



<b>Empire Piers</b> Helical Piles, Tiebacks & Anchors		<b>Ultimate Capacity Based Upon Torque</b> ( kips - kN ) (1) (2)	<b>Helix Bearing Plate Grade &amp; Thickness</b> ( in - mm )	<b>Section Coupling Method</b>	<b>Building Code Certifications</b>
<b>Round Corner Square Bar (RCS)</b>					
E150	1.50 in - 38.1 mm ASTM 1045 Yield Strength = 50 ksi (min)	Comp = 55 kips - 245 kN Ten = 70 kips - 345 kN	ASTM A572 Grade 50 0.38 in - 9.5 mm std 0.50 in - 12.7 mm opt	(1) 0.75 in - 19.1 mm Grd 5 Bolt	none
E175	1.75 in - 44.5 mm ASTM 1045 Yield Strength = 50 ksi (min)	Comp = 100 kips - 445 kN Ten = 100 kips - 445 kN	ASTM A572 Grade 50 0.38 in - 9.5 mm std 0.50 in - 12.7 mm opt	(1) 0.75 in - 19.1 mm Grd 5 Bolt	none
<b>Hollow Square Tube</b>					
ESP20	2.00 in - 50.8 mm Wall = .250 in - 6.4 mm ASTM A500 Grade C Yield Strength = 50 ksi (min)	Comp = 50 kips - 222.4 kN Ten = 50 kips - 222.4 kN	ASTM A572 Grade 50 0.50 in - 12.7 mm std	(1) 0.875 in - 19.1 mm Grd 5 Bolt	none
ESP30	3.00 in - 76.2 mm Wall = .250 in - 6.4 mm ASTM A500 Grade C Yield Strength = 50 ksi (min)	Comp = 110 kips - 489.3 kN Ten = 110 kips - 489.3 kN	ASTM A572 Grade 50 0.50 in - 12.7 mm std	(1) 0.875 in - 19.1 mm Grd 5 Bolt	none
ESPH30	3.00 in - 76.2 mm Wall = .375 in - 9.5 mm ASTM A500 Grade C Yield Strength = 50 ksi (min)	Comp = 150 kips - 667.2 kN Ten = 150 kips - 667.2 kN	ASTM A572 Grade 50 0.50 in - 12.7 mm std	(1) 0.875 in - 19.1 mm Grd 5 Bolt	none
ESP40	4.00 in - 101.6 mm Wall = .250 in - 6.4 mm ASTM A500 Grade C Yield Strength = 50 ksi (min)	Comp = 150 kips - 801 kN Ten = 150 kips - 801 kN	ASTM A572 Grade 50 0.50 in - 12.7 mm std	(1) 0.875 in - 19.1 mm Grd 5 Bolt	none
ESPH40	4.00 in - 101.6 mm Wall = .375 in - 9.5 mm ASTM A500 Grade C Yield Strength = 50 ksi (min)	Comp = 270 kips - 1201 kN Ten = 270 kips - 1201 kN	ASTM A572 Grade 50 0.50 in - 12.7 mm std	(1) 0.875 in - 19.1 mm Grd 5 Bolt	none
<b>Round Shaft</b>					
EP237	O.D. = 2.375 in - 60.3 mm Wall = 0.190 in - 4.8 mm API 5CT-J55 Yield Strength = 75 ksi (min)	Comp = 45 kips - 200 kN Ten = 45 kips - 200 kN	ASTM A572 Grade 50 0.38 in - 9.5 mm std 0.50 in - 12.7 mm opt	(2) 0.75 in - 19.1 mm Grd 5 Bolts	none
EP287	O.D. = 2.875 in - 73.0 mm Wall = 0.217 in - 5.5 mm API 5CT-J55 Yield Strength = 75 ksi (min)	Comp = 85 kips - 378.1 kN Ten = 85 kips - 378.1 kN	ASTM A572 Grade 50 0.38 in - 9.5 mm std 0.50 in - 12.7 mm opt	(2) 0.75 in - 19.1 mm Grd 5 Bolts	none
EP350	O.D. = 3.50 in - 88.9 mm Wall = 0.254 in - 6.5 mm API 5CT-J55 Yield Strength = 75 ksi (min)	Comp = 109 kips - 484.9 kN Ten = 109 kips - 484.9 kN	ASTM A572 Grade 50 0.38 in - 9.5 mm std 0.50 in - 12.7 mm opt	(2) 0.75 in - 19.1 mm Grd 5 Bolts	none



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EP450	O.D. = 4.50 in - 114.3 mm Wall = 0.290 in - 7.4 mm API 5CT-J55 Yield Strength = 75 ksi (min)	Comp = 144 kips - 641 kN Ten = 144 kips - 641 kN	ASTM A572 Grade 50 0.38 in - 9.5 mm std 0.50 in - 12.7 mm opt	(2) 1.00 in - 19.1 mm Grd 5 Bolts	none
EPH450	O.D. = 4.50 in - 114.3 mm Wall = 0.337 in - 8.6 mm ASTM A500 Yield Strength = 55 ksi (min)	Comp = 180 kips - 801 kN Ten = 180 kips - 801 kN	ASTM A572 Grade 50 0.50 in - 12.7 mm std 0.75 in - 19.1 mm opt	(2) 1.00 in - 19.1 mm Grd 8 Bolts	none
EPH550	O.D. = 5.50 in - 139.7 mm Wall = 0.362 in - 9.2 mm API 5CT-55 Yield Strength = 75 ksi (min)	Comp = 200 kips - 890 kN Ten = 200 kips - 890 kN	ASTM A572 Grade 50 0.50 in - 12.7 mm std 0.75 in - 19.1 mm opt	(2) 1.00 in - 19.1 mm Grd 8 Bolts	none
EPH662	O.D. = 6.625 in - 168.3 mm Wall = 0.562 in - 14.3 mm ASTM A500 Yield Strength = 55 ksi (min)	Comp = 260 kips - 1157 kN Ten = 260 kips - 1157 kN	ASTM A572 Grade 50 0.50 in - 12.7 mm std 0.75 in - 19.1 mm opt	(2) 1.00 in - 19.1 mm Grd 8 Bolts	none
EPH862	O.D. = 8.625 in - 168.3 mm Wall = 0.322 in - 14.3 mm ASTM A500 Yield Strength = 55 ksi (min)	Comp = 350 kips - 1557 kN Ten = 350 kips - 1557 kN	ASTM A572 Grade 50 0.50 in - 12.7 mm std 0.75 in - 19.1 mm opt	(3) 1.00 in - 19.1 mm Grd 8 Bolts	none
EPH107	O.D. = 10.750 in - 273.1 mm Wall = 0.365 in - 9.3 mm ASTM A500 Yield Strength = 55 ksi (min)	Comp = 500 kips - 2224 kN Ten = 500 kips - 2224 kN	ASTM A572 Grade 50 0.75 in - 19.1 mm std 1.00 in - 25.4 mm opt	(3) 1.00 in - 19.1 mm Grd 8 Bolts	none
EPH127	O.D. = 12.750 in - 323.9 mm Wall = 0.375 in - 9.5 mm ASTM A500 Yield Strength = 55 ksi (min)	Comp = 560 kips - 2491 kN Ten = 560 kips - 2491 kN	ASTM A572 Grade 50 0.75 in - 19.1 mm std 1.00 in - 25.4 mm opt	(3) 1.50 in - 19.1 mm Grd 8 Bolts	none

(1) The values shown only address torque correlated soil capacity. Other mechanical limit states of the pile/anchor, its couplers, and its connections to the structure (brackets) may also govern the design capacity. Refer to the manufacturer's technical manual for further information."

(2) Large diameter helical piles develop capacity by a combination of both end-bearing and skin friction. The ultimate pile capacity is calculated based on the site-specific soil profile on a case-by-case basis. Load tests are often recommended for larger shaft sizes to identify a site-specific torque correlation factor (Kt), to determine the pile displacement versus load, and to verify the helical pile configuration.