

**CHANCE® WIRE-READY
INSTANT FOUNDATION® SYSTEMS**

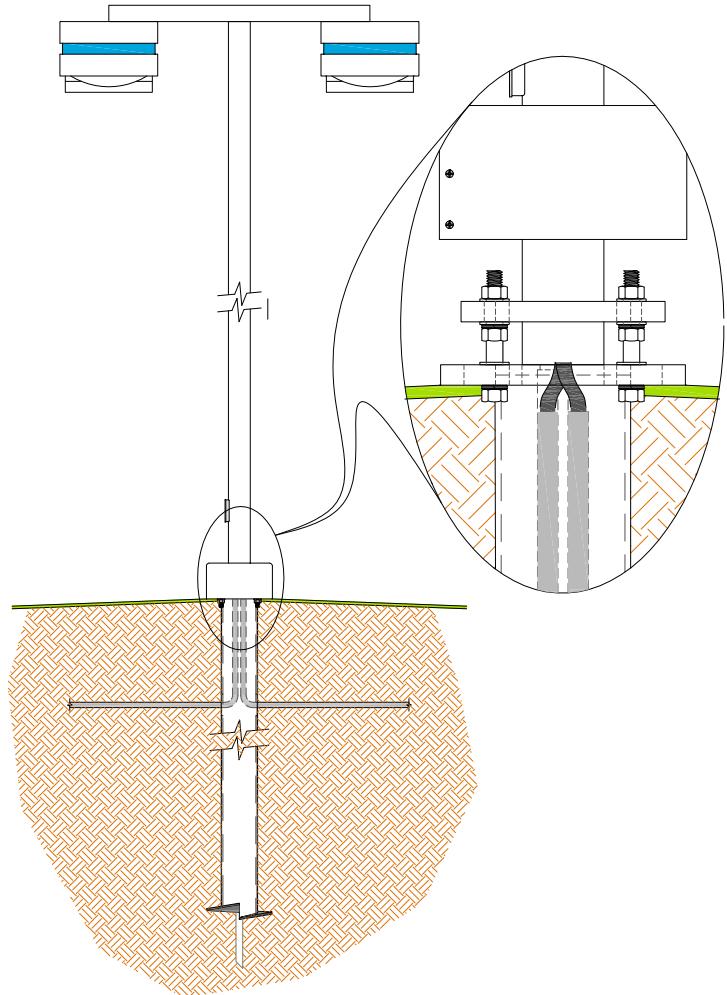
INSTALLATION GUIDE



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Purpose: To train contractors on the proper installation of Chance steel helical foundations





See the labeled image to familiarize yourself with the parts of the Chance steel helical foundation.

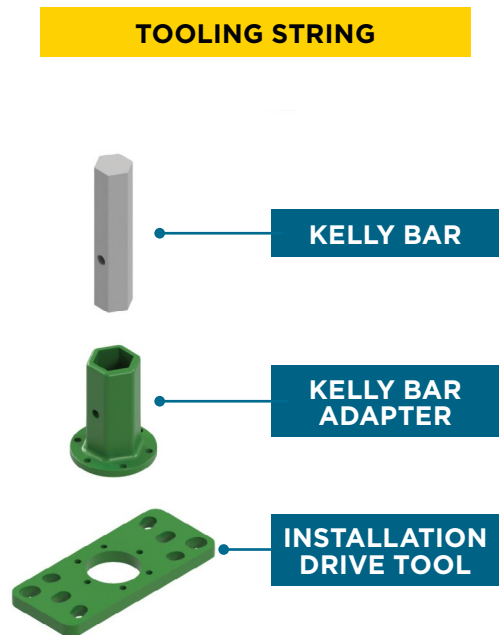
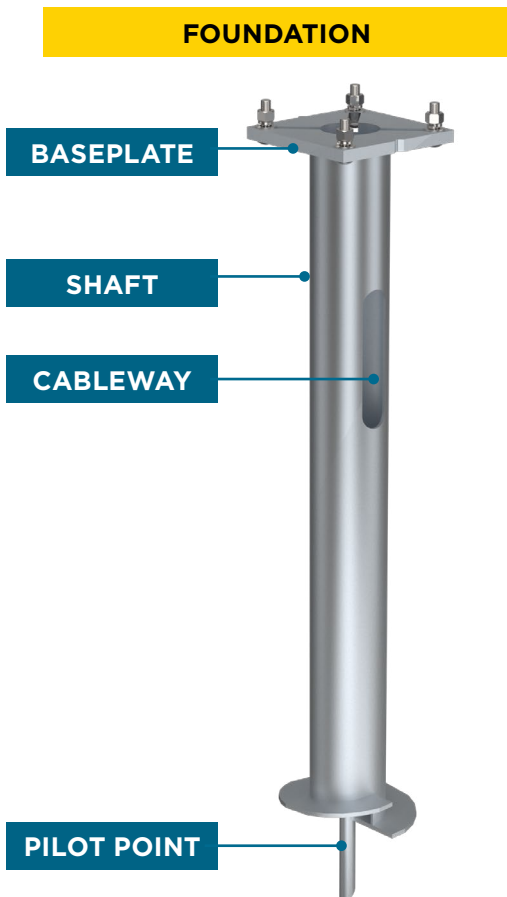
The baseplate is a square plate where the foundation sits and is connected to the light pole, using hex or carriage head structural bolts, or studs.

The shaft is a hollow pipe, allowing conduit to pass through the cableway and up to the light fixture.

Two cableways, 180 degrees apart, allow several light fixtures to be daisy-chained together.

The pilot point is not a structural member but does allow precise placement of the foundation during installation.

A Chance Helical Streetlight Foundation is connected to the truck's Kelly bar using a Chance Kelly bar adapter and locking dog drive tool. Shown here is a typical tooling string which includes a Kelly bar adapter and locking dog drive tool.



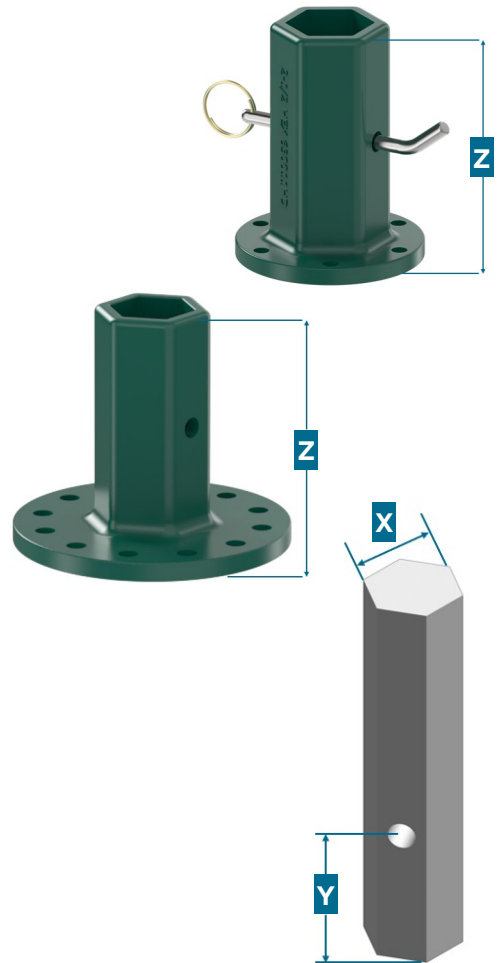
KELLY BAR ADAPTER SELECTION

Select the Kelly Bar adapter based on the size of the hydraulic motor drive shaft (Kelly bar). Several options are available based on the dimensions and shape of your Kelly bar and the required installation torque. This information is also in the Chance Instant Foundations Product catalog, available to download on chancefoundationsolutions.com.

Each Kelly bar adapter comes with 1/2" Grade 5 bolts, nuts, lockwashers, and a bent-arm pin with coil lock. Remove the auger from the driver and carefully measure the X and Y dimensions of the Kelly bar as shown.

Match the shape of the Kelly bar and the X and Y dimensions with the chart below. The Y dimension on the Kelly bar adapter must be equal to or greater than the Y dimension on the intended Kelly bar.

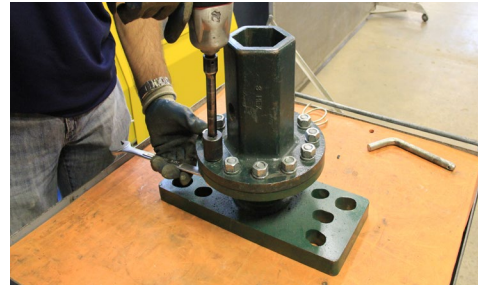
Chance anchor installing tools are provided with appropriate bolt circles for the expected service. The torque limitations for the two standard bolt circles are given in the chart. Never exceed the rated torque of any Chance installing tool.



Catalog No.	Kelly Bar Shape	Dimensions			Weight (lb)	Installation Torque (ft-lb)	# Bolt Holes (Bolt Circle Diameter)
		X	Y	Z			
630017	Square	2-1/4"	2-1/4"	3-1/2"	10	10,000	6 (5-1/4")
630013	Hex	2"	5"	6-1/8"	10	10,000	6 (5-1/4")
630013A	Hex	2"	3-1/4"	6-1/8"	10	10,000	6 (5-1/4")
630012HD	Hex	2-5/8"	4-1/4"	8-1/8"	12	10,000	6 (5-1/4")
630011HD	Hex	2-1/2"	4-1/4"	8-1/8"	12	10,000	6 (5-1/4")
C3030936	Hex	2-1/2"	4-3/8"	8-1/4"	23	30,000	12 (7-5/8")
C3030937	Hex	2-5/8"	4-3/8"	8-1/4"	23	30,000	12 (7-5/8")
C3030940	Hex	3"	3-1/2"	8"	27	30,000	12 (7-5/8")
C3030955	Square	2-1/2"	2-1/4"	7"	22	30,000	12 (7-5/8")
C3030958	Square	3"	3-1/2" & 2-1/16"	7"	23	30,000	12 (7-5/8")

STEP 1

- Select an appropriate Kelly Bar adapter based on the size of the hydraulic motor drive shaft (Kelly bar). See previous page for details.
- Attach the appropriate Kelly Bar adapter to the universal drive tool using the 6 hex head bolts and spring lock washers supplied with the manufacturer's Kelly bar adapter assembly.
- Tighten the bolts to $\frac{1}{4}$ turn past hand tight.



STEP 2

- Center the drive tool assembly on the foundation base plate and attach using the two hex head drive bolts (provided) into the corresponding drive holes.
- Or, use two of the base plate mounting bolts to attach the foundation to the Drive Tool using corresponding drive holes with matching bolt circle.



STEP 3

- Stand the foundation upright and attach the Kelly bar to the Kelly bar adapter.
- Secure with bent arm pin and coil lock provided by the manufacturer.



STANDARD INSTALLATION INSTRUCTIONS

STEP 4

- Raise the Kelly bar until the foundation swings free of the ground.
- Move the foundation and tooling string until the pilot point is located above the marked installation location. The pilot point is not a structural member, but aids in precise placement when beginning the installation.



STEP 5

- Lower the foundation until the pilot point is forced into the ground and the helix is flush with the ground.



STEP 6

- Use a carpenter's level to plumb the foundation in two directions 90° from each other.



STEP 7

- Apply down pressure to the foundation and torque clockwise to install at a rate of 8 to 20 revolutions per minute.
- When the helix has penetrated approximately 1 foot into the ground, stop the installation, and replumb the foundation.



STEP 8

- Continue applying down pressure and clockwise torque, so the foundation installs itself in one smooth continuous process.
- A ground person can be of assistance in keeping the foundation plumb during installation.
- Proper installation rate is 8 to 20 revolutions per minute.
- Check foundation for plumbness at least three times during installation, at the start, middle and end of installation.



STEP 9

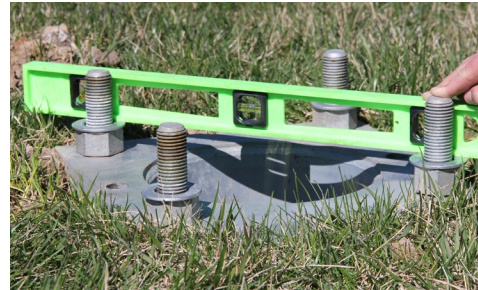
- Stop the installation when the top of the foundation base plate is level to grade and bolts and cableway are in the desired orientation to pole.
- Turn the foundation shaft cableways parallel with the roadway unless specified elsewhere in Contract Documents or when directed by the Engineer.
- The notches on the baseplate show which sides correspond with the two precut cableways in the foundation.
- Remove the installation tools from the foundation.
- Notice that the top of foundation base plate must be flush to grade to meet AASHTO requirements. Installation may be stopped before the baseplate is flush to grade in order to accommodate a Chance bumper or a cast-in-place concrete bumper.



STANDARD INSTALLATION INSTRUCTIONS

STEP 10

- Shimming may be required between the pole base or Transformer base and the foundation base plate.
- If the pole base is mounted via leveling studs and nuts, lay a carpenter's level diagonal across the baseplate on top of the flat washer to check for levelness of the foundation.
- Repeat the above in the opposite diagonal direction.
- Adjust leveling nuts to create levelness across the tops of the washers.
- These leveling steps will save time plumbing the pole after it is set.







STEP 11

- There is the potential for soil to travel or erode into the foundation through the cableway openings below grade. This may allow the soil to settle around the baseplate. To prevent this, the cableway may be blocked by use of filter cloth, expanding foam sealant or by filling the interior of the foundation with sand after installing the conduits.
- Backfill and compact the cable trench for a minimum distance of 5 feet from the foundation.
- Installation is complete. You are ready to install the pole.



- Steel screw-in foundations are not suitable for Class 0 and 8 soils.
- Class 1 through 7 soils are acceptable for steel screw-in foundations.
- Soil classes 1-3 will likely require pre-drilling - obtain engineer’s approval before pre-drilling.
- Classes 4, 5, 6, and 7 are suitable for installing steel screw-in foundations, although Class 4 may require pre-drilling also.

SOIL CLASSIFICATION CHART

Class	Common Soil-Type Description	Geological Soil Description	Typical Blow Count “N” per ASTM-D 1586
X 0	Sound hard rock, unweathered	Granite, basalt, massive limestone	N.A.
✓ 1 	Very dense and/or cemented sands; coarse gravel and cobbles	Caliche, (nitrate-bearing gravel/rock)	60-100+
✓ 2 	Dense fine sands; very hard silts and clays (may be preloaded)	Basal till; boulder clay; caliche; weathered laminated rock	45-60
✓ 3 	Dense sands and gravel; hard silts and clays	Glacial till; weathered shales, schist, gneiss and siltstone	35-50
✓ 4 	Medium dense sand and gravel; very stiff to hard silts and clays	Glacial till; hardpan; marls	24-40
✓ 5	Medium dense coarse sands and sandy gravels; stiff to very stiff silts and clays	Saprolites, residual soils	14-25
✓ 6	Loose to medium dense fine to coarse sands to stiff silts and clays	Dense hydraulic fill; compacted fill; residual soils	7-14
✓ 7	Loose fine sands; Alluvium; loess; medium - stiff and varied clays; fill	Flood plain soils; lake clays; adobe; gumbo, fill	4-8
X 8	Peat, organic silts; inundated silts, fly ash very loose sands, very soft to soft clays	Miscellaneous fill, swamp marsh	0-5

PRE-DRILL METHOD COMPARISON

CHANCE PREDRILL METHOD #1

- Used for nearly rock-like, partially cemented or very dense soils
- Select an auger that nearly matches or is smaller than the shaft diameter of the helical foundation.
- Pre-drill a hole with the auger and remove the soil.
- It is best if the pre-drilled hole does not extend deeper than the length of the helical foundation.
- Then the helical foundation can be installed in the pre-drilled hole.

CHANCE PREDRILL METHOD #2

- Used for dense soils that are very stiff to hard silts and clay.
- Select an auger that is equal to or larger than the diameter of the helical foundation.
- Pre-drill the area of install without removing the soil. Alternatively, you can place the soil back in the pre-drilled hole after drilling. Then the foundation is ready to install.
- As with method 1, it is best for the augured hole not to be any deeper than needed to accommodate the foundation.

OBTAIN ENGINEER'S APPROVAL BEFORE PRE-DRILLING.

Condition	Chance Method 1	Chance Method 2
Soil Type	Class 0, 1 and 2	Class 3, sometimes 4
Augered hole diameter	Same or <u>smaller</u> than pile shaft diameter	Same or <u>larger</u> than pile shaft diameter
Augered hole depth	Same as foundation length	
Remove soil from hole?	Yes	No



BEFORE PLACING AN ORDER FOR STEEL SCREW IN FOUNDATIONS, DO THE FOLLOWING:

- Review the Soils Classification for Steel Screw In Foundation Installation table in the Construction Requirements section for acceptable and suitable soils for steel screw in foundations
- Perform an onsite field review of the soils and general locations where light foundations will be installed on the project
- Review the Plans for lighting unit foundations surrounded by concrete or bituminous (e.g., placed in sidewalk or a parking lot)
- If wire theft is a concern, inquire about the various Anti-theft options available.
- Specify “Buy America” when you place your order so the Hubbell team can share the appropriate documentation to fulfill this requirement
- Specify mounting hardware requirements.



Hubbell Power Systems (HPS) manufactures a wide variety of transmission, distribution, substation, OEM, underground and communications products used by utilities. HPS products are also used in the civil construction, transportation, gas and water industries. Our product line includes construction, switching and protection products, hot line tools, insulators, arresters, pole line hardware, cable accessories, test equipment, transformer bushings, connectors, grounding equipment and polymer precast enclosures and equipment pads.

Hubbell has a policy of continuous product improvement. Please visit www.chancefoundationsolutions.com to confirm current design specifications.

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