

<b>MPS - Civil Products Group</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>					
<b>Model D6</b>	<b>1.50 in - 38.1 mm</b> ASTM A576, Grade 10V45 Yield Strength = 70 ksi (min)	Comp = 55 kips - 245 kN Ten = 55 kips - 245 kN	AISI Grade 1011/1018 HSLA 55 0.375 in - 9.5 mm std 0.50 in - 12.7 mm opt	(1) 0.75 in - 19.1 mm Grd 5 Bolt	ICC-ES ESR-3032 LA RR 25629
<b>Model D7</b>	<b>1.50 in - 38.1 mm</b> ASTM A576, Grade 1530M Yield Strength = 90 ksi (min)	Comp = 70 kips - 311 kN Ten = 70 kips - 311 kN	AISI Grade 1011/1018 HSLA 55 0.375 in - 9.5 mm std 0.50 in - 12.7 mm opt	(1) 0.75 in - 19.1 mm Grd 5 Bolt	none
<b>Model D10</b>	<b>1.75 in - 44.5 mm</b> ASTM A576, Grade 1530M Yield Strength = 90 ksi (min)	Comp = 100 kips - 445 kN Ten = 100 kips - 445 kN	AISI Grade 1011/1018 HSLA 55 0.375 in - 9.525 mm std 0.50 in - 12.7 mm opt	(1) 0.875 in - 22.2 mm Grd 5 Bolt	ICC-ES ESR-3032 LA RR 25629
<b>Model D15</b>	<b>2.00 in - 50.8 mm</b> ASTM A576, Grade 1530M Yield Strength = 90 ksi (min)	Comp = 150 kips - 667 kN Ten = 150 kips - 667 kN	AISI Grade 1011/1018 HSLA 55 0.50 in - 12.7 mm std	(1) 1.125 in - 28.6 mm Grd 5 Bolt	none
<b>Round Shaft</b>					
<b>Model P28</b>	<b>O.D. = 2.875 in - 73.0 mm</b> <b>Wall = 0.203 in - 5.2 mm</b> ASTM A500 Grade B Yield Strength = 50 ksi (min)	Comp = 60 kips - 267 kN Ten = 60 kips - 267 kN	AISI Grade 1011/1018 HSLA 55 0.375 in - 9.5 mm std	Male - Female square engagement coupling system (2) 0.75 in - 19.1 mm Grd 5 Bolts	ICC-ES ESR-3032 LA RR 25629
<b>Model P28H</b>	<b>O.D. = 2.875 in - 73.0 mm</b> <b>Wall = 0.276 in - 7.1 mm</b> ASTM A500 Grade B or C Yield Strength = 50 ksi (min)	Comp = 72 kips - 320 kN Ten = 72 kips - 320 kN	AISI Grade 1011/1018 HSLA 55 0.375 in - 9.5 mm std	Male - Female square engagement coupling system (2) 0.75 in - 19.1 mm Grd 5 Bolts	none
<b>Model P35</b>	<b>O.D. = 3.50 in - 88.9 mm</b> <b>Wall = 0.216 in - 5.5 mm</b> ASTM A500 Grade B or C Yield Strength = 50 ksi (min)	Comp = 80 kips - 356 kN Ten = 80 kips - 356 kN	AISI Grade 1011/1018 HSLA 55 0.375 in - 9.5 mm std	Male - Female square engagement coupling system (2) 0.75 in - 19.1 mm Grd 5 Bolts	ICC-ES ESR-3032 LA RR 25629
<b>Model P35H</b>	<b>O.D. = 3.50 in - 88.9 mm</b> <b>Wall = 0.30 in - 7.6 mm</b> ASTM A500 Grade B Yield Strength = 50 ksi (min)	Comp = 105 kips - 467 kN Ten = 105 kips - 467 kN	AISI Grade 1011/1018 HSLA 55 0.375 in - 9.5 mm std	Male - Female square engagement coupling system (2) 0.875 in - 22.2 mm Grd 5 Bolts	ICC-ES ESR-3032 LA RR 25629
<b>Model P45</b>	<b>O.D. = 4.50 in - 114.3 mm</b> <b>Wall = 0.237 in - 6.0 mm</b> ASTM A500 Grade B Yield Strength = 50 ksi (min)	Comp = 120 kips - 534 kN Ten = 120 kips - 534 kN	AISI Grade 1011/1018 HSLA 55 0.375 in - 9.5 mm std	Male - Female square engagement coupling system (2) 0.875 in - 22.2 mm Grd 5 Bolts	none
<b>Model P45H</b>	<b>O.D. = 4.50 in - 114.3 mm</b> <b>Wall = 0.337 in - 8.6 mm</b> ASTM A500 Grade B Yield Strength = 50 ksi (min)	Comp = 156 kips - 694 kN Ten = 156 kips - 694 kN	AISI Grade 1011/1018 HSLA 55 0.375 in - 9.5 mm std	Male - Female square engagement coupling system (2) 0.875 in - 22.2 mm Grd 5 Bolts	none
<b>Model R-86L</b>	<b>O.D. = 8.625 in - 219.1 mm</b> <b>Wall = 0.188 in - 4.8 mm</b> Double Fish Nose Cut ASTM A53 & ASTM A500 Grade B Yield Strength = 50 ksi (min)	Comp = 200 kips - 890 kN Ten = 150 kips - 667 kN	AISI Grade 1011/1018 HSLA 55 0.50 in - 12.7 mm std	Internal Square-on-Square Coupler with (4) 1 in - 25.4 mm Grade 5 Bolts Open Pipe Shaft for Down Pile Grouting	none
<b>Model R-86M</b>	<b>O.D. = 8.625 in - 219.1 mm</b> <b>Wall = 0.25 in - 6.35 mm</b> 1.75 in Stinger with Double Fish Nose Cut ASTM A53 & ASTM A500 Grade B Yield Strength = 50 ksi (min)	Comp = 250 kips - 1112 kN Ten = 175 kips - 778 kN	AISI Grade 1011/1018 HSLA 55 0.50 in - 12.7 mm std	Internal Square-on-Square Coupler with (4) 1 in - 25.4 mm Grade 5 Bolts Open Pipe Shaft for Down Pile Grouting	none
<b>4.5</b>	<b>O.D. = 4.5 in - 114.3 mm</b> <b>Wall = 0.29 inch - 7.366 mm</b> <b>Yield Strength = 80 ksi (min)</b>	Comp = 180 kips - 800kN Ten = 153 kips - 681 kN	Project Specific	Threaded or Pipe Sleeve	none
<b>4.5</b>	<b>O.D. = 4.5 in - 114.3 mm</b> <b>Wall = 0.29 inch - 7.366 mm</b> <b>Yield Strength = 100 ksi (min)</b>	Comp = 253 kips - 1125 kN Ten = 211 kips - 939 kN	Project Specific	Threaded or Pipe Sleeve	none
<b>5.5</b>	<b>O.D. = 5.5 in - 139.7 mm</b> <b>Wall = 0.416 inch - 10.57 mm</b> <b>Yield Strength = 80 ksi (min)</b>	Comp = 318 kips - 1415 kN Ten = 266 kips - 1183 kN	Project Specific	Threaded or Pipe Sleeve	none

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5.5	O.D. = 5.5 in. - 139.7 mm Wall = 0.416 inch - 10.57 mm Yield Strength = 100 ksi (min)	Comp = 439 kips - 1953 kN Ten = 365 kips - 1624 kN	Project Specific	Threaded or Pipe Sleeve	none
7	O.D. = 7.0 in. - 177.8 mm Wall = 0.408 inch - 10.36 mm Yield Strength = 80 ksi (min)	Comp = 406 kips - 1806 kN Ten = 338 kips - 1504 kN	Project Specific	Threaded or Pipe Sleeve	none
7	O.D. = 7.0 in. - 177.8 mm Wall = 0.408 inch - 10.36 mm Yield Strength = 100 ksi (min)	Comp = 558 kips - 2482 kN Ten = 465 kips - 2068 kN	Project Specific	Threaded or Pipe Sleeve	none
7.625	O.D. = 7.625 in. - 193.68 mm Wall = 0.50 inch - 12.7 mm Yield Strength = 80 ksi (min)	Comp = 537 kips - 2389 kN Ten = 501 kips - 2229 kN	Project Specific	Threaded or Pipe Sleeve	none
7.625	O.D. = 7.625 in. - 193.68 mm Wall = 0.50 inch - 12.7 mm Yield Strength = 100 ksi (min)	Comp = 739 kips - 3247 kN Ten = 688 kips - 3060 kN	Project Specific	Threaded or Pipe Sleeve	none
8.625	O.D. = 8.625 in. - 219.08 mm Wall = 0.50 inch - 12.7 mm Yield Strength = 80 ksi (min)	Comp = 613 kips - 2727 kN Ten = 511 kips - 2273 kN	Project Specific	Threaded or Pipe Sleeve	none
8.625	O.D. = 8.625 in. - 219.08 mm Wall = 0.50 inch - 12.7 mm Yield Strength = 100 ksi (min)	Comp = 842 kips - 3745 kN Ten = 702 kips - 3123 kN	Project Specific	Threaded or Pipe Sleeve	none
9.625	O.D. = 9.625 in. - 244.5 mm Wall = 0.545 inch - 13.84 mm Yield Strength = 80 ksi (min)	Comp = 746 kips - 3318 kN Ten = 622 kips - 2767 kN	Project Specific	Threaded or Pipe Sleeve	none
9.625	O.D. = 9.625 in. - 244.5 mm Wall = 0.545 inch - 13.84 mm Yield Strength = 80 ksi (min)	Comp = 1026 kips - 4564 kN Ten = 855 kips - 3803 kN	Project Specific	Threaded or Pipe Sleeve	none
11.75	O.D. = 11.75 in. - 298.45 mm Wall = 0.489 inch - 12.42 mm Yield Strength = 80 ksi (min)	Comp = 830 kips - 3692 kN Ten = 652 kips - 2900 kN	Project Specific	Threaded or Pipe Sleeve	none
11.75	O.D. = 11.75 in. - 298.45 mm Wall = 0.489 inch - 12.42 mm Yield Strength = 100 ksi (min)	Comp = 1142 kips - 5080 kN Ten = 951 kips - 4230 kN	Project Specific	Threaded or Pipe Sleeve	none
13.375	O.D. = 13.375 in. - 339.73 mm Wall = 0.514 inch - 13.06 mm Yield Strength = 80 ksi (min)	Comp = 997 kips - 4435 kN Ten = 831 kips - 3697 kN	Project Specific	Threaded or Pipe Sleeve	none
13.375	O.D. = 13.375 in. - 339.73 mm Wall = 0.514 inch - 13.06 mm Yield Strength = 100 ksi (min)	Comp = 1371 kips - 6099 kN Ten = 1142 kips - 5080 kN	Project Specific	Threaded or Pipe Sleeve	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.