3-1/2” Round Shaft Helical Anchors

WE are a leading producer of round shaft helical anchors for the electric utility industry. The 3-1/2” tubular shaft anchor is employed on high voltage electric transmission tower foundations. From Met Towers to Monopoles and Cell Towers, ECP Utility offers 3-1/2” round helical anchors as a simple foundation solution.

3-1/2” Utility Helical Anchors has many applications including:

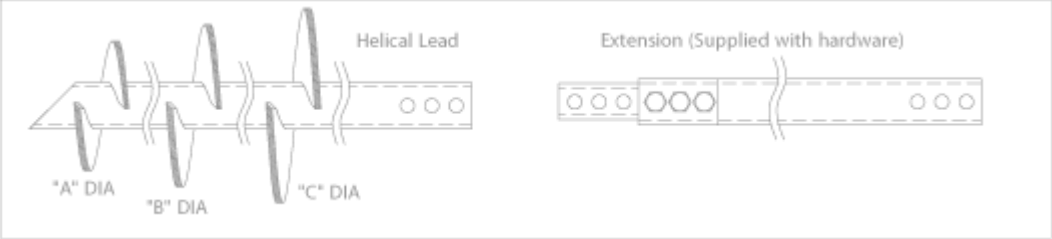
- 97,000# Capacity
- Tower Foundations
- Substation Platforms
- Solar Panel Foundations
- Equipment Platforms
- Self Supporting Towers
- Lattice Towers

Round shaft helical anchors and their matching extensions provide a solid foundation for your tower or substation needs. Their ease of installation and ability to be immediately loaded and installed in remote locations make the ECP Utility 3-1/2” helical anchor a very popular helical anchor for tower construction.

Why 3-1/2” helical anchors are the best solution:

- Ease of Installation
- Little to No Vibration
- Immediate Load Transfer upon Installation
- Installed Torque Correlates to Capacity
- Easily Load Tested to Verify Capacity
- Installs Below Active Soils
- All Weather Installation
- Little to No Disturbance to Jobsite

The electric transmission tower industry has relied on helical anchors for tower support for many years. The largest consumer of helical anchors, the electric power transmission industry, has embraced heavy duty 3-1/2” helical anchors for their many benefits and reliable performance.



Standard Torque Anchor Lead Configurations					
Product Designation	Plate Diameter-inches			Plate Area sq. ft.	Length
	"A"	"B"	"C"		
TAF-350-60 (10-12)	10	12	--	1.20	60"
TAF-350-60 (8-10-12)	8	10	12	1.48	84"
TAF-350-120 (8-10-12)	8	10	12	1.48	120"
TAF-350-120 (10-12-14)	10	12	14	2.20	120"

Standard Torque Anchor Extensions			
Part Number			
36"	60"	84"	120"
TAE-350-36	**TAE-350-60**	**TAE-350-84**	**TAE-350-120**

Note: Products Listed Above Are Standard Items And Are Usually Available From Stock. Other Specialized Configurations Are Available As Special Order – Allow Extra Time For Processing. All Helical Plates Are Spaced At Three Times The Diameter Of The Preceding Plate Extensions are Supplied with an Internal Coupling and Hardware. All Product Hot Dip Galvanized Per ASTM A123 Grade 100. Shaft Weight per Foot – TAF-350 - 10.2 lb; TAF-450 – 15.4 lb

* "H" before part designation indicates helical plate thickness of 1/2 inch instead of standard 3/8"

Table 2.	**Capacities of ECP Helical Torque Anchors™**				
Shaft Size	Installation Torque Factor (k)	Axial Compression Load Limit	Ultimate-Limit Tension Strength	Useable Torsional Strength	Practical Load Limit Based Torsional Strength
1-1/2" Square Bar	9 - 11	70,000 lb.	70,000 lb.	7,500 ft-lb	Load limited to the rated capacity of the attachments and the lateral soil strength against the shaft
1-3/4" Square Bar	9 - 11	100,000 lb.	100,000 lb.	10,000 ft-lb	
2-1/4" Square Bar	10 - 12	200,000 lb.	200,000 lb.	23,000 ft-lb	
2-7/8" Tubular – 0.262" Wall	8 - 9	100,000 lb.	100,000 lb.	9,500 ft-lb	80,000 lb
3-1/2" Tubular – 0.300" Wall	7 - 8	115,000 lb.	120,000 lb.	13,000 ft-lb	97,000 lb
4-1/2" Tubular – 0.337" Wall	6 - 7	160,000 lb.	160,000 lb.	22,000 ft-lb	143,000 lb

The designer should select a product that provides adequate additional torsional capacity for the specific project and soil conditions.

IMPORTANT NOTES:
The capacities listed for Axial Compression, Tension and Torsion in Table 2 are mechanical ratings. One must understand that the actual installed load capacities for the product are dependent upon the actual soil conditions on a specific job site. The shaft "Useable Torsional Strengths" given here are the maximum values that should be applied to the product. Furthermore, these torsional ratings assume homogeneous soil conditions and proper alignment of the drive motor to the shaft. In homogeneous soils it might be possible to achieve up to 95% or more of the "Useable Torsional Strength" shown in Table 2. In obstruction-laden soils, torsion spikes experienced by the shaft may cause impact fractures of the couplings or other components. Where impact loading is expected, reduce shaft torsion by 30% or more from "Useable Torsional Strength" depending upon site soil conditions to reduce chance of fracture or damage. Another advantage of selecting a torsional rating below the values shown in Table 2 is that one may be able to drive the pile slightly deeper after the torsional requirements have been met, thus eliminating the need to cut the pile shaft in the field.

The load transfer attachment capacity must be verified for the design. Standard attachments and ratings are shown on the following pages. Special configurations to fit your project can be fabricated to your specifications upon request.

3-1/2" 115,000# Compression Helical Piles				
Part #	Size	Length	# Helix	Helix Diameter
Leads				
TAF-350-60 (12)	3-1/2"	60"	1	12"
TAF-350-60 (8,10)	3-1/2"	60"	2	8",10"
TAF-350-60 (10,12)	3-1/2"	60"	2	10",12"
TAF-350-84 (10,12)	3-1/2"	84"	2	10",12"
TAF-350-84 (12,14)	3-1/2"	84"	2	12",14"
TAF-350-84 (8,10,12)	3-1/2"	84"	3	8",10",12"
TAF-350-84 (10,12,14)	3-1/2"	84"	3	10",12",14"

3-1/2" Helical Extensions				
Part #	Size	Length	# Helix	Helix Diameter
Extensions				
TAE-350-36	3-1/2"	36"	0	NA
TAE-350-60	3-1/2"	60"	0	NA
TAE-350-84	3-1/2"	84"	0	NA
TAE-350-36 (14)	3-1/2"	36"	1	14"
TAE-350-60 (14)	3-1/2"	60"	1	14"
TAE-350-60 (12,14)	3-1/2"	60"	2	12",14"