete records of all grouting operations. These records include, but are not limited to; time logs of grout mixes, admixtures, related pressures and pumping rates, uptake volumes, torque and depth logs, and observation of non-routine conditions. The maximum installation torque for the pile shall not be exceeded.

Magnum Piering, Inc.
6082 Schumacher Park Dr.
West Chester, OH 45069
800-822-7437
www.magnumpiering.com

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