

ANCHORS

Warranty - Material

Hubbell Power Systems, Inc. warrants all products sold by it to be merchantable (as such term is defined in the Uniform Commercial Code) and to be free from defects in material and workmanship. Buyer must notify the Company promptly of any claim under this warranty. The Buyer's exclusive remedy for breach of this warranty shall be the repair or replacement, F.O.B. factory, at the Company's option, of any product defective under the warranty which is returned to the Company within one year from the date of shipment. NO OTHER WARRANTY, WHETHER EXPRESS OR ARISING BY OPERATION OF LAW, COURSE OF DEALING, USAGE OF TRADE OR OTHERWISE IMPLIED, SHALL EXIST IN CONNECTION WITH THE COMPANY'S PRODUCTS OR ANY SALE OR USE THEREOF. The Company shall in no event be liable for any loss of profits or any consequential or special damages incurred by Buyer. The Company's warranty shall run only to the first Buyer of a product from the Company, from the Company's distributor, or from an original equipment manufacturer reselling the Company's product, and is non-assignable and non-transferable and shall be of no force and effect if asserted by any person other than such first Buyer. This warranty applies only to the use of the product as intended by Seller and does not cover any misapplication or misuse of said product.

Warranty - Application

Hubbell Power Systems, Inc. does not warrant the accuracy of and results from product or system performance recommendations resulting from any engineering analysis or study. This applies regardless of whether a charge is made for the recommendation, or if it is provided free of charge.

Responsibility for selection of the proper product or application rests solely with the purchaser. In the event of errors or inaccuracies determined to be caused by Hubbell Power Systems, Inc., its liability will be limited to the re-performance of any such analysis or study.



**Minimum order quantities may apply.
Contact factory for test information.**

NOTE: Because Hubbell has a policy of continuous product improvement, we reserve the right to change design and specifications without notice.

©Copyright 2009 Hubbell Incorporated • 210 North Allen Street • Centralia, MO 65240 USA

www.hubbellpowersystems.com

E-mail: hpsliterature@hps.hubbell.com

TABLE OF CONTENTS

NOTE: For Anchor Installing Tools, see Catalog Section 4A.

Page	Subject
4-3	The Science of Selecting Anchors
4-4	Anchor Application Information (Soil Classification Data Chart)
4-5	Power-Installed Screw Anchors (Holding-Capacity/Installing-Torque Charts)
4-6	TOUGH ONE [®] Anchor Helix Assemblies - Small Hub (Torque Ratings: 10,000 ft.-lb. & 8,000 ft.-lb.)
4-7	TOUGH ONE [®] Anchor Helix Assemblies - Large Hub (Torque Ratings: 15,000 ft.-lb. & 8,000 ft.-lb.)
4-8	Standard & Mid-Strength PISA [®] Anchor Helix Assemblies 1 ³ / ₈ "-Core (Torque Ratings: 4,000 ft.-lb. & 6,000 ft.-lb.)
4-9	PISA [®] 6 and PISA [®] 7 Anchor Helix Assemblies 1 ¹ / ₂ "-Core (Torque Ratings: 6,000 ft.-lb. & 7,000 ft.-lb.)
4-10	PISA [®] Anchor Rods, Eye-nuts and Couplings
4-11	RR (Round-Rod) Screw Anchors
4-12	SS (Square-Shaft) Screw Anchors
4-13	High-Strength SS Screw Anchors for Heavy Tension Loading
4-14	No-Wrench Screw Anchors
4-15	“Bust” Expanding Anchors
4-16	Cross-Plate Anchors and Anchor Rod Extensions
4-17	Anchor Rods
4-18	Expanding Rock Anchors
4-19	Expanding Pole Key Anchors
4-20	Corrosion-Resistant Anchors
4-21	Bumper Posts

The Science of Selecting Anchors

Soil Mechanics and Holding Capacity

During the early stages of the screw anchor, the load resistance of an installed anchor could not be predicted with reasonable accuracy. Specific information on soil conditions was lacking, making anchor selection more or less a guess. With little consideration for soil variations and the effects of seasonal weather changes or drainage, soils were classified as "sand, clay, hardpan or swamp." There wasn't any definitive explanation for such soil conditions.

Chance soil classification data opened new horizons in predicting anchor holding capacity. Initially, it was necessary to obtain soil samples from the projected anchor depth in order to classify the soil and to make anchor recommendations. However, this method was inconvenient, costly and time-consuming.



Soil Probe, A Logical Development

Chance engineers developed the "soil test probe", a mechanical tool which makes it possible to infer subsoil conditions from the surface of the earth. The soil test probe is screwed into the soil. As it displaces the soil, probe installation torque is measured in inch-pounds on a torque gauge, which is an integral part of the installing tool. Probe torque readings are then compared with the information on the Chance Soil Classification Data Chart and translated into the appropriate soil classification.

PISA®: Power-Installed Screw Anchors

More than 50 years ago, Chance introduced this patented system of utilizing the power of digging equipment to install screw anchors. The system consists of a screw anchor, anchor rod and a special installing wrench. Each anchor has a galvanized steel threaded anchor rod with an upset hex; single or twin helices and a galvanized guy wire nut which is screwed to the anchor rod end. PISA anchors can be installed in a matter of minutes.



Torque and Performance

Later this method was improved with the development of Chance torque indicators and sets of holding capacity values for given anchor types. This did not obviate the soil classification data but strengthened and simplified it so the utility employee could install a PISA anchor or other Chance anchor to a given torque value and predict with relative accuracy the holding capacity of the installed anchor. Actually, the correlation between installing torque and anchor performance required thousands of tests throughout the United States and in every conceivable soil condition. It is much labor, engineering research and investment that have made possible the development of this reliable and predictable anchoring philosophy.

Torque Ratings

Chance screw anchors are designed and manufactured for maximum torsional strength. During installation, some of the torque applied by the digger and measured by installation torque indicators is dissipated by friction along the wrench and not applied to the anchor itself, so it is possible to apply more torque than the anchor alone can withstand. Chance anchors are rated by maximum working torque or, for the more recent designs, by the 5 per cent exclusion limit which is a more explicitly defined criterion based on statistical analysis of on-line quality control testing. Both ratings take into consideration the variation to be expected in anchor torsional strength due to normal variations in materials and manufacturing processes. Customers should consider this variation along with the wide variation that can be seen in the frictional loss along the wrench in deciding how much torque can be applied safely during installation. The fact that Chance ratings are set near the minimum credible torsional strength also should be considered in comparing Chance ratings to those of manufacturers who rate their anchors based on average strength.

Anchor Application Information

SOIL CLASSIFICATION DATA

Class	Common Soil-Type Description	Geological Soil Classification	Probe Values ft.-lb. (NM)	Typical Blow Count "N" per ASTM-D1586
N.A.	Sound hard rock, unweathered (bedrock)	Granite, Basalt, Massive Limestone	N.A.	N.A.
1	Very dense and/or cemented sands; coarse gravel and cobbles	Caliche, (Nitrate-bearing gravel/rock),	over 60 (85 - 181)	60-100+
2	Dense fine sands; very hard silts and clays (may be preloaded)	Basal till; boulder clay; caliche; weathered laminated rock	over 50 (68 - 85)	45-60
3	Dense sands and gravel; hard silts and clays	Glacial till; weathered shales, schist, gneiss and siltstone	42 - 50 56 - 68	35-50
4	Medium dense sand and gravel; very stiff to hard silts and clays	Glacial till; hardpan; marls	33 - 42 (45 - 56)	24-40
5	Medium dense coarse sands and sandy gravels; stiff to very stiff silts and clays	Saprolites, residual soils	25 - 33 (34 - 45)	14-25
6	Loose to medium dense fine to coarse sands to stiff clays and silts	Dense hydraulic fill; compacted fill; residual soils	17 - 25 (23 - 34)	7-14
**7	Loose fine sands; Alluvium; loess; medium - stiff and varied clays; fill	Flood plain soils; lake clays; adobe; gumbo, fill	8 - 17 (11 - 23)	4-8
**8	Peat, organic silts; inundated silts, fly ash very loose sands, very soft to soft clays	Miscellaneous fill, swamp marsh	under 8 (0 - 11)	0-5

Class 1 soils are difficult to probe consistently and the ASTM blow count may be of questionable value.

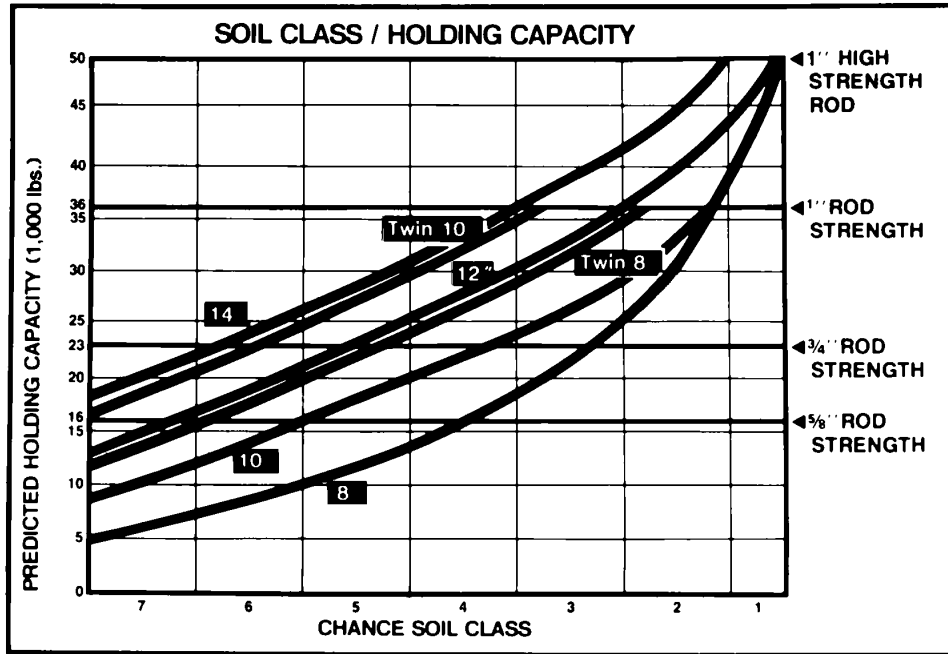
**It is advisable to install anchors deep enough, by the use of extensions, to penetrate a Class 5 or 6, underlying the Class 7 or 8 Soils.



POWER-INSTALLED SCREW ANCHORS (PISA®)

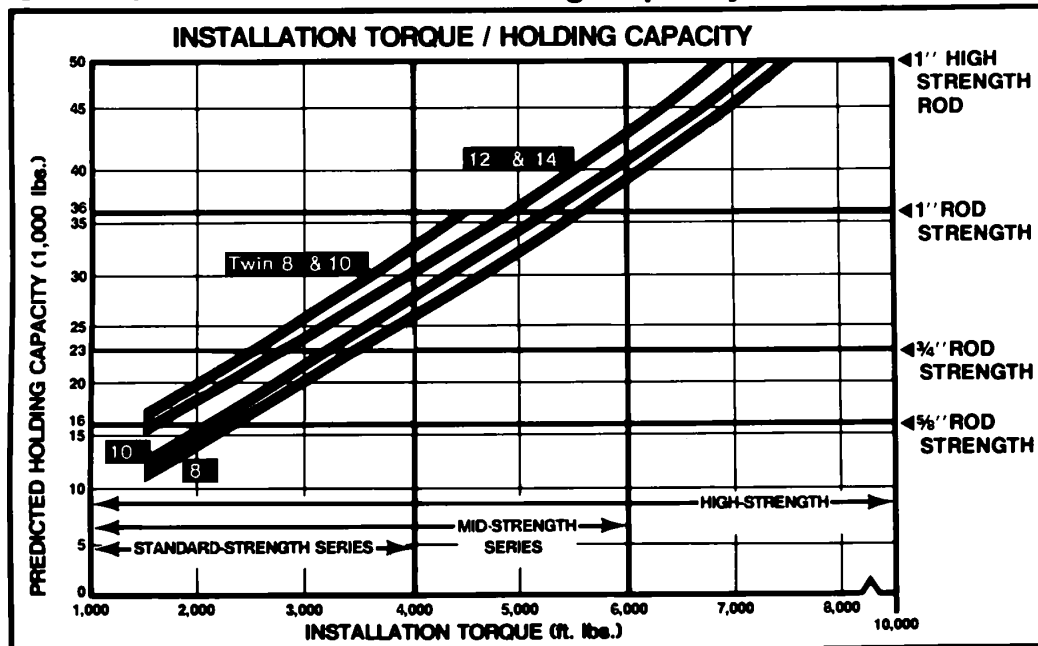
Holding Capacity/Installing Torques

CHANCE PISA® Anchors Holding Capacity



Under no circumstance should the rod and guy strand join at an angle of departure exceeding $\pm 5^\circ$ on PISA anchors.

CHANCE PISA® Anchors Holding Capacity



Predicted ultimate holding capacities are based on results of extensive Chance tests and interpretation and are offered as an application guide only. They do not represent a guarantee of holding capacity in a particular soil class. A user must factor in his individual, appropriate safety factor. Torque values shown are steady values in homogenous soils, not peak values that might occur in non-homogenous soil. Torque values shown were obtained by averaging readings from the last 2 feet of anchor penetration. The anchor shaft must be aligned

with the guy load to prevent premature failure of the rod. Under no circumstance should the rod and guy strand join at an angle of departure exceeding $\pm 5^\circ$ on PISA anchors.

CAUTION: ALL COMPONENTS OF THE CHANCE ANCHORING SYSTEM ARE PERFORMANCE MATED. USE OF OTHER ANCHORING PRODUCTS OR EQUIPMENT WILL NOT NECESSARILY PRODUCE THE SAME RESULTS.

TOUGH ONE® ANCHOR HELIX ASSEMBLIES**TORQUE RATINGS: 10,000 FT.-LB., AND 8,000 FT.- LB.****Small Hub (2¼" Square Inside)**

The C10252-- series of TOUGH ONE® anchors have a smaller inside hub diameter than our C10250-- series. The smaller hub is designed to be installed with the Chance anchor wrench C1021583.

TOUGH ONE® anchors give users high-strength anchor capability in all soils. You get a better anchor at an economical price.

The anchor's sloped lead point (Patent No. 5,575,122) improves penetration and helps soil flow from below the hub to above the anchor.

TOUGH ONE® anchors use standard PISA® rods (see page 4-10).



Use 8,000 ft.-lb.
TOUGH ONE® anchor
in soft and medium-
hard soils

Use high-strength
10,000 ft.-lb.
TOUGH ONE® anchor
in hard soils .

Ordering Information
8,000 ft.-lb. TOUGH ONE® anchor
2¼" Square Inside Hub

Install with the Chance STANDARD (10,000 ft.-lb.) wrench (see page 4A-4).

For 5/8" dia. Rod For 3/4" & 1" dia. Rods	8" Dia.	Std. Pkg./ Pallet	10" dia.	Std. Pkg./ Pallet
	C1025208	4/96	C1025209	4/96
			C1025205	4/96
For 3/4" & 1" dia. Rods For 5/8" dia. Rods	12" Dia.	Std. Pkg./ Pallet	14" dia.	Std. Pkg./ Pallet
	C1025206	2/48	C1025207	2/40
			C1025210	2/48

10,000 ft.-lb. TOUGH ONE® anchor
2¼" Square Inside Hub

Install with the Chance STANDARD (10,000 ft.-lb.) wrench (see page 4A-4).

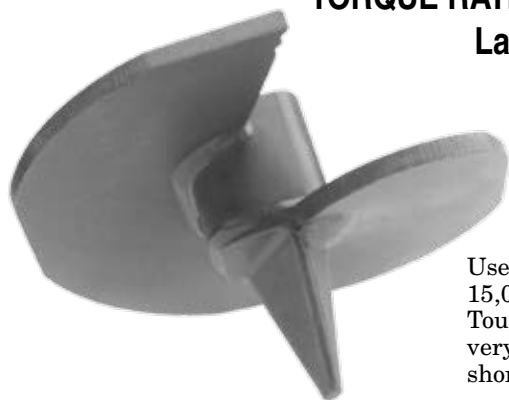
For 3/4" & 1" dia. Rods	8" Dia.	Std. Pkg./ Pallet	10" dia.	Std. Pkg./ Pallet
	C1025200	4/96	C1025201	4/96
	12" Dia.	Std. Pkg./ Pallet	14" dia.	Std. Pkg./ Pallet
	C1025202	2/48	C1025203	2/40

Patent No. 4,979,341; 4,981,000; 5,575,122; 5,607,261.

TOUGH ONE® ANCHOR HELIX ASSEMBLIES

TORQUE RATINGS: 15,000 FT.-LB., AND 8,000 FT.- LB.

Large Hub (2½" Square Inside)



Use high-strength
15,000 ft.-lb.
Tough One in
very hard soils
short of solid rock.



Use 8,000 ft.-lb.
TOUGH ONE® anchor
in soft and medium-hard soils.

TOUGH ONE® anchors give users high-strength anchor capability in all soils. You get a better anchor at an economical price. With TOUGH ONE® anchors, there's little concern about anchor breakage when encountering hard soils.

The anchor's sloped lead point (Patent No. 5,575,122) improves penetration and helps soil flow from below the hub to above the anchor.

TOUGH ONE® anchors use standard PISA® rods (see page 4-10).

It's easy to upgrade your entire program with TOUGH ONE® anchors.

If soil conditions require installations above 10,000 ft.-lbs., you will need our TOUGH ONE® wrench system consisting of drive-end assembly, Kelly bar adapter and locking dog assembly. The high-strength system will also install PISA® 6 and 7 anchors. See page 4A-6 for high-strength anchor installing wrench information.

Ordering Information 8,000 ft.-lb. TOUGH ONE® anchor 2½" Square Inside Hub

Install with the Chance HYBRID* or TOUGH ONE® wrench (see page 4A-4 or 4A-6)

	8" Dia.	Std. Pkg./ Pallet	10" Dia.	Std. Pkg./ Pallet
	For 5/8" dia. Rod For 3/4" & 1" Dia. Rods	C1025008 C1025004	4/96 4/96	C1025009 C1025005
	12" Dia.	Std. Pkg./ Pallet	14" Dia.	Std. Pkg./ Pallet
	For 5/8" dia. Rod For 3/4" & 1" dia. Rods	C1025010 C1025006	2/48 2/48	C1025007 2/40

15,000 ft.-lb. TOUGH ONE® anchor 2½" Square Inside Hub

Install with only the Chance TOUGH ONE® wrench system (Catalog page 4A-6)

	8" Dia.	Std. Pkg./ Pallet	10" Dia.	Std. Pkg./ Pallet
	For 3/4" & 1" dia. Rods	C1025000	4/96	C1025001
12" Dia.		Std. Pkg./ Pallet	14" Dia.	Std. Pkg./ Pallet
	C1025002	2/48	C1025003	2/40

Patent No. 4,979,341; 4,981,000; 5,575,122; 5,607,261.

PISA[®] ANCHOR HELIX ASSEMBLIES



PISA[®] anchor installation takes about 5 minutes with two workers.

Chance Standard-Strength 4,000 foot-pound anchors and Mid-Strength 6,000 foot-pound anchors have curvilinear leading edges to help penetrate rocky soils and to reduce damage during installation. These anchors are available in single and twin-helix designs. The same installing wrench installs Standard and Mid-Strength anchors as well as TOUGH ONE[®] C10252- - series anchors. See page 4A-4 for installing wrench information.



Ordering Information

STANDARD-STRENGTH ANCHOR SERIES

1³/₈" CORE — 4000 ft.-lbs. Typical Working Torque — Squared Helix — 3.0" Helix Pitch

SINGLE HELIX	Catalog Number							
	8" Dia.	Std. Pkg.	10" Dia.	Std. Pkg.	12" Dia.	Std. Pkg.	14" Dia.	Std. Pkg.
For 5/8" Dia. Rods	024474	8/240	024476	4/96	024462*	4/80	NA	—
For 3/4" & 1" Dia. Rods	024475	8/240	024478	4/96	024481	4/80	P024484*	2/32

*RUS Accepted

TWIN HELIX	Catalog Number			
	8" Dia.	Std. Pkg.	10" Dia.	Std. Pkg.
For 3/4" & 1" Dia. Rods	012904	1/30	012905	1/30

MID-STRENGTH ANCHOR SERIES

1³/₈" CORE — 6000 ft.-lbs. Typical Working Torque — Squared Helix — 3.0" Helix Pitch

SINGLE HELIX	Catalog Number							
	8" Dia.	Std. Pkg.	10" Dia.	Std. Pkg.	12" Dia.	Std. Pkg.	14" Dia.	Std. Pkg.
For 5/8" Dia. Rods	E1021629	8/240	E1021630	4/96	E1021631	4/80	NA	—
For 3/4" & 1" Dia. Rods	E1021632	8/240	E1021633	4/96	E1021634	4/80	E1021801	2/32

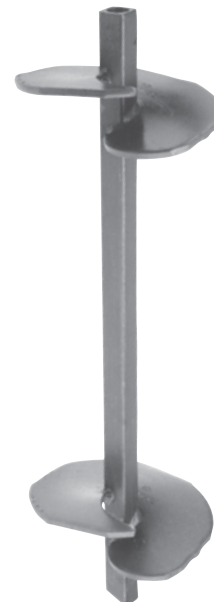
TWIN HELIX	Catalog Number					
	4" Dia.	Std. Pkg.	8" Dia.	Std. Pkg.	10" Dia.	Std. Pkg.
For 3/4" & 1" Dia. Rods	E1021635	1/30	E1021636	1/30	E1021637	1/30

See Page 4-10 for ordering PISA anchor rods and eye nuts.

PISA® 6 and PISA® 7 ANCHOR HELIX ASSEMBLIES

Chance PISA®-6 6000 foot-pound anchors and PISA®-7 7000 foot-pound anchors have curvilinear leading edges to help penetrate rocky soils and to reduce damage during installation. These anchors are available in single and twin-helix designs.

PISA®-6 and PISA®-7 anchors have a 1½" square solid core for added strength. See page 4A-4 or 4A-6 for information on the 1½" installing wrench.



ORDERING INFORMATION PISA® 6 anchor

1½" CORE — 6000 ft.-lbs. Typical Working Torque — Squared Helix — 3.0" Helix Pitch

SINGLE HELIX	Catalog Number							
	8" Dia.	Std. Pkg./Pallet	10" Dia.	Std. Pkg./Pallet	12" Dia.	Std. Pkg./Pallet	14" Dia.	Std. Pkg./Pallet
For 5/8" Dia. Rods	E1020816	8/240	E1020817	4/96	—	—	—	—
For 3/4" & 1" Dia. Rods	E1020819	8/240	E1020820	4/96	E1020821	4/80	T1022142	2/32

TWIN HELIX	Catalog Number			
	Two 8" Dia.	Std. Pkg./Pallet	Two 10" Dia.	Std. Pkg./Pallet
For 3/4" & 1" Dia. Rods	E1020822	1/30	E1020823	1/30

PISA® 7 anchor

1½" CORE — 7000 ft.-lbs. Typical Working Torque — Squared Helix — 3.0" Helix Pitch

SINGLE HELIX	Catalog Number			
	8" Dia.	Std. Pkg./Pallet	10" Dia.	Std. Pkg./Pallet
For 3/4" & 1" Dia. Rods	E1021223	8/240	E1020250	4/96

TWIN HELIX	Catalog Number					
	Two 8" Dia.	Std. Pkg./Pallet	Two 10" Dia.	Std. Pkg./Pallet	Two 4" Dia.	Std. Pkg./Pallet
For 3/4" & 1" Dia. Rods	E1021219	1/30	E1021220	1/30	V1021428	1/30

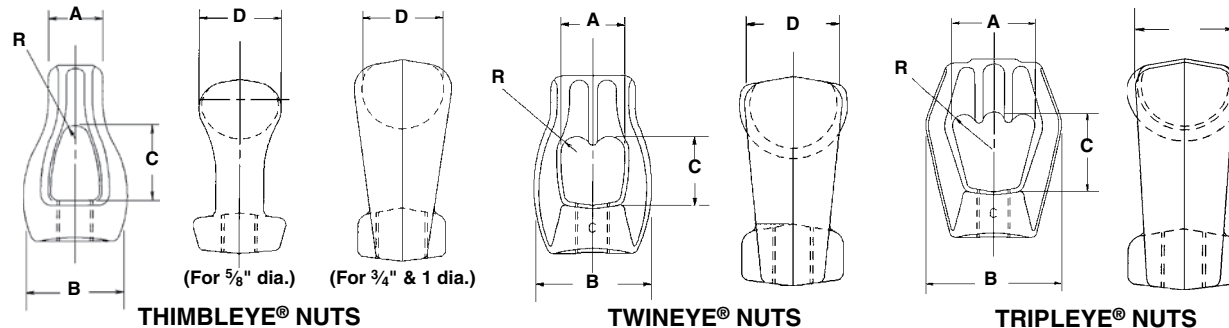
See Page 4-10 for ordering PISA anchor rods and eye nuts.

PISA[®] ANCHOR RODS, EYENUTS AND COUPLINGS

All components shown on this page are hot-dip galvanized per ASTM A153.



EYENUT	Catalog Number					
	Thimbleye [®]	Std. Pkg./Pallet	Twineye [®]	Std. Pkg./Pallet	Tripleye [®]	Std. Pkg./Pallet
For 5/8" Dia. Rods	12587*	30/2250	12589	30/975	12593	30/750
For 3/4" & 1" Dia. Rods	6512*	30/1200	6562	30/1200	12585	30/1200
For 1" Dia. H.S.	N/A	N/A	6562H	25/1000	12585H	25/1000



	A	B	C	D	R		A	B	C	D	R		A	B	C	D	R
For 5/8" Dia. Rods	7/8"	1 7/8"	1 3/8"	1 1/64"	1/4"	For 5/8", 3/4" & 1 Dia. Rods	1 13/32"	2 25/64"	1 27/64"	1 1/2"	5/16"	For 5/8", 3/4" & 1 Dia. Rods	1 3/4"	2 13/16"	1 5/8"	1 1/2"	1/4"
For 3/4" & 1 Dia. Rods	1 1/8"	2 25/64"	1 19/32"	1 5/8"	13/32"												

ROD	3 1/2-ft. ROD		7-ft. ROD		Ultimate Strength [†]
	Cat. No.	Std. Pkg./Pallet	Cat. No.	Std. Pkg./Pallet	
5/8" Dia.	12336P	5/50	12332P*	5/50	16,000 lbs.
3/4" Dia.	12634P	5/50	12632P*	5/50	23,000 lbs.
1" Dia.	12338P	5/50	12334P	2/50	36,000 lbs.
1" Dia. H.S.	C1021987	5/60	C1021986	2/50	50,000 lbs.

*RUS Accepted. [†]Ultimate strength ratings apply to properly installed anchors only.
Failure to install within 5° of alignment with the guy load will significantly lower strength.

COUPLING	Catalog Number	Std. Pkg./Pallet
For 5/8" Dia. Rods	12245P	60/1950
For 3/4" & 1" Dia. Rods	12247P	50/2400

NOTE: Couplings are required only when it is necessary to add additional rods of 3 1/2 ft. or 7 ft. to form an extension.

Extension Rod & Coupling Combinations	3 1/2 ft. ROD	
	Cat. No.	Std. Pkg./Pallet
5/8" Dia.	12249A	5/50
3/4" Dia.	12250A	5/50
1" Dia.	12251A	5/50

PISA[®] Rod & Eyenut Combinations

Catalog No.	Rod, Eyenut
E1020031	5/8" x 3 1/2' Rod & Thimbleye Nut
E1020047	5/8" x 3 1/2' Rod & Tripleye Nut
E1020035	5/8" x 7' Rod & Thimbleye Nut
E1020043	5/8" x 7' Rod & Twineye Nut
E1020051	5/8" x 7' Rod & Tripleye Nut
E1020032	3/4" x 3 1/2' Rod & Thimbleye Nut
E1020040	3/4" x 3 1/2' Rod & Twineye Nut
E1020036	3/4" x 7' Rod & Thimbleye Nut
E1020044	3/4" x 7' Rod & Twineye Nut
E1020052	3/4" x 7' Rod & Tripleye Nut
E1020041	1" x 3 1/2' Rod & Twineye Nut
E1020049	1" x 3 1/2' Rod & Tripleye Nut
E1020037	1" x 7' Rod & Thimbleye Nut
E1020045	1" x 7' Rod & Twineye Nut
E1020053	1" x 7' Rod & Tripleye Nut

Corrosion-Protected PISA[®] Rod & Coupling

Rod is asphalt-coated galvanized with heat-shrink and plastic tube covering. Coupling is galvanized, covered with heat-shrink tubing.

Rod	Fits Rod Size	Std. Pkg./Pallet
Cat. No.		
C1021996	1" x 7"	2/50
C1022061	1" x 3 1/2'	5/50
Coupling		
C1025240	1"	50/2400



RR (ROUND-ROD) SCREW ANCHORS

The Round-Rod "RR" multi-helix anchors are used in areas where weak soil conditions exist and moderate holding capacities are required. All helix lead sections are 7 ft. long. Extension shafts may be required for installation to proper depth.

RR screw anchors consist of three galvanized components: Lead section, extension shaft (which includes an integral coupling), and

the guy adapter. Each extension and guy adapter includes a high-strength bolt and nut.

Type RR (Round-Rod) anchors torque rating is 2,300 ft-lb. Ultimate tension rating for RR mechanical strength is 70,000 lb. Failure to install within 5° of alignment with the guy load will significantly lower strength.

LEAD SECTIONS

Catalog No.	Length	Helix Combinations	Std. Pkg./Pallet	Holding Capacity - (lb.) vs. Soil Class		
				Class 7	Class 6	Class 5
012690AE	7 ft.	8" - 10"	1/20	19,000	23,000	27,000
012690AEJ	7 ft.	8" - 10" - 12"	1/20	26,000	32,000	39,000
V1090007	7 ft.	10" - 10" - 10"	1/15	25,000	31,000	N/A
V1090006	7 ft.	10"	1/20	17,000	21,000	24,000

EXTENSIONS

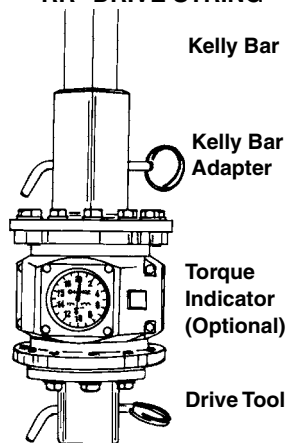
Catalog No.	Nominal length	Std. Pkg./Pallet
12696	3½ ft.	1/50
12697	5 ft.	1/50
12698	7 ft.	1/30
12699	10 ft.	1/50

Extensions with helices are available. Contact your Hubbell representative or ServiCenter for information.

GUY ADAPTERS

Catalog No.	Nominal length	Description	Std. Pkg./Pallet
C1020023	18"	Thimbleye®	5/175
C1020024	18"	Twineye®	5/250
C1020025	18"	Tripleye®	5/250
C1100026	20"	Threaded Stud	5/130
C1100041	18"	Ovaleye	5/200

TYPICAL "RR" DRIVE STRING



For installation tool options, see catalog Section 4A.



Guy Adapter

Extension

Lead Section

LOAD CAPACITY¹ BASED ON INSTALLATION TORQUE² LOAD CAPACITY OF RR ANCHORS IN SOIL (POUNDS TENSION)

Helix Combinations	Installation Torque (ft-lb)		
	1,500	2,000	2,300
10"	16,000	22,000	28,000
8" - 10"	17,000	23,000	29,000
10" - 10" - 10"	19,000	25,000	31,000
8" - 10" - 12"	19,000	25,000	31,000

¹Load capacities listed above are ultimate values based on average test data and are offered as an application guide. Typical deflection at ultimate load ranges between 2 and 4 inches. The listed values should be reduced by an appropriate factor of safety. More specific data on soils and anchor performance in any site condition can be obtained by contacting Hubbell Power Systems.

²The torque values shown are steady values in homogeneous soils, not peak values that can occur in non-homogeneous soils such as glacial till or other rocky soils. The torque values shown are obtained by averaging the readings from the last 2 feet of anchor penetration.

SS (SQUARE-SHAFT) SCREW ANCHORS

Square-Shaft "SS" multi-helix screw anchors are designed for heavy-guy loading. They have 1½" square steel shafts. Extension shafts must be coupled to the helix section for installation to the proper depth. For installation tool options, see catalog Section 4A.

coupling, and the guy adapter. Extensions and guy adapters include a high-strength bolt and nut.

Typical working torque is 5,500 ft.-lb. and minimum ultimate tension strength is 70,000 lb. Note: Ultimate strength ratings apply to properly installed anchors only. Failure to install within 5° of alignment with the guy load will significantly lower strength.

SS screw anchors consist of three galvanized components: the lead section, the extension shaft, which includes an integral

LEAD SECTIONS[†]

Catalog No.	Length	Helix Combinations	Std. Pkg./Pallet	Holding Capacity - (lb.) vs. Soil Class					
				Class 7	Class 6	Class 5	Class 4	Class 3	Class 2
012642AE*	3 ft.	8" - 10"	1/20	19,000	23,000	27,000	32,000	36,000	41,000
012642EJ	3½ ft.	10" - 12"	1/20	21,000	26,000	31,000	36,000	41,000	46,000
012642AEJ*	5½ ft.	8" - 10" - 12"	1/20	26,000	32,000	39,000	46,000	51,000	58,000
012642EJN*	7 ft.	10" - 12" - 14"	1/20	29,000	37,000	45,000	53,000	61,000	69,000
012642AEJN	10½ ft.	8" - 10" - 12" - 14"	1/20	31,000	40,000	49,000	58,000	67,000	N/A
012642EJNS*	10½ ft.	10" - 12" - 14" - 14"	1/20	40,000	51,000	62,000	70,000	N/A	N/A

Note: Holding capacities are based on average test data and are offered as an application guide only.

*RUS Accepted. †Packaging note: Lead sections are banded to wood blocks to facilitate forklift handling.

EXTENSIONS[‡]

Catalog No.	Nominal Length	Helix Diameter	Std. Pkg./Pallet
12655	3½ ft.	N/A	1/50
12656	5 ft.	N/A	1/50
12657	7 ft.	N/A	1/40
12658	10 ft.	N/A	1/50
12656N	5 ft.	14"	1/12
12655J	3½ ft.	12"	1/12

‡Packaging note: Extension shafts are banded to wood blocks to facilitate forklift handling.

GUY ADAPTERS^{‡‡}

Catalog No.	Nominal Length	Description	Std. Pkg./Pallet
C1020023	18"	THIMBLEYE [®]	5/175
C1020024	18"	TWINEYE [®]	5/250
C1020025	18"	TRIPLEYE [®]	5/250
C1100026	20"	Threaded Stud	5/130
C1100041	18"	Ovaleye	5/200

‡‡Packaging note: Guy adapters are shipped in corrugated cartons.

LEAD SECTION & GUY ADAPTER COMBINATIONS^{*}

Catalog No.	Guy Adapter	Helix Combinations
126541AE	THIMBLEYE [®]	8" - 10"
126541EJ	THIMBLEYE [®]	10" - 12"
126541AEJ	THIMBLEYE [®]	8" - 10" - 12"
126541EJN	THIMBLEYE [®]	10" - 12" - 14"
126541EJNS	THIMBLEYE [®]	10" - 12" - 14" - 14"
126542AE	TWINEYE [®]	8" - 10"
126542EJ	TWINEYE [®]	10" - 12"
126542AEJ	TWINEYE [®]	8" - 10" - 12"
126542EJN	TWINEYE [®]	10" - 12" - 14"
126542EJNS	TWINEYE [®]	10" - 12" - 14" - 14"
126543AE	TRIPLEYE [®]	8" - 10"
126543EJ	TRIPLEYE [®]	10" - 12"
126543AEJ	TRIPLEYE [®]	8" - 10" - 12"
126543EJN	TRIPLEYE [®]	10" - 12" - 14"
126543EJNS	TRIPLEYE [®]	10" - 12" - 14" - 14"

*Packaging note: Lead sections are banded to wood blocks to facilitate forklift handling. Guy adapters are shipped in separate corrugated cartons.



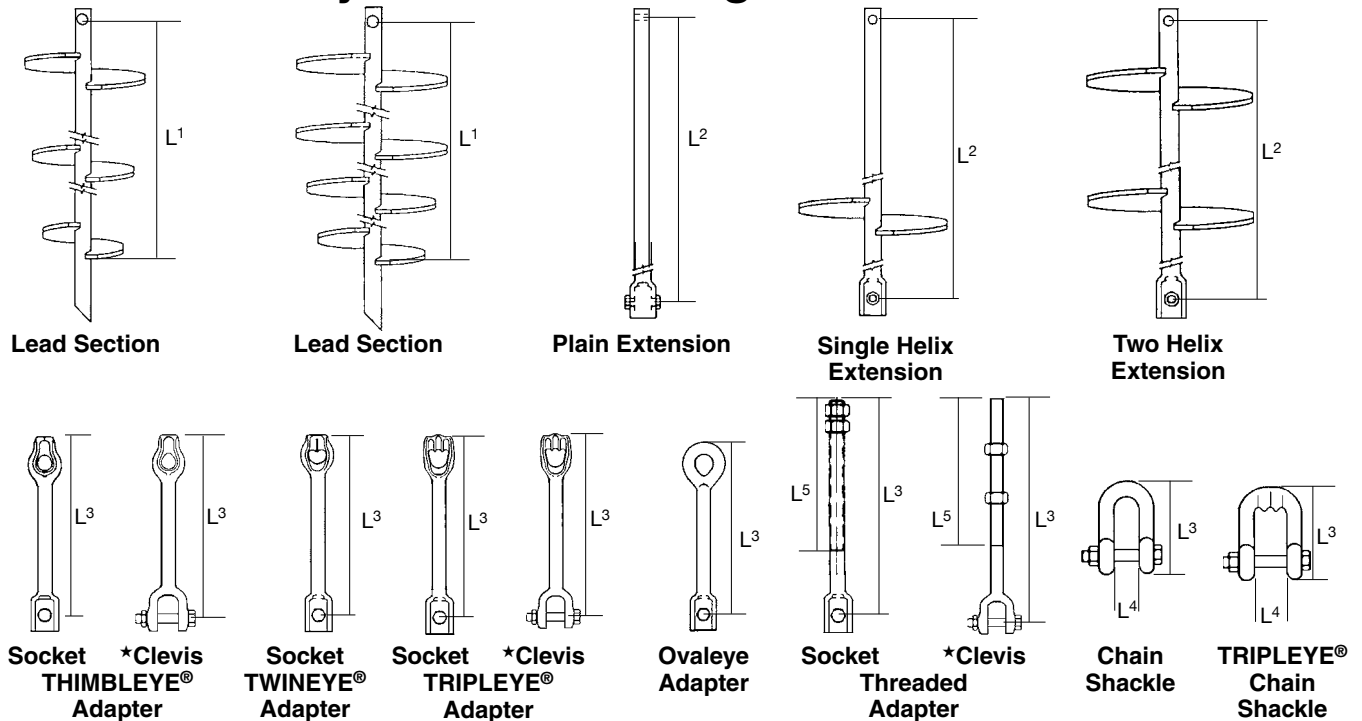
LOAD CAPACITY¹ BASED ON INSTALLATION TORQUE² LOAD CAPACITY OF SS ANCHORS IN SOIL (POUNDS TENSION)

Helix Combinations	Installation Torque (ft-lb)									
	1,500	2,000	2,500	3,000	3,500	4,000	4,500	5,000	5,500	
8" - 10"	17,000	23,000	29,000	34,000	40,000	46,000	52,000	58,000	63,000	
10" - 12"	18,000	24,000	30,000	36,000	42,000	48,000	54,000	60,000	66,000	
8" - 10" - 12"	19,000	25,000	31,000	38,000	44,000	50,000	56,000	62,000	68,000	
10" - 12" - 14"	20,000	26,000	32,000	39,000	46,000	52,000	58,000	65,000	70,000	
8" - 10" - 12" - 14"	20,000	27,000	34,000	40,000	47,000	54,000	61,000	68,000	70,000	
10" - 12" - 14" - 14"	21,000	28,000	35,000	42,000	49,000	56,000	63,000	70,000	70,000	

¹Load capacities listed above are ultimate values based on average test data and are offered as an application guide. Typical deflection at ultimate load ranges between 2 and 4 inches. The listed values should be reduced by an appropriate factor of safety. More specific data on soils and anchor performance in any site condition can be obtained by contacting Hubbell Power Systems.

²The torque values shown are steady values in homogeneous soils, not peak values that can occur in non-homogeneous soils such as glacial till or other rocky soils. The torque values shown are obtained by averaging the readings from the last 2 feet of anchor penetration.

HIGH-STRENGTH SS ANCHORS for Heavy Tension Loading



RATINGS		ORDERING INFORMATION							
Mechanical Properties	SS 150 1.50" Square Shaft	SS 175 1.75" Square Shaft			SS 200 2.00" Square Shaft			SS 225 2.25" Square Shaft	
Max. Installation Torque	7,000 ft.-lb.	11,000 ft.-lb.			15,000 ft.-lb.			20,000 ft.-lb.	
Min. Ultimate Tension Strength	70,000 lb.	100,000 lb.			150,000 lb.			200,000 lb.	

Helix Configuration	SS 150			SS 175			SS 200			SS 225		
	Galv.	Non-Galv.	L ¹	Galv.	Non-Galv.	L ¹	Galv.	Non-Galv.	L ¹	Galv.	Non-Galv.	L ¹
8" & 10"	C1100385	C1140014	30"	C1100227	C1140020	30"						
6", 8" & 10"							C1100569	C1140214	60"	C1100543	C1140187	54"
8", 10" & 12"	C1100386	C1140015	57"	C1100235	C1140021	60"	C1100570	C1140215	60"	C1100544	C1140188	75"
14", 14" & 14"	C1100504	C1140149	120"	C1100505	C1140084	124"	C1100572	C1140216	122"	C1100545	C1140190	114"
8", 10", 12" & 14"		C1140100	120"	C1100247	C1140101	124"	C1100573	C1140217	122"	C1140189	C1140189	115"

Helix Configuration	SS 150			SS 175			SS 200			SS 225		
	Galv.	Non-Galv.	L ²	Galv.	Non-Galv.	L ²	Galv.	Non-Galv.	L ²	Galv.	Non-Galv.	L ²
None	C1100388	C1140016	37"	C1100136	C1140022	37"	C1100563	C1140209	37"	C1100645	C1140243	40"
None	C1100470	C1140104	59"	C1100137	C1140105	59"	C1100564	C1140210	58"	C1100646	C1140244	60"
None	C1100389	C1140017	80"	C1100138	C1140023	80"	C1100565	C1140211	80"	C1100647	C1140245	80"
None	C1100440	C1140080	122"	C1100140	C1140081	124"	C1100566	C1140212	123"			120"
Single 14" helix	C1100471	C1140108	48"	C1100472	C1140109	48"	C1100577	C1140220	45"	C1100650	C1140238	39"
Twin 14" helices	C1100454	C1140058	80"	C1100450	C1140057	80"	C1100581	C1140224	80"	C1100652	C1140252	78"
Triple 14" helices	C1100475	C1140112	123"	C1100476	C1140113	124"	C1100586	C1140231	123"			120"

	SS 150			SS 175			SS 200			SS 225		
	Galv.	Non-Galv.	L ³	Galv.	Non-Galv.	L ³	Galv.	Non-Galv.	L ³	Galv.	Non-Galv.	L ³
Thimbleye Adapter	C1020023		17"	*T1100311		17"	T1100312		17"			
Twineye Adapter	C1020024		17"									
Tripleye Adapter	C1020025		17"	*T1100465		17"						
Ovaley Adapter	C1100041		17"									
Threaded Adapter	C1100026	L ⁵ =13½"	20"	*T1100352*	L ⁵ =36"	48"						
Chain Shackle	†C1100574	L ⁴ =1½"	5½"	T1100134	L ⁵ =1 13/16"	6⅝"	C1100557	L ⁴ =2¼"	8¼"	C1100558	L ⁴ =2⅜"	9"

*T1100352 includes two nuts.

*Clevis fitting. Others have Socket fitting.

†TRIPLEYE® shackle

NO-WRENCH SCREW ANCHOR

• For Hand or Machine Installation

Chance No-Wrench Screw Anchors may be installed by hand or machine. The THIMBLEYE[®] eye or TRIPLEYE[®] eye on the rod has a large opening to admit a turning bar for screwing the anchor down. The eye will also fit into an adapter available from most hole-boring machine manufacturers so the anchor may be power-installed. The No-Wrench Screw Anchor consists of a drop-forged steel THIMBLEYE[®] eye or TRIPLEYE[®] eye rod welded to a steel helix. The entire anchor is hot-dip galvanized for long resistance to rust.

No-Wrench Screw Anchors can be installed to a greater depth to reach a firmer soil by using an extension rod, available in three lengths below. Maximum installing torque is 2300 ft.-lbs. for 1¼" diameter rod.

Catalog numbers 4345, 6346 and PS816 may be ordered with a forged THIMBLEYE[®] rod rather than the standard TRIPLEYE[®] rod. To order a THIMBLEYE[®] rod simply add "1" to the suffix of the catalog number. Example: Catalog No. 63461.

Typical working torque:
 ¾" Rod 400 ft.-lbs.
 1" Rod 1000 ft.-lbs.
 1¼" Rod 2300 ft.-lbs.

APPLICATION AND ORDERING INFORMATION

Catalog No.	Description	Anchor Size Dia.	Rod Dia. & Length	Std. Pkg./Pallet	No-Wrench Screw Anchor Holding Capacity - (lbs.) vs Soil Class		
					Class 5	Class 6	Class 7
					4345	TRIPLEYE [®]	4"
6346*	TRIPLEYE [®]	6"	¾" x 66"	1/100	6500	5000	2500
PS816	TRIPLEYE [®]	8"	1" x 66"	1/60	11000	9000	6000
10146	TRIPLEYE [®]	10"	1¼" x 66"	1/20	13000	10000	7000
10148	TRIPLEYE [®]	10"	1¼" x 96"	1/20	13000	10000	7000
12537	TRIPLEYE [®]	14"	1¼" x 96"	1/20	16000	15000	12000
43451	THIMBLEYE [®]	4"	¾" x 54"	1/100	4500	3000	1500
63461	THIMBLEYE [®]	6"	¾" x 66"	1/100	6500	5000	2500
8161	THIMBLEYE [®]	8"	1" x 66"	1/60	11000	9000	6000

*RUS Accepted.

Extension Rod

Catalog No.	Description	Anchor Size Dia.	Rod Dia. & Length	Std. Pkg./Pallet	Class 5	Class 6	Class 7
402	TRIPLEYE [®]	N/A	1¼" x 72"	1/50	N/A	N/A	N/A

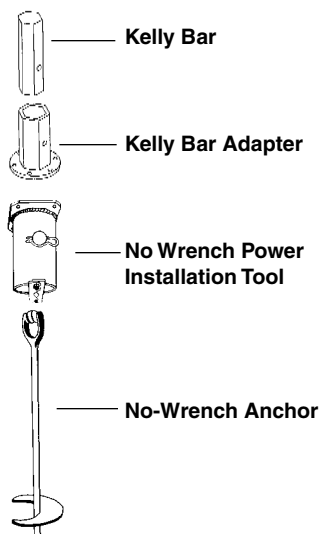
Note: If hand installed, holding capacity may be reduced by as much as 10% to 20%. Capacity ratings apply to properly installed anchors only.

Failure to install within 5° of alignment with the guy load will significantly lower strength.



NO-WRENCH POWER INSTALLATION TOOL

"NO WRENCH" TYPICAL DRIVE STRING

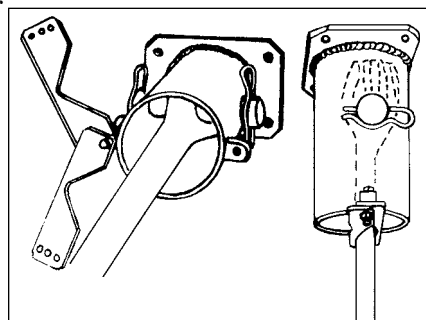


Catalog No.	Weight, lbs.
E3030255	9

Especially designed for use with the Chance portable anchor installer. This tool bolts directly to the installer's output flange or appropriate Kelly bar adapter. Adjustable pivot plates accept rods from ¾" to 1¼" diameter. Through-pin with retainer clip passes through the eyenut.

Has (four) holes on a 5¼" bolt circle for attachment. Includes (four) ½" x 1½" bolts, nuts and lockwasher.

Note: Can be attached to any Chance Torque Indicator



“Bust” Expanding Anchor

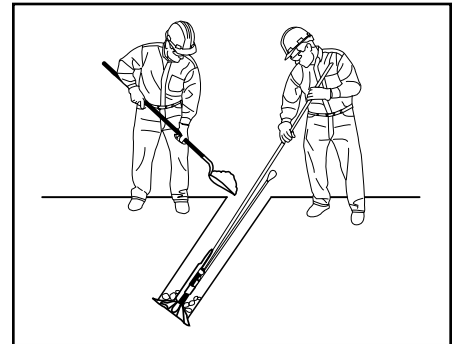
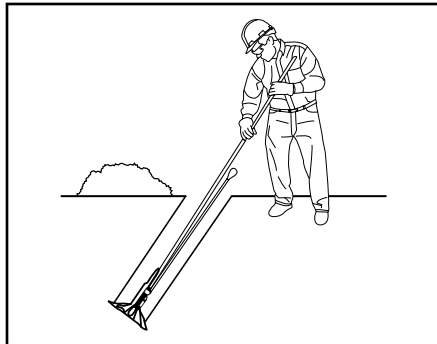
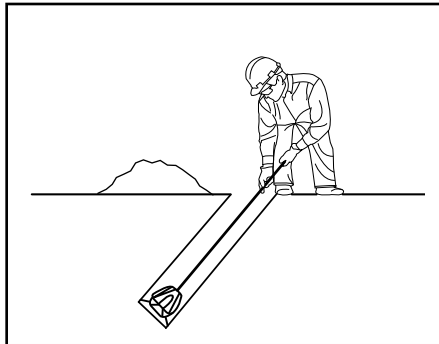


MORE HOLDING CAPACITY FOR LESS

Four different sizes are available with holding capacity as high as 40,000 pounds.

Chance “Bust” Expanding Anchors expand to take full advantage of the available area. All eight blades wedge into undisturbed earth . . . there is no wasted space between blades.

This anchor should be installed in relatively dry and solid soils. The effectiveness of the anchor is dependent upon the thoroughness of backfill tamping.



APPLICATION AND ORDERING INFORMATION

Catalog Number	Anchor Hole Size	Area Sq. In.	Rod Size (Order Separately)	Std. Pkg./Pallet	8-Way Anchor Holding Capacity - (lbs.) vs Soil Class				
					Class 3	Class 4	Class 5	Class 6	Class 7
6870*	6"	70	5/8"	12/288	16000	14000	11000	8500	5000
88135*	8"	135	5/8" or 3/4"	6/150	26500†	22000†	18000†	15000	10000
1082	10"	200	1"	4/48	31000	26500	21000	16500	12000
108234	10"	200	3/4"	4/48	31000†	26500†	21000	16500	12000
1283	12"	300	1 1/4"	2/26	40000	34000	26500	21500	16000
12831	12"	300	1"	2/26	40000†	34000	26500	21500	16000

†Ultimate strength of rod may limit holding capacity. (See page 4-17 for rod ratings and selection.)
Add suffix "G" for galvanized. Example: 88135G.

*RUS Accepted.

Note: Capacity ratings apply to properly installed anchors only.

Failure to install within 5° of alignment with the guy load will significantly lower strength.

EXPANDING & TAMPING BAR

The improved Chance fiberglass handle Expanding and Tamping Bar simplifies the job of expanding anchors. The curved Tamper and Expander Head distributes the weight of the bar evenly around the anchor rod to reduce handle vibration. The hook of the Expanding and Tamping Bar wraps around the anchor rod to keep the Expanding Head from slipping off the anchor top plate. This tool is also effectively used for tamping in soil above the installed anchor. The base casting is attached directly to the Epoxiglas® handle.

Cat. No.	Description	Length	Weight
C3020003	Expanding & Tamping Bar	10'	22 lbs.
C3020004	Expanding & Tamping Bar	12'	24 lbs.

To order fiberglass replacement handles or expander head, see page 4A-11.

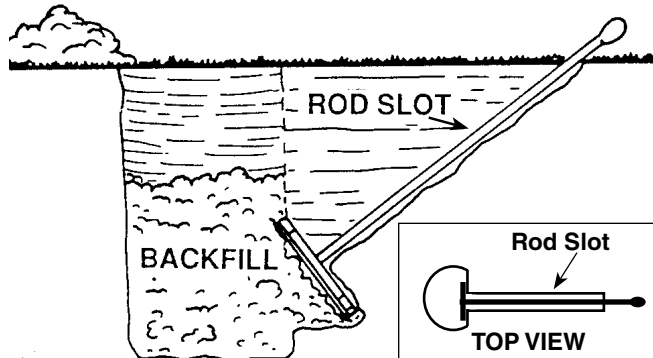


Cross-Plate Anchor

The Cross-Plate anchor is made for installation in holes drilled by power diggers. Because the size of the hole does not affect holding capacity, the hole can be dug by the same auger that is used to dig the pole holes on transmission projects.



Cross-Plate anchors are installed in a diagonal bored hole which is undercut so the anchor is at right angles to the guy. A rod trench is either cut with a trenching tool or drilled with a small power auger. Both anchor and rod trench should be refilled and tamped.



APPLICATION AND ORDERING INFORMATION

Catalog Number	Hole Size	Std. Pkg./Pallet	Approx. Wt. per Carton [†]	Area Sq. In.	Rod Size (order separately)	Holding Capacity [‡] - (lbs.) (No Safety Factors Included) vs Soil Class				
						Class 3	Class 4	Class 5	Class 6	Class 7
X16	16"	6/108	90 lb.	150	5/8", 3/4"	26500 [‡]	22500 [‡]	18500 [‡]	14500	9500
X20	20"	4//64	64 lb.	250	5/8", 3/4"	34000 [‡]	29000 [‡]	24000 [‡]	19000 [‡]	14000
X201	20"	4/64	64 lb.	250	1"	34000	29000	24000	19000	14000
X2434*	24"	1/48	34 lb.	400	5/8", 3/4"	45000 [‡]	37000 [‡]	30000 [‡]	23500 [‡]	18000 [‡]
X24 [†]	24"	1/48	34 lb.	400	1"	45000 [‡]	37000 [‡]	30000	23500	18000
X241 [†]	24"	1/48	34 lb.	400	1 1/4"	45000	37000	30000	23500	18000

[†]X24 Series are not available in carton and are shipped as individual pieces.

[‡]Ultimate strength of rod may limit holding capacity. (See page 4-17 for rod ratings and selection.)

Add suffix "G" for galvanized. Example: X20G.

*RUS Accepted.

Note: Capacity ratings apply to properly installed anchors only.

Failure to install within 5° of alignment with the guy load will significantly lower strength.

Rods, Anchor, Galvanized

• Extensions

These anchor rod extensions primarily are for making above-grade connections between installed anchors and guy wires. Each extension's forged eye is designed to distribute pulling

stresses uniformly over individual strands of guy wire and keep the guy wire from spreading, kinking, or bending.

The drop-forged eye of each extension rod is stronger than the rod itself. Rod length and diameter are stamped below each rod eye.



Welded Clevis style

Catalog No.	Description	Rod Dia. & Length	Std. Pkg./Pallet
PSC1022176	TRIPLEYE [®]	3/4" x 24"	1/50
PSC1022177	TRIPLEYE [®]	3/4" x 36"	1/50
PSC1022178	TRIPLEYE [®]	3/4" x 72"	1/50
PSC1022183	TWINEYE [®]	1" x 24"	1/50
PSC1022305	TRIPLEYE [®]	1" x 24"	1/50
PSC1022184	TWINEYE [®]	1" x 36"	1/50
PSC1022306	TRIPLEYE [®]	1" x 36"	1/50
PSC1022185	TWINEYE [®]	1" x 72"	1/50
PSC1022307	TRIPLEYE [®]	1" x 72"	1/50

Each extension rod includes a high-strength bolt and nut.



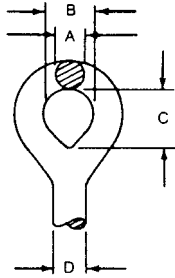
Forged Clevis style

Catalog No.	Description	Rod Dia. & Length	Std. Pkg./Pallet
4022	TRIPLEYE [®]	1 1/4" x 24"	1/50
PS4023	TRIPLEYE [®]	1 1/4" x 36"	1/50
402	TRIPLEYE [®]	1 1/4" x 72"	1/50

Rods, Anchor, Galvanized

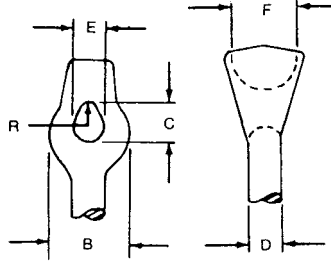
Available for one, two, or three guys for use with expanding and cross-plate anchors. THIMBLEYE®, TWINEYE® and TRIPLEYE® rods distribute pulling stresses uniformly over individual strands of guy wire and keep the guy wire from spreading, kinking, or bending. The drop-forged eye of each anchor rod

is stronger than the rod itself. Rod length and diameter are stamped below each rod eye. Each rod is threaded 3 1/2" minimum length. Nuts included.



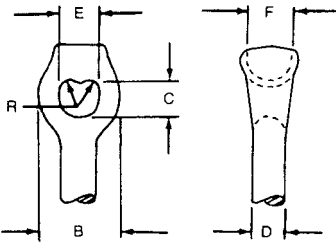
OVALEYE ADAPTER

D	A	B	C
5/8"	9/16"	1 1/2"	2"
1"	7/8"	1 1/2"	2"



THIMBLEYE® ADAPTER

D	*R	B	C	E	F
1/2"	3/16"	1 1/4"	9/16"	1/2"	1 1/4"
5/8"	1/4"	1 1/2"	11/16"	9/16"	1 3/8"
3/4"	9/32"	1 5/8"	13/16"	11/16"	1 1/2"
1"	13/32"	2 1/16"	1 1/8"	15/16"	1 5/8"



TWINEYE® ADAPTER

D	*R	B	C	E	F
5/8"	7/32"	1 3/4"	7/8"	15/16"	1 1/4"
3/4"	1/4"	2"	1"	1 1/16"	1 3/8"
1"	5/16"	2 5/8"	1 3/16"	1 5/16"	1 1/2"
1 1/4"	3/8"	2 15/16"	1 1/4"	1 9/16"	1 5/8"

TRIPLEYE® ADAPTER

D	*R	*R1	B	C	E	F
3/4"	1/4"	7/32"	2 1/2"	1 11/16"	1 1/2"	1 1/4"
1"	1/4"	7/32"	2 9/16"	1 11/16"	1 5/8"	1 1/2"
1 1/4"	9/32"	1/4"	2 7/8"	1 11/16"	1 11/16"	1 5/8"



TENSILE STRENGTH

Rod Size, in.	Strength, lb.
1/2	10,000
5/8	16,000
3/4	23,000
1	36,000
1 1/4	58,000

*(2 x R or 2 x R1) = maximum-diameter guy strand.

Catalog No.				Size	+Protected Rods - Catalog No.		
THIMBLEYE® Adapter	TWINEYE® Adapter	TRIPLEYE® Adapter	Ovaleye Adapter		THIMBLEYE® Adapter	TWINEYE® Adapter	TRIPLEYE® Adapter
5305	—	—	—	1/2 x 5'	—	—	—
5306	—	—	—	1/2 x 6'	—	—	—
5307	—	—	—	1/2 x 7'	—	—	—
5315	—	—	—	5/8" x 5'	—	—	—
†*5316	5346	—	—	5/8" x 6'	—	—	—
†*5317	†*5347	—	PS6417	5/8" x 7'	—	—	—
†*5318	†*5348	—	—	5/8" x 8'	—	—	—
*5326	*5356	—	—	3/4" x 6'	C2000088	C2000092	—
*5327	*5357	*7557	—	3/4" x 7'	C2000089	C2000093	C2000099
†*5328	†*5358	7558	—	3/4" x 8'	C2000090	C2000094	C2000098
—	†*5359	7559	—	3/4" x 9'	—	C2000095	C2000097
—	†5360	—	—	3/4" x 10'	C2000091	C2000096	—
*5338	*5368	7568	—	1" x 8'	C2000102	—	C2000105
—	†5369	—	6440	1" x 9'	—	C2000100	—
†*5340	†*5370	7570	—	1" x 10'	C2000103	C2000101	C2000104
—	—	C2000028	—	1 1/4 x 8'	—	—	—
—	15129	7574	—	1 1/4 x 10'	—	—	—

*N.E.M.A. Standard

†RUS Accepted.

+Galvanized rod and square nuts meet NEMA specification plus have polyethylene tube. No asphalt paint is added, so tube can slide down after anchor is expanded.

EXPANDING ROCK ANCHORS



- **Saves Time, Labor, Money**

The Chance Expanding Rock Anchor is a big time, labor, and money saver . . . because, in most cases, there is no need to mix concrete, melt lead, or carry extra, bulky equipment to the job. Generally, the cost of installing the Expanding Rock Anchor is about 35% less than the old-fashioned grouting method

- **Expands and Wedges**

This anchor expands and wedges against solid walls of rock. And, once it is expanded, the harder the pull on the rod—the tighter it wedges. Wedges are made of malleable or ductile iron with a rust-resistant coating. Rod should be in line with the guy.

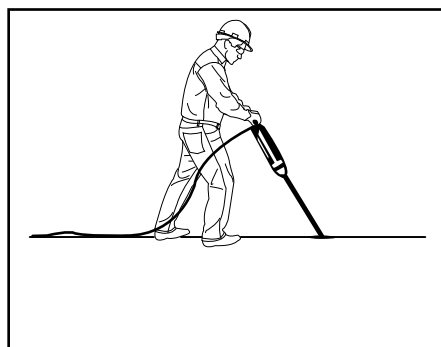
- **Installation**

Installation is quick and simple. Bore the hole with hand or power drill, making sure that the diameter of the hole is ¼-inch larger than the diameter of the unexpanded anchor. Drop the anchor in the hole. Put a bar through the large eye of the anchor rod. Turn the rod until the anchor is firmly expanded against the sides of the hole. Grouting should be done if protection of the rock against weathering is a concern.

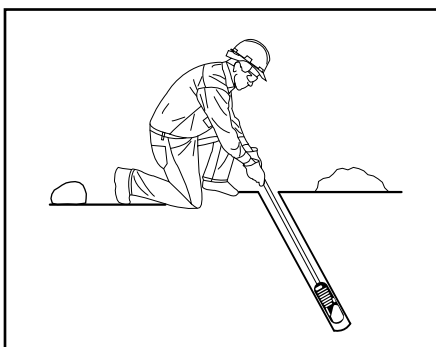
This wedging force holds the anchor securely in place—to stay.

- **1, 2 or 3 Guy Strands**

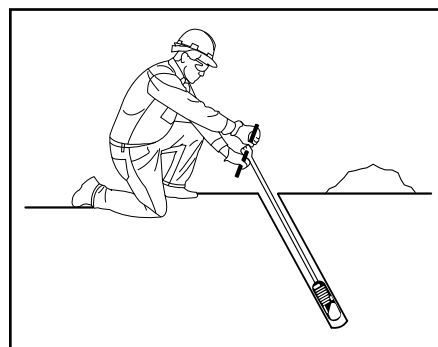
The large drop-forged TRIPLEYE[®] rod of high-test steel holds up to three guy strands. The contour of the eye grooves keeps the guy strands from spreading, kinking, bending. . . and allows slack to be pulled up without binding, damaging, or weakening the guy.



Drill hole . . .



. . . push anchor into hole



. . . turn rod to expand.

Cat. No.	Rod Dia.	Rod Lth.	Anchor Size	Anchor Fully Exp'd	Hole Size	Approx Weight Per 100	No. in. Bdl.
R315*	¾"	15"	1¾"	2⅜"	2"	500	5
R330*	¾"	30"	1¾"	2⅜"	2"	700	5
R353*	¾"	53"	1¾"	2⅜"	2"	960	5
R360	¾"	60"	1¾"	2⅜"	2"	1040	5
R372	¾"	72"	1¾"	2⅜"	2"	1200	5
R384	¾"	84"	1¾"	2⅜"	2"	1300	5
R396	¾"	96"	1¾"	2⅜"	2"	1460	5

Cat. No.	Rod Dia.	Rod Lth.	Anchor Size	Anchor Fully Exp'd	Hole Size	Approx Weight Per 100	No. in. Bdl.
R130L	1"	30"	2¼"	3⅛"	2½"	1166	3
R153L	1"	53"	2¼"	3⅛"	2½"	1833	3
R172L	1"	72"	2¼"	3⅛"	2½"	2133	3
R196L	1"	96"	2¼"	3⅛"	2½"	2666	3

*RUS Accepted.
 ¾" Rod Minimum Ultimate Strength of 23,000 pounds.
 1" Rod Minimum Ultimate Strength of 36,000 pounds.

Ultimate strength ratings apply to properly installed anchors only.
 Failure to install within 5° of alignment with the guy load will significantly lower strength.
 Recommended minimum installation depth is 12" in solid rock.

Expanding Pole Key Anchor



CLOSED

• **Quicker Installing, More Efficient Than Wood Key**

Made of structural steel, the Chance Pole Key anchor is used where guys are impractical or as backup to guys.

The Pole Key anchor can be installed in about 15 minutes, while it takes about 3 hours to install an old-type wood key.

The Pole Key anchor is extensively used for keying power and telephone-line poles, and wood poles used in street lighting. It is also used as a pole reinforcement in soft soils where the load is unbalanced, due to small angles or crossarm configuration.



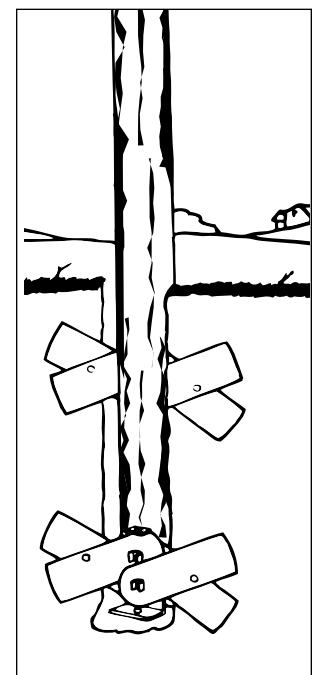
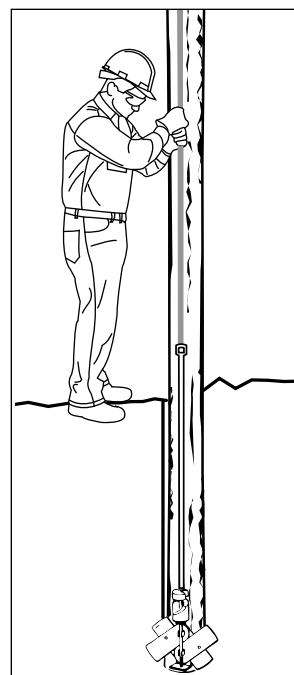
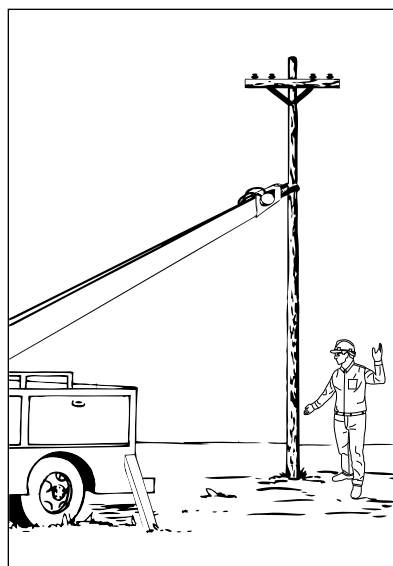
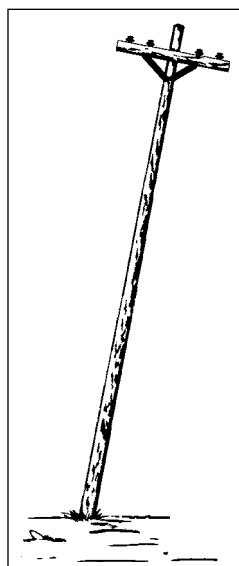
EXPANDED

Application and Ordering Information

Catalog Number	Width Expanded	Blade Width	Area Expanded	Approx. Weight	Ultimate Resisting Force at 5 ft. Depth (lb.) [€]			
					Soil Class 3	Soil Class 4	Soil Class 5	Soil Class 6
*P4817	27¼"	7"	276 sq. in.	24½ lb.	11,000	9,500	7,400	5,800

[€]The lateral load and overturning moment which can be resisted depends on the height of the load above ground level, the depths of the two opposing Pole Keys, and the allowable lateral deflection of the pole at ground line.

*RUS Accepted. Accommodates any ¾"-diameter rod on page 4-17.

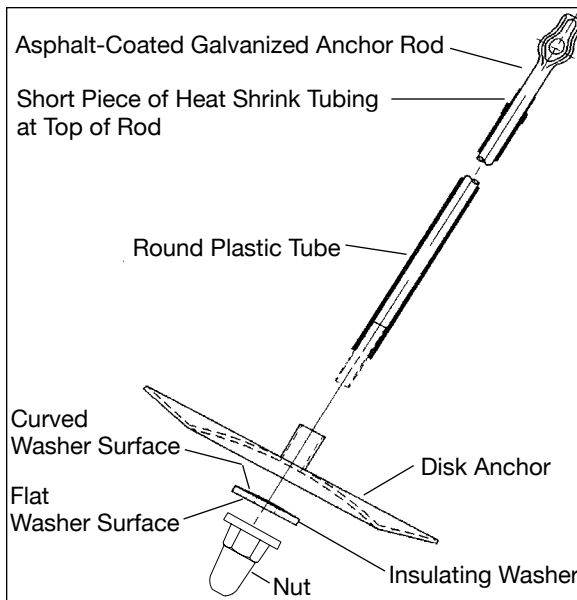


Chance Pole Key anchor is quickly installed next to a pole butt to help hold it in place against light overturning loads due to service drops, prevailing winds or small changes in line direction (See illustrations).

Corrosion-Resistant Anchor

Chance design offers many advantages

The Chance corrosion-resistant disc anchor is designed for low resistivity, alkaline and acidic soils with electrolyte combinations. The anchor eye is forged directly to the rod, so the eye is an integral part of the anchor. The anchor's flanged cap nut is forged. It's large and heavy for greater protection. The heat-shrink sleeve over the galvanized anchor rod helps prevent moisture from going down the rod. The insulating washer is fiberglass-reinforced thermoset material for better load-bearing properties compared to thermoform materials.



Corrosion-Resistant Anchor



Fiber-Reinforced Washer

Catalog No.	Fits Rod Size	Approx. Wt./100 pcs.
C2100033	3/4"	23 lb.
C2100034	1"	19 lb.



Cap Nut

Catalog Number	Fits Rod Size	Approx. Wt./100 pcs.
C2050407	3/4"	242 lb.
C2050408	1"	242 lb.

Holding Capacity [‡] - (lbs.) (No Safety Factors Included) vs Soil Class								
Catalog No.	Description	Hole Size	Fits Protected Rod Size	Class 3 500-600 in-lb	Class 4 400-500 in-lb	Class 5 300-400 in-lb	Class 6 200-300 in-lb	Class 7 100-200 in-lb
C1022008	16" Anchor .187" Thick	16"	3/4"	31000 [‡]	26500 [‡]	21000	16500	12000
C1022009	16" Anchor .187" Thick	16"	1"	31000 [‡]	26500	21000	16500	12000
C1022011	20" Anchor .187" Thick	20"	1"	40000 [‡]	34000	26000	21500	16000
C1022012	20" Anchor .250" Thick	20"	1"	40000 [‡]	34000	26000	21500	16000
C1022054	24" Anchor .187" Thick	24"	1"	50000 [‡]	41000 [‡]	33500	26000	20000
C1022050	24" Anchor .250" Thick	24"	1"	50000 [‡]	41000 [‡]	33500	26000	20000

[‡]Ultimate strength of rod may limit holding capacity.

Note: Capacity ratings apply to properly installed anchors only.

Failure to install within 5° of alignment with the guy load will significantly lower strength.

Protected Rod for Corrosion-Resistant Anchor

These rods include fiber-reinforced washer and heavy-forged cap nut. Nut is attached to rod. Washer is shipped separately in a box. Galvanized Rod meets NEMA specification PH2 plus has asphalt coating, polyethylene tube and heat shrink collar.

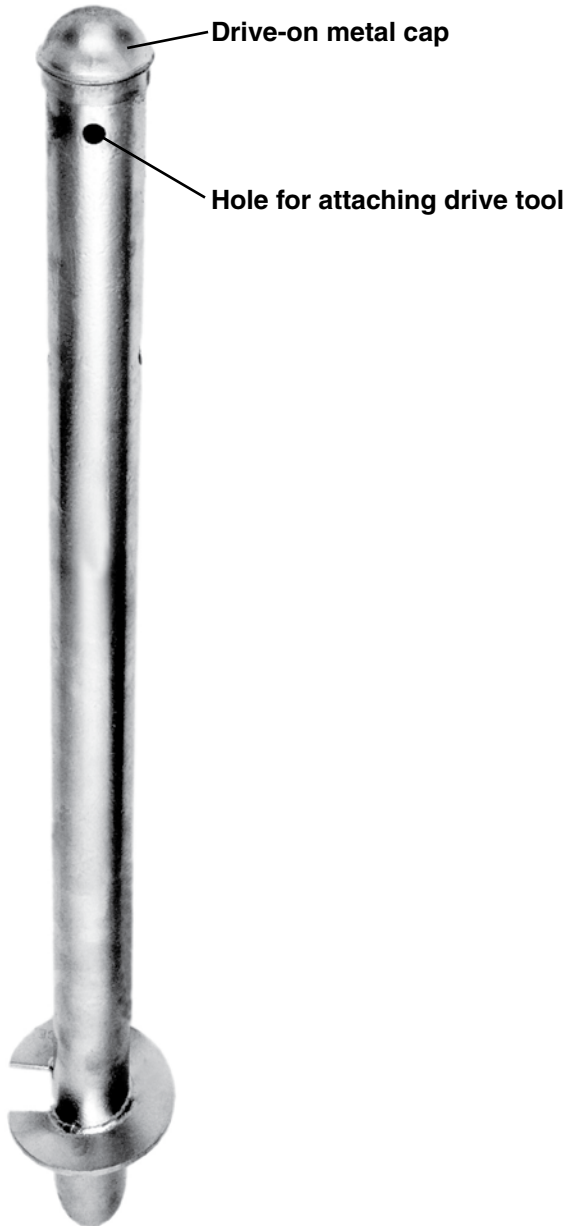
Rod Size	Rod Tensile Strength, lb.	Thimbleye [®] Adapter		Twineye [®] Adapter		Tripleye [®] Adapter	
		Catalog No.	Lb./100 Pcs.	Catalog No.	Lb./100 Pcs.	Catalog No.	Lb./100 Pcs.
3/4" x 6'	23,000	C2000047	1330	C2000053	1362	C2000106	—
3/4" x 7'	23,000	C2000048	1450	C2000054	1470	—	1630
3/4" x 8'	23,000	C2000049	1566	C2000055	1650	C2000061	1783
3/4" x 9'	23,000	—	—	C2000056	1750	C2000062	1883
3/4" x 10'	23,000	C2000050	1826	C2000057	1910	—	—
1" x 6'	36,000	—	—	—	—	C2000107	—
1" x 7'	36,000	—	—	C2000114	—	—	—
1" x 8'	36,000	C2000051	2500	C2000108	—	C2000063	2730
1" x 9'	36,000	—	—	C2000058	2800	—	—
1" x 10'	36,000	C2000052	3005	C2000059	3050	C2000064	3270

For additional sizes of rods, contact Hubbell Power Systems, Inc.

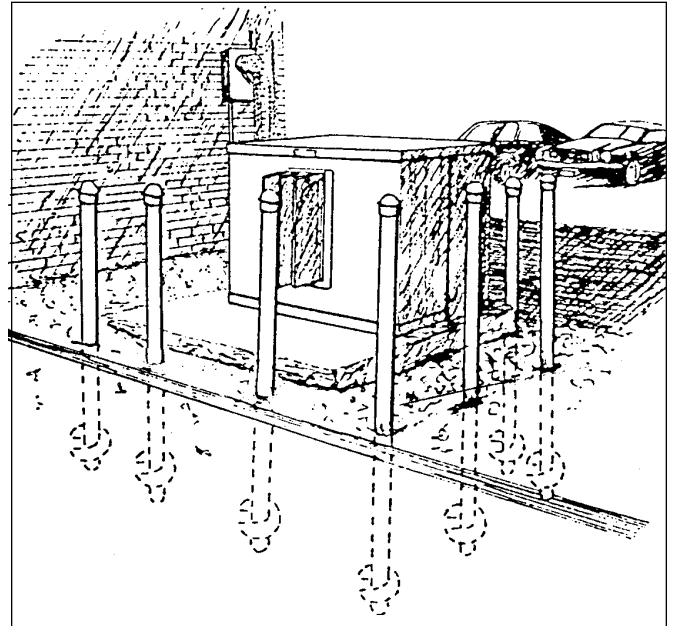
Bumper Posts

for instant equipment protection

• Power-Installed Design



Protect transformers, switchgear and guys. Any equipment needing bumper protection is an ideal candidate. Cheaper than concrete. Installation in minutes regardless of weather conditions. Available power diggers can install through blacktop surfaces. Hot-dip galvanized corrosion-resistant finish.



ORDERING INFORMATION

8,000 ft.-lb. Typical Working Torque

Catalog Number	Std. Pkg./Pallet	Weight ea., lb.	Description
T1120192	1/12	45	8" Helix, 3 1/2" O.D. x 60" Shaft
T1120224	1/12	53	8" Helix, 3 1/2" O.D. x 75" Shaft
C1120275	1/12	61	8" Helix, 3 1/2" O.D. x 84" Shaft

Installing Tools

Additional tools may not be required for Bumper Post if Kelly bar can be inserted into the 3.06" inside dia. of the post and pinned by a bent-arm pin.

Tools are available which bolt directly to Chance Kelly bar adapters or which can be used with Chance locking dog assembly.

Order C3030737 for Kelly bar attachment or C3030739 for use with locking dog assembly. Bumper Post is inserted into drive tool and held by the provided bent-arm pin.



C3030739

C3030737

