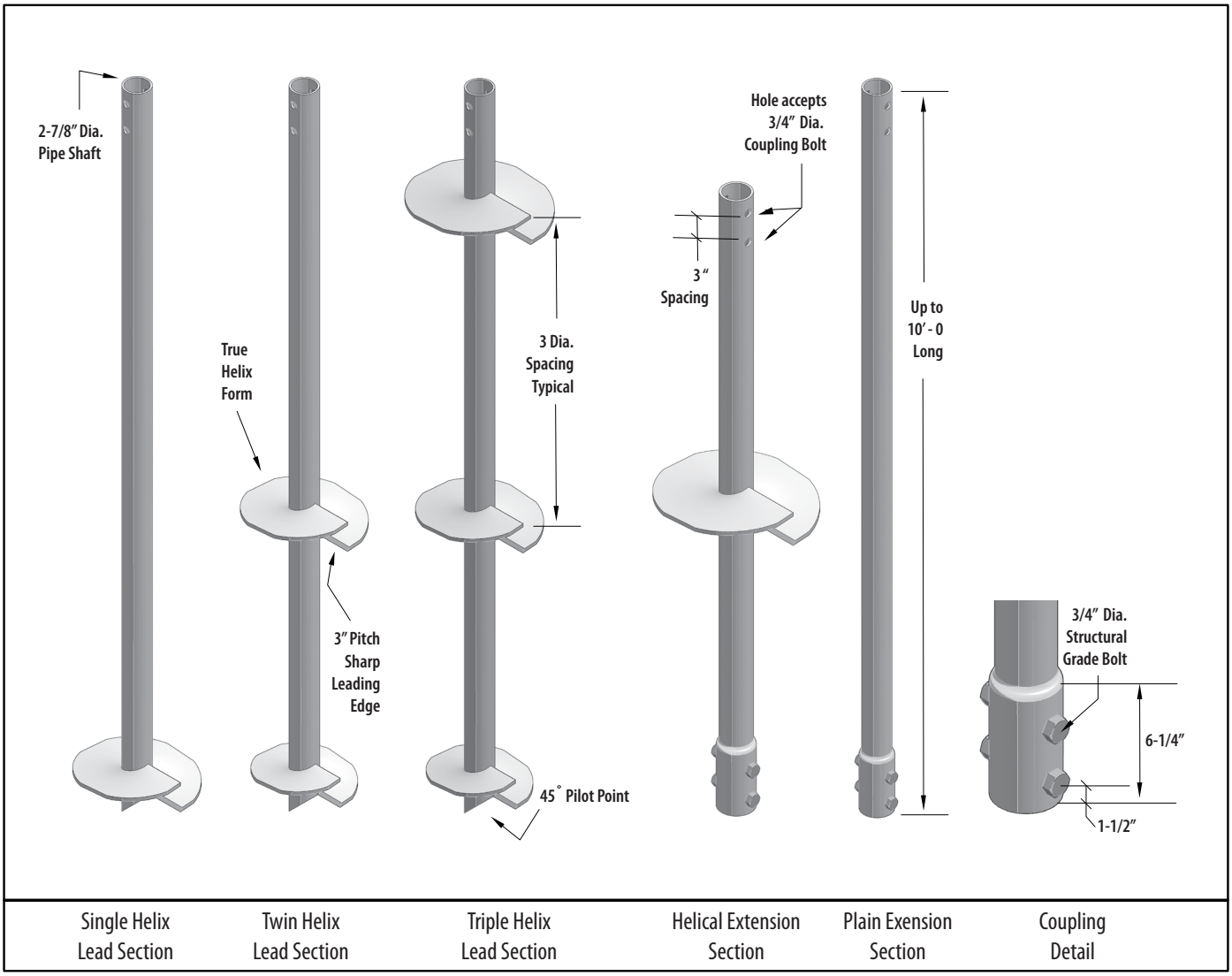
Approved for Seismic Design Categories A thru F

CHANCE® Type RS2875.203 Helical Piles per ICC-ES AC 358 for Building Code Evaluation

60.4 kip Ultimate – 30.2 kip Allowable Capacity
Installation Torque Rating – 6,710 ft-lb

Multi-Purpose 2-7/8" Diameter, 0.203" Wall, Round HSS Shaft with sleeve couplings

Description:
Hubbell Power Systems, Inc., CHANCE Type RS2875.203 Helical Piles have 60.4 kip ultimate capacity and 30.2 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.



Single Helix Lead Section	Twin Helix Lead Section	Triple Helix Lead Section	Helical Extension Section	Plain Exension Section	Coupling Detail

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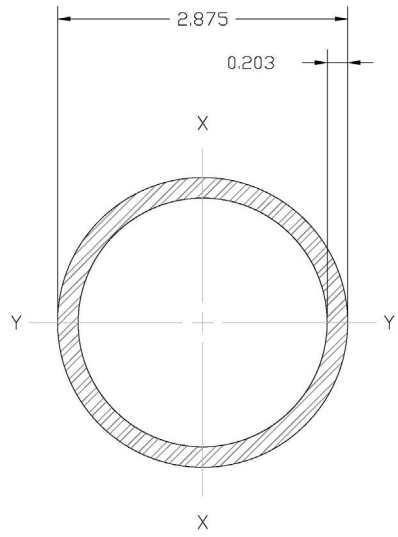
RS2875.203 Building Code Helical Pile Specifications & Available Configurations

Shaft – HSS 2-7/8 inch OD x 0.203 inch (schedule 40) wall steel shaft produced exclusively for CHANCE products.
Coupling – welded sleeve forming a socket connected with multiple structural bolts.
Helix – 3/8 inch Thick: ASTM A572, or A1018, or A656 with minimum yield strength of 50 ksi.
3 inch Helix Pitch – a standard established by Hubbell Power Systems, Inc. for Helical Piles and Anchors.
Available Helix Diameters: 8, 10, 12, or 14 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, and triple helix Lead Sections, 5, 7, and 10 feet long
Plain Extensions, 3, 5, 7, and 10 feet long
Extensions with Helix Plates, 5 and 7 feet long
Helical products are Hot Dip Galvanized per ASTM A153 Class B-1.

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.



CHANCE Type RS2875.203
Helical Pile Shaft Cross-Section
Figure 7-17

Nominal, LRFD Design and ASD Allowable Strengths of RS2875.203 Helix Plates for Shaft Axial Tension and Compression[1]

Helix Diameter in (mm)	Thickness in (mm)	Nominal Strength kip (kN)	LRFD Design Strength kip (kN)	ASD Allowable Strength kip (kN)
8 (200)	0.375 (9.5)	135.0 (600.5)	101.3 (450.6)	67.5 (300.3)
10 (250)	0.375 (9.5)	122.7 (545.8)	92.0 (409.2)	61.4 (273.1)
12 (300)	0.375 (9.5)	127.1 (565.4)	95.3 (423.9)	63.6 (282.9)
14 (350)	0.375 (9.5)	124.9 (555.6)	93.7 (416.8)	62.4 (277.6)

For SI: 1 kip = 4.448 kN.
[1]Capacities based on a design corrosion level of 50-years.

Nominal and LRFD Design Compression Strengths of CHANCE® Type RS2875.203 Helical Pile Lead & Extension Sections[1,2]

Section Type & Helix Count	Nominal & LRFD Design Compression Strengths kips (kN)							
	Firm Soil				Soft Soil			
	Fixed		Pinned		Fixed		Pinned	
	Nominal	Design	Nominal	Design	Nominal	Design	Nominal	Design
Lead, Single Helix	87.1 (387.4)	65.3 (290.5)	80.1 (356.3)	65.3 (290.5)	66.1 (294.0)	59.5 (264.7)	45.2 (201.1)	41.4 (184.2)
Lead, Multi-Helix								
Extension								

For SI: 1 kip = 4.448 kN.
[1] Refer to Section 4.1.3 of ESR-2794 for descriptions of fixed condition, pinned condition, soft soil and firm soil.
[2] Strength ratings are based on a design corrosion level of 50-years and presume the supported structure is braced in accordance with IBC Section 1808.2.5, and the lead section with which the extension is used will provide sufficient helix capacity to develop the full shaft capacity.

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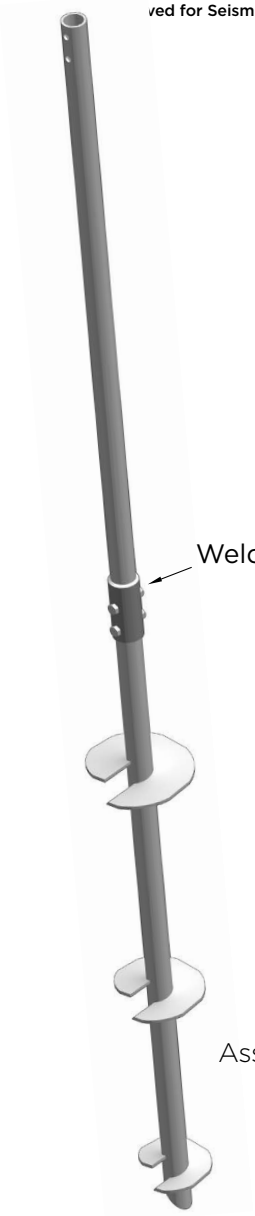
RS2875.203 HELICAL PILE AND ANCHOR PRODUCT SPECIFICATIONS				
SHAFT	Hot Rolled HSS 2-1/2 inch Nominal Schedule 40 (0.203 inch nominal wall) per ASTM A500 Grade B/C with 65 ksi minimum yield strength			
Shaft Size, OD	2.875 in	73 mm	Corroded	
			2.862 in	72.7 mm
Shaft Size, ID*	2.497 in	63.4 mm	Corroded	
			2.510 in	63.75 mm
Moment of Inertia (I)*	1.44 in^4	59.9 cm^4	Corroded	
			1.344 in^4	55.9 cm^4
Shaft Area (A)*	1.59 in^2	10.3 cm^2	Corroded	
			1.48 in^2	9.57 cm^2
Section Modulus (Sx-x)*	1.0 in^3	16.4 cm^3	Corroded	
			0.939 in^3	15.4 cm^3
Perimeter	9.0 in	22.8 cm	Corroded	
			8.99 in	22.8 cm
Coupling	Welded Round Deep Socket Sleeve			
Coupling Bolts	Two ¾ in Diameter SAE J429 Grade 5 Hex Head Bolts with Threads Excluded from Shear Planes			
Helix Plates	0.375 inch Thick, Formed on Matching Metal Dies, ASTM A572 Grade 50 or better			
Coatings	Hot Dip Galvanized per ASTM A153 Class B-1, 3.1 mil minimum thickness or Bare Steel			
TORQUE PROPERTIES				
Torque Correlation Factor	9 ft^{-1}		30 m^{-1}	
Torque Rating	6,710 ft-lb		9,100 N-m	
STRUCTURAL CAPACITY				
Tension Strength	Nominal		LRFD Design	
	87 kip	387 kN	65.3 kip	290.5 kN
Allowable Tension Strength	43.5 kip		193.5 kN	
TORQUE CORRELATED CAPACITY				
Capacity Limit Based on Torque Correlation, Tension / Compression	Ultimate		Allowable	
	60.4 kip	269 kN	30.2 kip	134 kN

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



Assembly of RS2875.203
Figure 7-18

ASD Allowable Compression Strengths of CHANCE® Type RS2875.203 Helical Pile Lead & Extension Sections[1,2]

Section Type & Helix Count	ASD Allowable Axial Compression Strength kips (kN)			
	Firm Soil		Soft Soil	
	Fixed	Pinned	Fixed	Pinned
Lead, Single Helix	43.5 (193.5)	43.5 (193.5)	39.6 (176.1)	27.5 (122.3)
Lead, 2-Helix 8”-10”	43.5 (193.5)	43.5 (193.5)	39.6 (176.1)	27.5 (122.3)
Lead, 2-Helix 10”-12”				
Lead, 2-Helix 12”-14”				
Lead, 2-Helix 14”-14”				
Lead, Multi-Helix	43.5 (193.5)	43.5 (193.5)	39.6 (176.1)	27.5 (122.3)
Extension	43.5 (193.5)	43.5 (193.5)	39.6 (176.1)	27.5 (122.3)

For SI: 1 kip = 4.448 kN.
1 Refer to Section 4.1.3 of ESR-2794 for descriptions of fixed condition, pinned condition, soft soil and firm soil.
2 Strength ratings are based on a design corrosion level of 50-years and presume the supported structure is braced in accordance with IBC Section 1808.2.5, and the lead section with which the extension is used will provide sufficient helix capacity to develop the full shaft capacity.

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