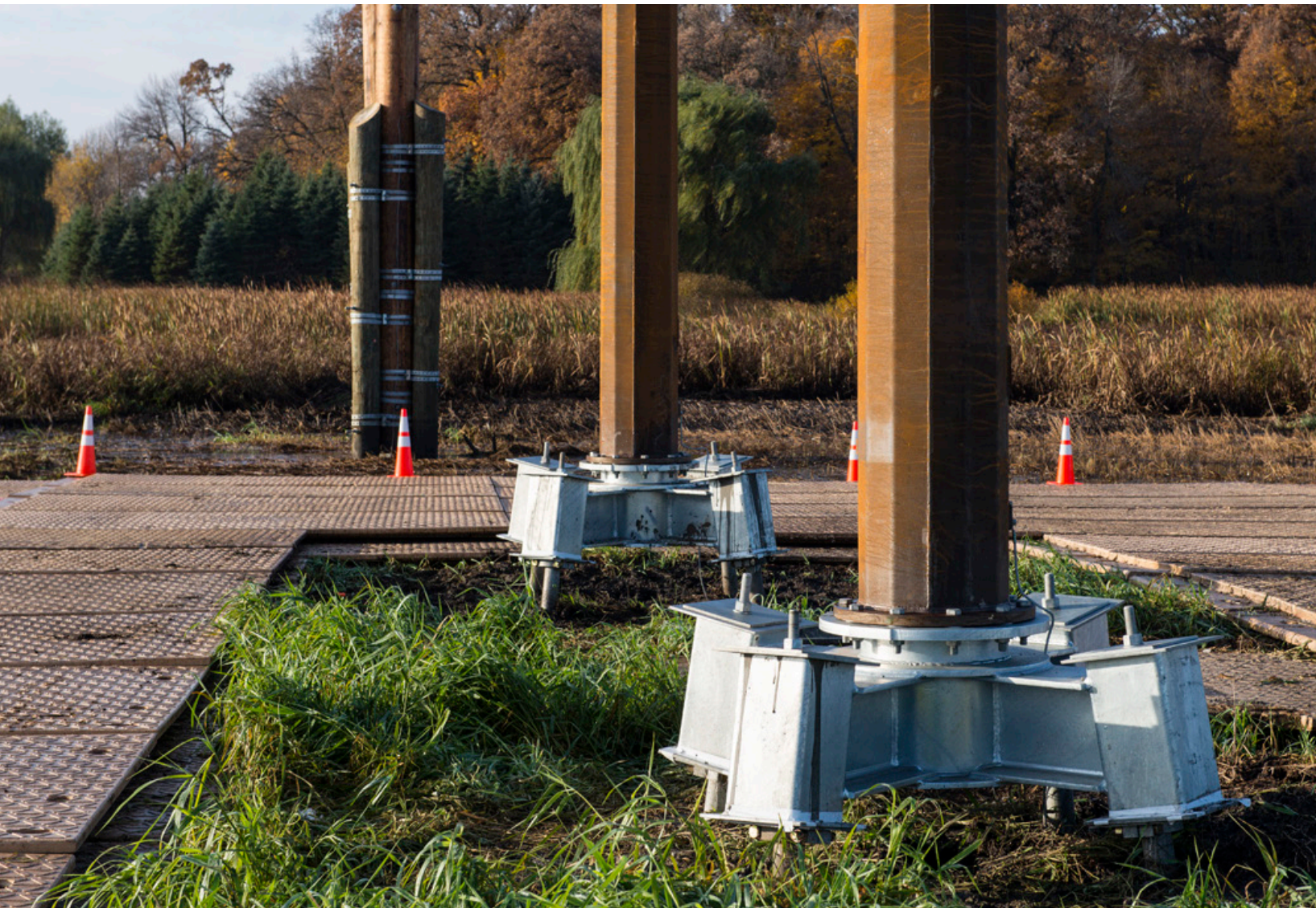


# TRANSMISSION AND SUBSTATION FOUNDATIONS

HELICAL PILES AND GUY ANCHORS STRUCTURES

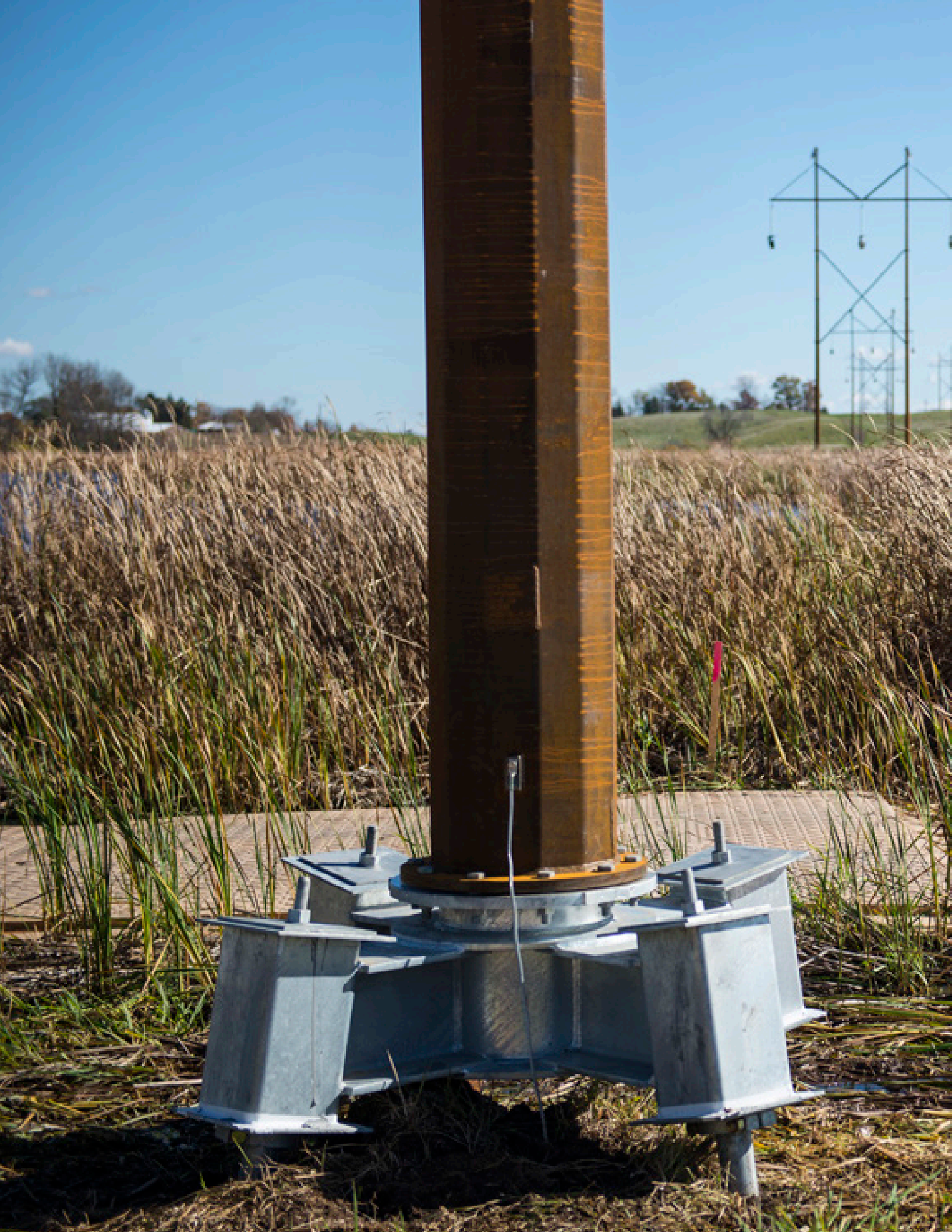


**CHANCE®**

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Because Hubbell has a policy of continuous product improvement, we reserve the right to change design and specifications without notice.









# FOUNDATION SOLUTIONS

## **SELF-SUPPORTING & GUYED LATTICE TOWERS AND STEEL & WOOD POLE STRUCTURES**

HUBBELL POWER SYSTEMS, INC. is the world's leading expert in foundation solutions. The CHANCE® Instant Foundation® system offers a well recognized and cost effective alternative to other pile systems and is backed by over 100 years of engineering experience.

# FOUNDATION SOLUTION ADVANTAGES

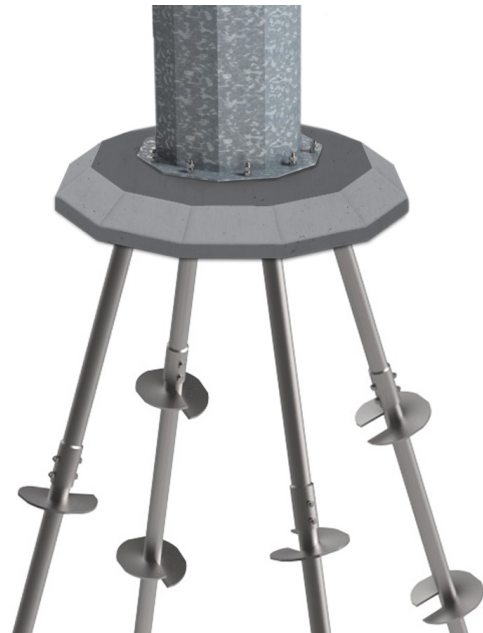
## PRODUCTS TO MEET YOUR APPLICATION NEEDS

- Custom built to job specifications
- Factory-preassembled
- Site-assembled

### STEEL GRILLAGES FOR MULTI-PILE FOUNDATIONS



### CONCRETE CAP FOR MULTI-PILE FOUNDATIONS





# FOUNDATION SOLUTION ADVANTAGES

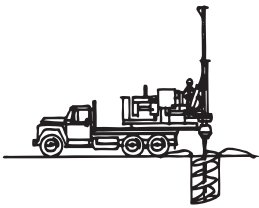
## 30 TO 1 TIME SAVINGS

Compared to concrete, CHANCE® Instant Foundation® system conserves labor, materials, equipment and time. CHANCE helical piles usually install at the rate of 25 to 30 per crew-day. Once the helical piles are in place, the steel grillage can be installed. The superstructures can be erected (or equipment mounted) immediately following. That's more than a tower per crew day!

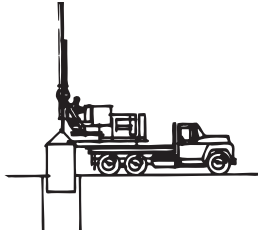
- *CUT TIME AND COSTS*
- *NO SOIL REMOVAL*
- *RAPID INSTALLATION*
- *IMMEDIATE LOADING*
- *NO RETURN DAYS LATER*
- *MORE THAN A TOWER PER CREW DAY*

### CONVENTIONAL CONCRETE FOUNDATIONS

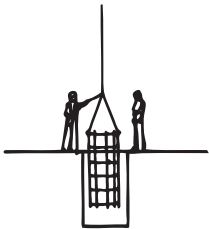
#### 1 AUGER



#### 2 FRAMEWORK



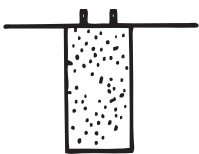
#### 3 REBARS



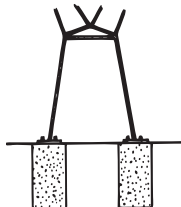
#### 4 POUR



#### 5 CURE

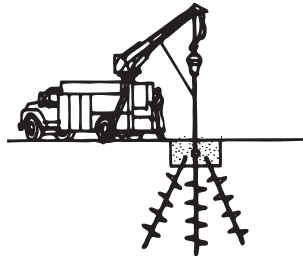


#### 6 SET TOWER

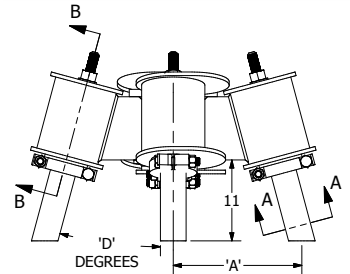


### INSTANT FOUNDATION® SYSTEM

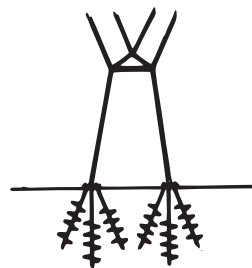
#### 1 DRIVE FOUNDATIONS



#### 2 INSTALL GRILLAGE



#### 3 SET TOWER



# FOUNDATION SOLUTION ADVANTAGES

## ENVIRONMENTALLY FRIENDLY

CHANCE helical foundations and anchors are made of 90% recycled material by environmentally conscious processes that make the most efficient use of raw materials and natural resources.

**Green alternative to concrete – no water consumption. Recycled material saves resources. Sustainable – just “unscrew” & reuse. Low-impact, fuel-efficient installation – reduces carbon footprint.**

Designed for long life, our sustainably made goods use less of the Planet but deliver more benefits to us all.

- 
- *NO SPOILS OR EVACUATION*
  - *SMALLER INSTALLATION EQUIPMENT LIMITS TOWER SITE DAMAGE*
  - *ELIMINATES DAMAGE CAUSED BY CONCRETE TRUCKS*
  - *SET THE PILES AND GRILLAGE IN ONE TRIP*
  - *ELIMINATES VIBRATIONS OF DRIVEN PILES THAT CAN DAMAGE NEARBY FOUNDATIONS*





# FOUNDATION SOLUTION ADVANTAGES

## SMALL DIAMETER PIPE

### EASY TO INSTALL

- Less than 20,000 ft-lbs of installation torque
- Smaller installation equipment
- Minimal impact to the Right of Way
- More efficient when penetrating tougher soils

### TORQUE CORRELATION

- Direct correlation to load capacity
- Valid through 8" diameter pipe
- Immediate feedback on geotech/soil conditions
- Reduces need for field testing

### POOR SOIL CONDITIONS

The CHANCE® Instant Foundation® system installs in almost any type of terrain including, flood plains, glacial till, sand, swamps and bogs. Helical piles offer a logical choice where soft soil conditions will not support heavy installation equipment. The use of lighter installation equipment also lowers overall mobilization costs.

### ACCESS LIMITATIONS

Helical piles are ideal in areas that are inaccessible for conventional construction. This could apply when your location is too far from a concrete plant or when you're excavating a basement with limited access.

### WEATHER VARIATIONS

Unlike concrete, CHANCE foundations can be scheduled throughout the year. Weather seldom stops or delays a construction timetable. They install even in wet and freezing conditions — with no waiting for concrete to cure.

### FROST HEAVE REGIONS

CHANCE helical piles are installed well below active expansive clays and frozen zones. However, by placing load bearing helix plates into competent bearing strata, the helical pile design can be significantly shorter and achieve equivalent capacity than concrete piers or driven piles.

This makes helical piles ideal for repairing/replacing failed foundations.

*\* At right, frost-heaved concrete piers to be replaced by CHANCE® helical piles to realign transmission tower legs.*



# FOUNDATION SOLUTION ADVANTAGES

## HELICAL PILE GRILLAGE SYSTEM

- NO FIELD WELDING
- NO FIELD DRILLING
- FACTORY PRE-ASSEMBLED
- CUT PIPE TO LENGTH AFTER PILE INSTALLATION
- CLAMP AND GROUT SYSTEM ALLOWS FOR PILE PLACEMENT FLEXIBILITY

### DETERMINE PILE CAPACITY BASED ON INSTALLATION TORQUE

- $\text{Pile Capacity} = \text{Installation Torque} \times \text{Torque Factor}$
- Torque correlation not valid on 10" and larger
- Torque correlation reduces or eliminates need for soil borings and capacity tests
- Piles are installed to specific torque to provide needed capacity
- Provides field crews with installation requirements



Pipe/Shaft	Default Torque Factor
Square Shaft	10
2-7/8" Pipe	9
3-1/2" Pipe	7
4-1/2" Pipe	6-7
6" & 8" Pipe	4-5
10" and Larger Pipe	NOT VALID



# SOIL AND LOAD-MATCHED CAPACITIES

To match a wide range of site conditions, CHANCE® foundations include single-piece and extendable designs. Your crews have many options available for unusual installation situations, including helical piles with 1 ½", 1 ¾", 2" or 2 ¼" solid square shafts and 2 ⅞", 3 ½", 4 ½", 6 ⅝" or 8 ⅝" pipe shafts with helical plates from 6" to 16" in diameter. These offer maximum vertical capacities per pier up to 300 kips (1334 kN). Helix plates of mill-specified high-strength steel distribute the up-lift and compression forces. The central shaft transfers horizontal shear, torsion and bending loads to surrounding soils. Properly selected helical pile foundation groups can support virtually any transmission structure loads in any soil conditions.

For their details and associated installing tools, see our Catalog section 4B.

## HELICAL PRODUCT RATINGS FOR TENSION AND COMPRESSION

Square-Shaft Series					
SS125	SS5	SS150	SS175	SS200	SS225
4,000 ft-lbs	5,500 ft-lbs	7,000 ft-lbs	10,500 ft-lbs	16,000 ft-lbs	23,000 ft-lbs
50 kip	70 kip	70 kip	100 kip	150 kip	200 kip
X=1.25"	X=1.50"	X=1.50"	X=1.75"	X=2.00"	X=2.25"
Y=1.56"	Y=1.91"	Y=1.91"	Y=2.27"	Y=2.57"	Y=2.93"

Round-Shaft Series					
RS2875.203	RS2875.276	RS3500.300	RS4500.337	RS6625.280	RS8625.250
5,500 ft-lbs	8,000 ft-lbs	13,000 ft-lbs	23,000 ft-lbs	40,000 ft-lbs	60,000 ft-lbs
60 kip	90 kip	120 kip	140 kip	200 kip	300 kip
D=2.88"	D=2.88"	D=3.50"	D=4.50"	D=6.63"	D=8.63"
W=0.20"	W=0.28"	W=0.30"	W=0.34"	W=0.28"	W=0.25"

# ENGINEERED SOLUTIONS, SUPPORT STAFF ON CALL

Our staff of registered professional engineers work with transmission line owners and their consulting firms to help match helical pile design to site-specific soil conditions and load requirements. For this free service, contact your Hubbell representative today.



**Jeff Thomas, P.E.**  
*Business Development Manager*



**Gary Seider, P.E.**  
*Engineering Director*



**Aaron Finley**  
*Transmission & Substation Specialist*



**Doug Byrne**  
*Transmission & Substation Specialist*



**Clayton Melrose**  
*Transmission & Substation Specialist*



**Adam McKindles**  
*Transmission & Substation Specialist*









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