

CHANCE® Type RS4500.237 Helical Piles

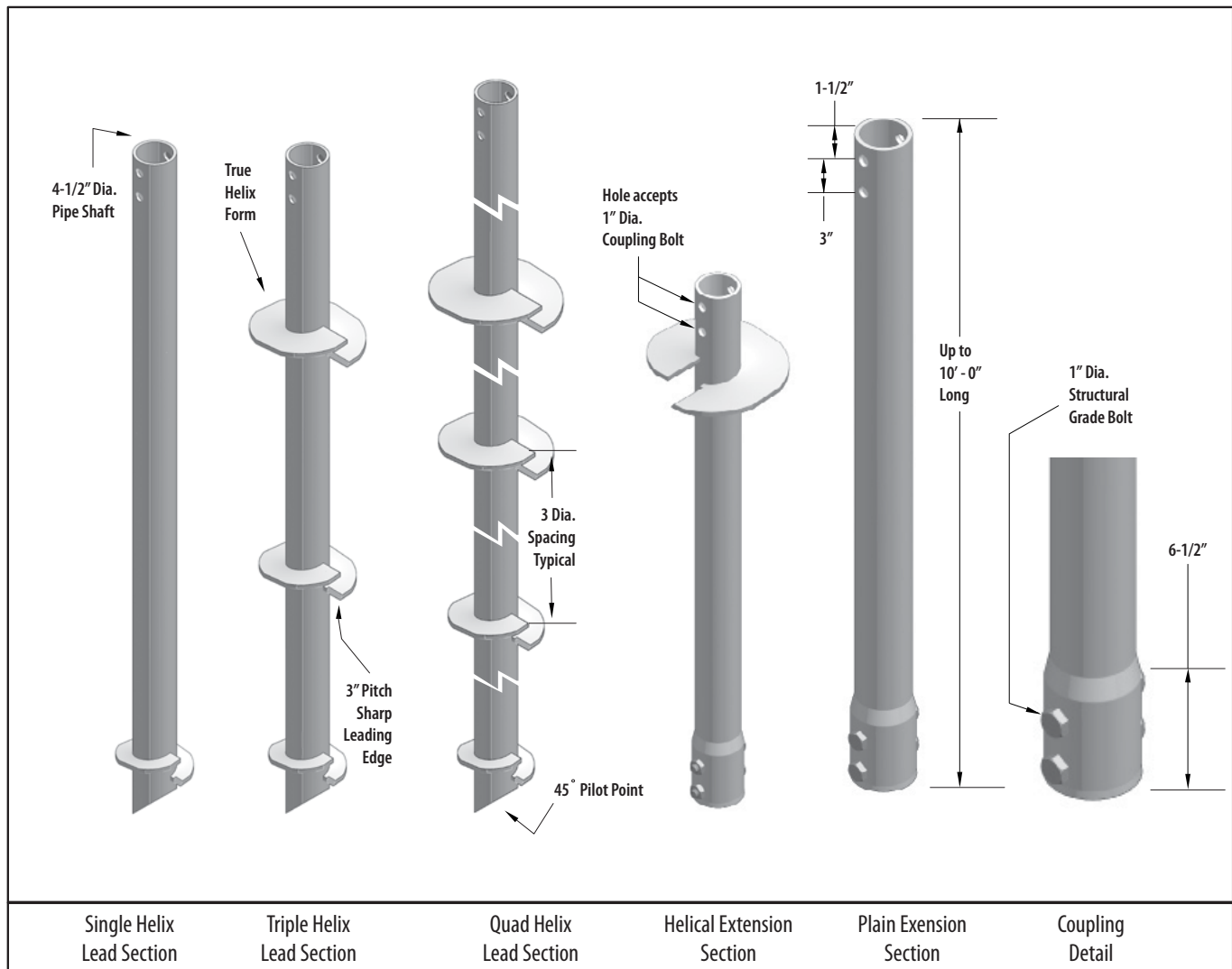
108 kip Ultimate – 54 kip Allowable Capacity

Installation Torque Rating – 18,000 ft-lb

Multi-Purpose 4-1/2" Diameter, 0.237" Wall, Round HSS Shaft with integrally formed upset sockets

Description:

Hubbell Power Systems, Inc., CHANCE Type RS4500.337 Helical Piles have 108 kip ultimate capacity and 54 kip working or allowable capacity in compression or tension. This capacity is based on well documented correlations with installation torque, which is recognized as one method to determine capacity per IBC Section 1810.3.3.1.9. Lead sections and extensions couple together to extend the helix bearing plates to the required load bearing stratum. Round shaft helical piles offer increased lateral and buckling resistance compared to solid square shafts with similar torque strength. Strength calculations are based on a design corrosion level of 50 years for most soil conditions. CHANCE Type RS Helical Piles can be coupled with square shaft lead sections (Combo Piles) to provide greater penetration into bearing soils. CHANCE Type RS Helical Piles and Anchors feature sharpened leading edge helix plates that are circular in plan to provide uniform load bearing in most soil conditions. Helix plates can be equipped with "sea-shell" cuts on the leading edge to enhance penetration through dense soils with occasional cobbles and debris. Custom lengths and helix configurations are available upon request. See below for additional information and other sections of this Technical Manual for specifications and design details.



DRAWINGS & RATINGS

All Hubbell Power Systems, Inc. CHANCE Helical Products are MADE IN THE U.S.A.

RS4500.237 Helical Pile Specifications & Available Configurations

Shaft – HSS 4-1/2 inch OD x 0.237 inch (schedule 40) wall steel shaft produced exclusively for CHANCE products.

Coupling – forged as an integral part of the plain and helical extension material as round deep sockets connected with multiple structural bolts.

Helix – 1/2 inch Thick: ASTM A572, or A1018, or A656 with minimum yield strength of 80 ksi.

3 inch Helix Pitch – a Standard established by Hubbell Power Systems, Inc. for CHANCE Helical Piles and Anchors.

Available Helix Diameters: 8, 10, 12, 14, 16, or 20 inches.

All helix plates are spaced 3 times the diameter of the preceding (lower) helix unless otherwise specified.

The Standard helix plate has straight sharpened leading edges or can be ordered with a “sea shell” cut. The “sea shell” cut is best suited when it is necessary to penetrate soils with fill debris, cobbles, or fractured rock.

Configurations:

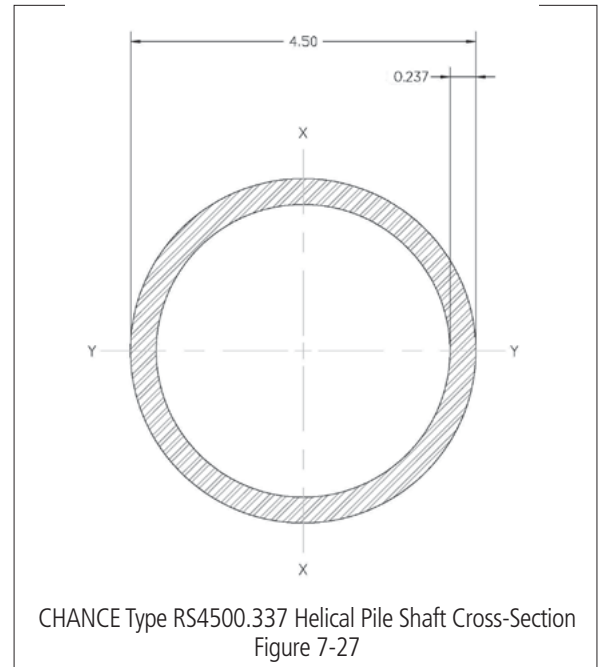
Single, double, triple, and quad helix Lead Sections, 7 and 10 feet long

Plain Extensions, 3, 5, 7, and 10 feet long

Extensions with Helix Plates, 5, 7 and 10 feet long

Helical products are Hot Dip Galvanized per ASTM A123 Grade 75.

NOTE: Helical piles shall be installed to appropriate depth in suitable bearing stratum as determined by the geotechnical engineer or local jurisdictional authority. Torque correlated capacities are based on installing the pile to its torque rating, using consistent rate of advance and RPM. A minimum factor of safety of 2 is recommended for determining allowable capacity from correlations. Deflections of 0.25 to 0.50 inches are typical at allowable capacity.



Nominal, LRFD Design and ASD Allowable Strengths of RS4500.237 Helix Plates for Shaft Axial Tension and Compression¹

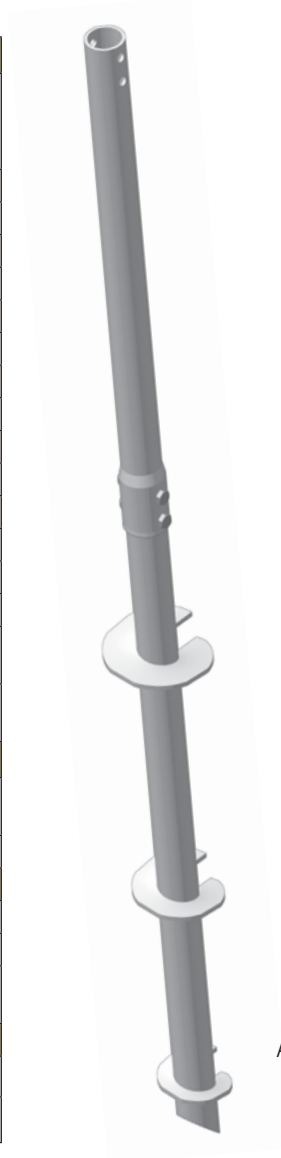
Helix Diameter in (mm)	Thickness in (mm)	Nominal Strength kip (kN)	LRFD Design Strength kip (kN)	ASD Allowable Strength kip (kN)
8 (200)	0.5 (13)	244.5 (1087.6)	183.4 (815.7)	122.3 (499.5)
10 (250)	0.5 (13)	200.3 (891.0)	150.2 (608.3)	100.2 (445.7)
12 (300)	0.5 (13)	168.5 (749.5)	126.4 (562.1)	84.3 (375.0)
14 (350)	0.5 (13)	133.0 (591.6)	99.8 (443.7)	66.5 (295.8)

For SI: 1 kip = 4.448 kN.

¹Capacities based on a design corrosion level of 50-years.

RS4500.237 HELICAL PILE AND ANCHOR PRODUCT SPECIFICATIONS				
SHAFT	Hot Rolled HSS 4 inch Nominal Schedule 40 (0.237 inch nominal wall) per ASTM A500 Grade B/C with 50 ksi minimum yield strength			
Shaft Size, OD	4.5 in	114 mm	Corroded	
			4.487 in	114 mm
Shaft Size, ID*	4.059 in	103.4 mm	Corroded	
			4.071 in	103.4 mm
Moment of Inertia (I)*	6.79 in ⁴	282.6 cm ⁴	Corroded	
			6.415 in ⁴	267.9 cm ⁴
Shaft Area (A)*	2.96 in ²	19.1 cm ²	Corroded	
			2.786 in ²	18.09 cm ²
Section Modulus (S _{x-x})*	3.02 in ³	49.6 cm ³	Corroded	
			2.859 in ³	47.0 cm ³
Perimeter	14.1 in	35.9 cm	Corroded	
			14.09 in	35.8 cm
Coupling	Integral Forged Round Deep Socket Sleeve			
Coupling Bolts	Two 1 in Dia. ASTM A193 Grade B7 Hex Head Bolts			
Helix Plates	0.5 inch Thick, Formed on Matching Metal Dies, ASTM A572 Grade 80 or better			
Coatings	Hot Dip Galvanized per ASTM A123 Grade 75, 3.0 mil minimum thickness or Bare Steel			
TORQUE PROPERTIES				
Torque Correlation Factor	6 ft ⁻¹		20 m ⁻¹	
Torque Rating	18,000 ft-lb		31,200 N-m	
STRUCTURAL CAPACITY				
Tension Strength	Nominal		LRFD Design	
	120 kip	712 kN	90 kip	534 kN
Allowable Tension Strength	60 kip		356 kN	
TORQUE CORRELATED CAPACITY				
Capacity Limit Based on Torque Correlation, Tension / Compression	Ultimate		Allowable	
	108 kip	614 kN	54 kip	307 kN

* computed with 93% of wall thickness per AISC 360-10, B4.2



Assembly of RS4500.337
Figure 7-28

DRAWINGS & RATINGS