



Kelly Bar

ANCHORING

Catalog CA12002E



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HUBBELL POWER SYSTEMS, INC.

TERMS & CONDITIONS OF SALES Effective January 1, 2011

These terms and conditions of sales ("terms and conditions") apply to the purchase by Buyer of any and all Hubbell Power Systems, Inc. ("HPS") products. HPS hereby gives notice of its rejection to any different or additional terms and conditions other than as stated herein. Buyer's acceptance of the provisions of HPS's terms and conditions as recited herein shall be conclusively presumed upon Buyer's receipt of the product(s), or if no written objection is received by HPS within fifteen (15) days from the date on HPS's order acknowledgment, whichever event shall first occur.

PRICING

Refer to appropriate Price Schedule, unless otherwise quoted.

TERMS

Payment terms are net 30 days. Invoices will be dated the day of shipment. A service charge of 1-1/2% per month or, if such rate exceeds the maximum lawful rate, the maximum lawful rate shall be assessed on all past due accounts and shall be payable on demand.

QUOTATIONS

Unless otherwise stated in writing, HPS' quotations are subject to acceptance by the Buyer within thirty (30) days from the date of issue.

SALES AND SIMILAR TAXES

Prices do not include any sales, use, excise or similar taxes. Consequently, in addition to the price specified herein, the amount of any present or future sales, use, excise or other similar tax applicable to the sale or use of the equipment hereunder, shall be paid by the Buyer, or in lieu thereof the Buyer shall provide HPS with a tax exemption certificate acceptable to the taxing authorities.

ACCEPTANCE OF ORDERS

All orders are subject to final acceptance by HPS. Any other terms proposed by Buyer are rejected unless expressly accepted in writing. Orders shall be deemed to be executed in the State of Missouri and shall be construed and performed in accordance with the laws of that State. Acceptance of any order is subject to availability of product and the ability of HPS to deliver. Orders will be billed at prices in effect at time of shipment unless otherwise agreed. Unless otherwise stated in writing, HPS reserves the right to ship plus or minus 10% of specified quantity for special products that are made to order.

SALES BY AGENTS

Sales by agents or through overseas representatives shall be at prices, terms and conditions of sale specified by HPS. All invoices will be issued by and payment remitted to HPS.

DELAY

HPS will use reasonable efforts to meet shipment or delivery dates specified by HPS, but such dates are estimates only. In no event shall be liable for any delay or nondelivery if caused directly or indirectly by Acts of God, fire, flood, strike or lockout or other labor dispute, accident, civil commotion, riot, war, governmental regulation or order, whether or not it later proves to be invalid, or from any other cause or causes (whether or not similar to any of the foregoing) beyond HPS's control. In no case will HPS be liable for loss of profits or any special or consequential damages on account of any delay in delivery or nondelivery whether or not excused hereunder.

SHIPPING DEFERMENT

Buyer requests for shipping deferment must be approved by HPS and are subject to price negotiation.

LIMITED WARRANTY AND LIMITATION OF LIABILITY

HPS warrants to Buyer that the products sold will be free of defects in workmanship or material for a period of one (1) year (or as otherwise specified) from the date of original shipment by HPS when stored, installed, operated or maintained in accordance with recommendations of HPS and standard industry practice and when used under proper and normal use. HPS shall in no event be responsible or liable for modifications, alterations, misapplication or repairs made to its products

by Buyer or others, or for damage caused thereto by negligence, accident or improper use by Buyer or others. This warranty does not include reimbursement for the expenses of labor, transportation, removal or reinstallation of the products. This warranty shall run only to the first Buyer of a product from HPS, from HPS' Buyer, or from an original equipment manufacturer reselling HPS' 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.

APPLICATION: HPS 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 of application rests solely 2 Effective January 1, 2011 with the Buyer. In the event of errors or inaccuracies determined to be caused by HPS, its liability will be limited to the reperformance of any such analysis or study.

BUYER INSPECTIONS: Tests, inspections and acceptance of all material must be made at the factory. Buyer's inspectors are welcome at the factories and are provided with the necessary facilities for carrying out their work. Name and phone number of who should be contacted for inspection should be given to HPS no later than two weeks prior to scheduled shipment date.

DISCLAIMER OF WARRANTY: THE FOREGOING WARRANTY IS EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES WHETHER WRITTEN, ORAL, EXPRESSED OR IMPLIED. THERE ARE NO WARRANTIES OF MERCHANTABILITY OR FITNESS OF ANY PRODUCT FOR A PARTICULAR PURPOSE.

EXCLUSIVE REMEDY: Any claim by Buyer that a product is defective or non-conforming shall be deemed waived by Buyer unless submitted to HPS in writing within thirty (30) days from the date Buyer discovered, or by reasonable inspection should have discovered the alleged defect or non-conformity. Any warranty claim must be brought within one year of discovery of the alleged defect or non-conformity. Upon prompt written notice by the Buyer that a product is defective or non-conforming, HPS' liability shall be limited to repairing or replacing the product, at HPS' option.

LIMITATION OF LIABILITY: IN NO EVENT AND UNDER NO CIRCUMSTANCES SHALL HPS BE LIABLE TO BUYER OR TO ANY OTHER PERSON FOR ANY INDIRECT, SPECIAL, CONSEQUENTIAL OR INCIDENTAL LOSSES OR DAMAGES, INCLUDING, WITHOUT LIMITATION, DAMAGE TO OR LOSS OF USE OF ANY PRODUCT, LOST SALES, OR PROFITS, OR DELAY OR FAILURE TO PERFORM THIS WARRANTY OBLIGATION, OR CLAIMS OF THIRD PARTIES AGAINST PURCHASER, ARISING OUT OF OR IN CONNECTION WITH THE SALE, INSTALLATION, USE OF, INABILITY TO USE, OR THE REPAIR OR REPLACEMENT OF, HPS' PRODUCTS. As stated herein, the term "person" shall include without limitation, any individual proprietorship, partnership, corporation or entity.

FREIGHT ALLOWANCE and F.O.B. POINT

All shipments are F.O.B. origin. Risk of loss and title of products shall pass to Buyer upon delivery to the designated carrier. Freight is prepaid and allowed on all HPS shipments of products with a net order value of \$5,000 and above to destinations within the Continental U.S.A and Canada, with the exception of USCO brand products. Freight is prepaid and allowed on all shipments of USCO brand products with a net order value of \$20,000 and above. An 8% shipping and handling charge will be added to all standard shipments under the minimum net order value. Customer expedited orders will be billed at actual freight cost plus \$50.00 handling. Shipments to Alaska and Hawaii are F.O.B. Pacific Coast docks, collect beyond. Tool trailers will be F.O.B. HPS' dock – no freight allowed. HPS reserves the right to route all qualified freight allowed shipments via least expensive surface route within the Continental United States and Canada. Buyer will assume all charges for transportation specified via more expensive means. Acceptance of a specified routing does not

constitute a guarantee of ship date, transit time or arrival date. HPS will not be responsible for any cartage or storage charges at destination. HPS' responsibility for exception-free delivery ceases when the transportation company receives shipment in good condition. Claims for loss or damage must be reported directly to the carrier. HPS's willingness to assist does not indicate liability for claim or replacement.

PARTIAL RELEASE

If an order has multiple releases specified by the Buyer, each release will be treated as individual orders, relative to freight allowance and minimum billing.

BACK ORDERS

Back orders that are the responsibility of HPS will be shipped F.O.B. factory or point of shipment with freight prepaid and allowed via the most cost effective method, providing the original order qualified for freight allowance.

MINIMUM BILLING

Standard Orders — \$750 net per order. Tools — \$100 net per order. Parts — \$100 net per order.

ORDER ADD-ON POLICY

HPS' "Add-On" policy allows you to add items to an existing unshipped order for up to fifteen (15) days from the entry date of the original order. The minimum value for added products is \$250. Addition of tools or parts must be \$100.

DELIVERY SCHEDULE

Shipping dates provided by HPS are estimates only. HPS shall make every reasonable effort to meet Buyer's shipping requirements provided HPS promptly receives all necessary information from Buyer and approved drawings if required by HPS. HPS will not assume liability because of delayed shipment for any reason. HPS's responsibility ceases upon acceptance of shipment by carrier.

CANCELLATIONS

Cancellation of an order for current stock product requires a minimum of five (5) days' notice prior to actual ship date. Stock product orders shipped after cancellation notice is received, but before expiration of the five-day requirement, will be subject to all standard returned product conditions, noted below. Cancellation on non-stock products may be made only if no work has been performed or material purchased. If cancellation is requested after work is in progress, there will be a cancellation 3 Effective January 1, 2011 charge as established by HPS. Orders may not be cancelled unless HPS gives its written consent, and then only upon agreement as to applicable cancellation charges.

RETURNED PRODUCT

GENERAL CONDITIONS applying to all transactions:

1. Product is not returnable without the written consent of HPS.
2. Request for permission to return product must be made in writing within one year from date of shipment, and Buyer must provide original HPS invoice number.
3. Product to be returned must be considered standard product by HPS.
4. HPS reserves the right to refuse returns of any special or made-to-order product, regardless of condition.
5. All returned products must be in excellent, resaleable condition and packaged in the original carton. Products will be inspected upon return; and any service or repair needed to place them in first class, saleable condition will be charged and added to the restocking charge.
6. A 25% restocking charge will be deducted from all credits issued on authorized returns.
7. Return Goods Authorization (RGA) Packing List, supplied by the factory, must accompany the return shipment.
8. Return freight must be prepaid. Product must be received by HPS within sixty (60) days of issuance of RGA.
9. Net value of the return must not be less than \$250.
10. HPS reserves the right to deduct for any damage sustained in transit.

11. Unauthorized returns will be refused. Equipment returned without proper authorization from HPS will, at the sole option of HPS, be returned to the Buyer freight collect, or scrapped immediately with no issuance of credit. Unauthorized product included in a return will not be credited.

BROKEN PACKAGE POLICY

Shipments will be made in standard package quantities or multiples thereof. HPS Customer Service will notify the Buyer of any orders that do not comply with this policy. The Buyer must authorize an adjustment to comply with standard package quantities before the order will be entered.

DROP SHIPMENT POLICY

A 10% net order value drop shipment charge will be added to all purchase orders requesting delivery to a location other than a recognized Buyer stocking warehouse, with the exception of full truckload and/or project material. This is in addition to any other charges to the net order.

QUOTATION PRICE PROTECTION

All prices shown in the price lists are subject to change without notice. All quotations on special products or modifications to catalog products are binding only if confirmed in writing by the factory for the period shown on the quotation. Price protection will be provided for a period of thirty (30) days from date of quotation from HPS.

ORDERS

All orders are taken and prices quoted only with the understanding that each order shall be subject to the acceptance of HPS upon such terms as we may specify when order is received. Prices to cover amount of any sales or excise tax which now or hereinafter may be imposed by any taxing authority upon this product or the sale or manufacture thereof.

PRODUCT SPECIFICATION

HPS reserves the right to discontinue products, modify designs, and change specifications or prices without incurring obligation.

INVOICING

All invoices are due and payable per the standard terms stated herein. In the case of an apparent discrepancy in a line item charge, Buyer is obligated to advise HPS Customer Service in writing of the nature of the claimed discrepancy within five (5) days of receipt of the invoice. This includes all requests for proof of delivery. A claim of discrepancy does not relieve Buyer of the absolute obligation to pay the remaining balance of the invoice in accordance with the standard terms of payment. Upon review, HPS will have sole discretion to resolve the discrepancy; and the Buyer expressly agrees to abide by HPS' decision. HPS will promptly advise Buyer of its decision regarding any disputed items or charges.

OSHA

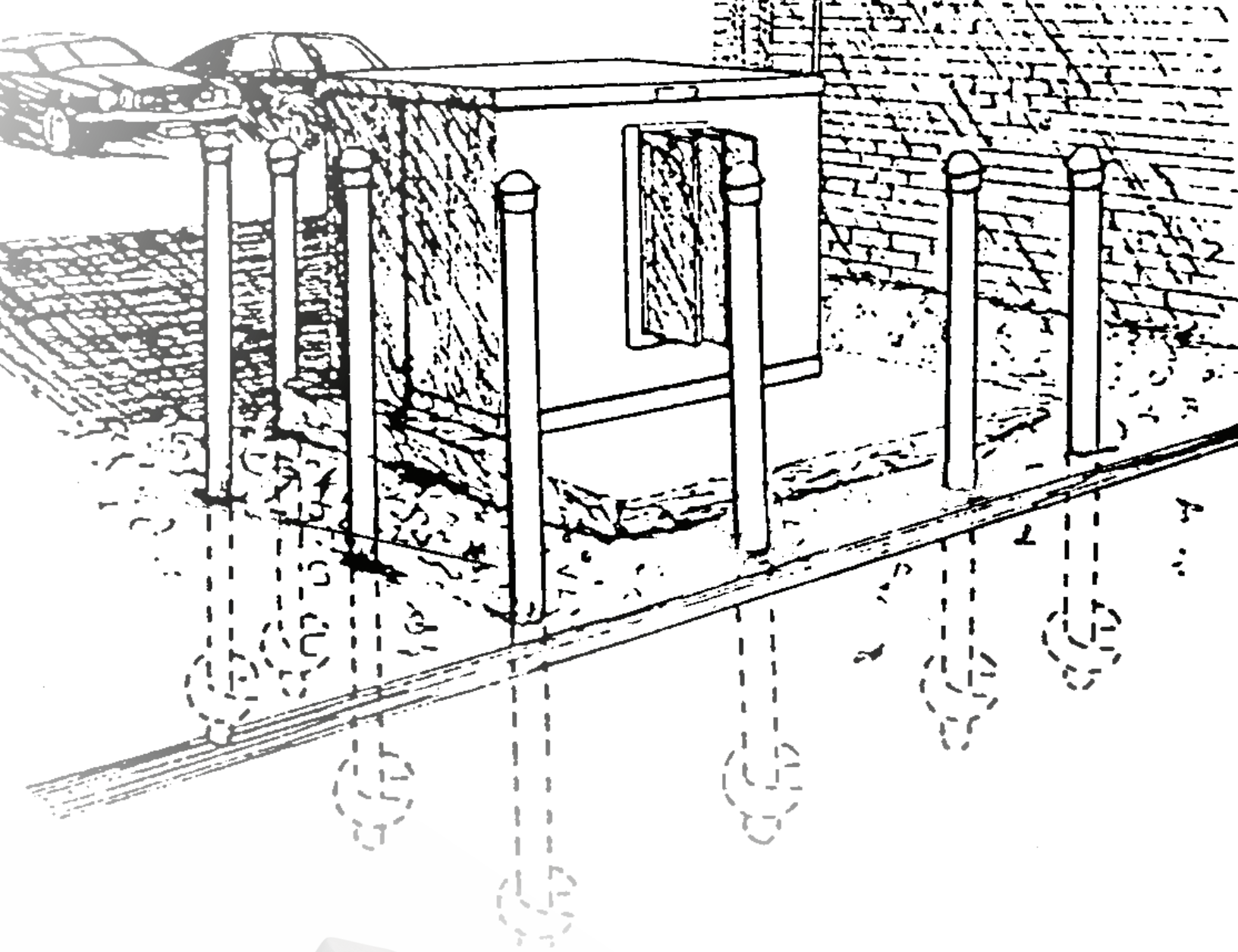
HPS warrants that at time of shipment, the products will conform to the applicable occupational safety and health standards promulgated pursuant to the Federal Occupational Safety and Health Act of 1970, which are in effect on the date that HPS enters its acknowledgment of Buyer's order. The Buyer's exclusive remedy and HPS' liability for breach of this warranty is limited to replacement of the nonconforming products.

FAIR LABOR STANDARDS ACT AS AMENDED

HPS represents that any goods to be delivered hereunder will be produced in compliance with the requirements of the Fair Labor Standards Act of 1938, as amended.

NOTE

These Terms and Conditions supersede all those published and previously issued by The A.B. Chance Company, The Ohio Brass Company, Anderson Electrical Products, Inc., Fargo Manufacturing Company, Inc., Chardon Electrical Components, USCO Power Equipment Corporation, Hubbell Canada LP and Hubbell Power Systems, Inc.



Dependable Anchoring Solutions

Hubbell Power Systems is the proud manufacturer of Chance® Anchors and Anchor Installing Tools. Employing lean manufacturing principles, continuous improvements and unmatched customer service, HPS delivers these internationally renowned products to electric utility and communications providers around the globe.

Engineered for dependability and long-term stability, our anchoring systems feature exclusive anchoring techniques, tools, designs and sizes. Our precision production and meticulous quality assurance produce reliable products that adhere to the strictest industry standards and perform in even the most challenging soil conditions, landslides, floods and time.

Anchor Selection and Application

ANCHOR SELECTION

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 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 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 that 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.

Anchor Selection and Application *(continued)*



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 percent 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.

APPLICATION INFORMATION

Where applicable, anchors manufactured by Hubbell Power Systems, Inc. are made from steel produced in accordance with ASTM A575 and/or ASTM A576. Where galvanized, items are galvanized in accordance with ASTM A153. Call your Hubbell representative for conformance of particular items to the above specifications.

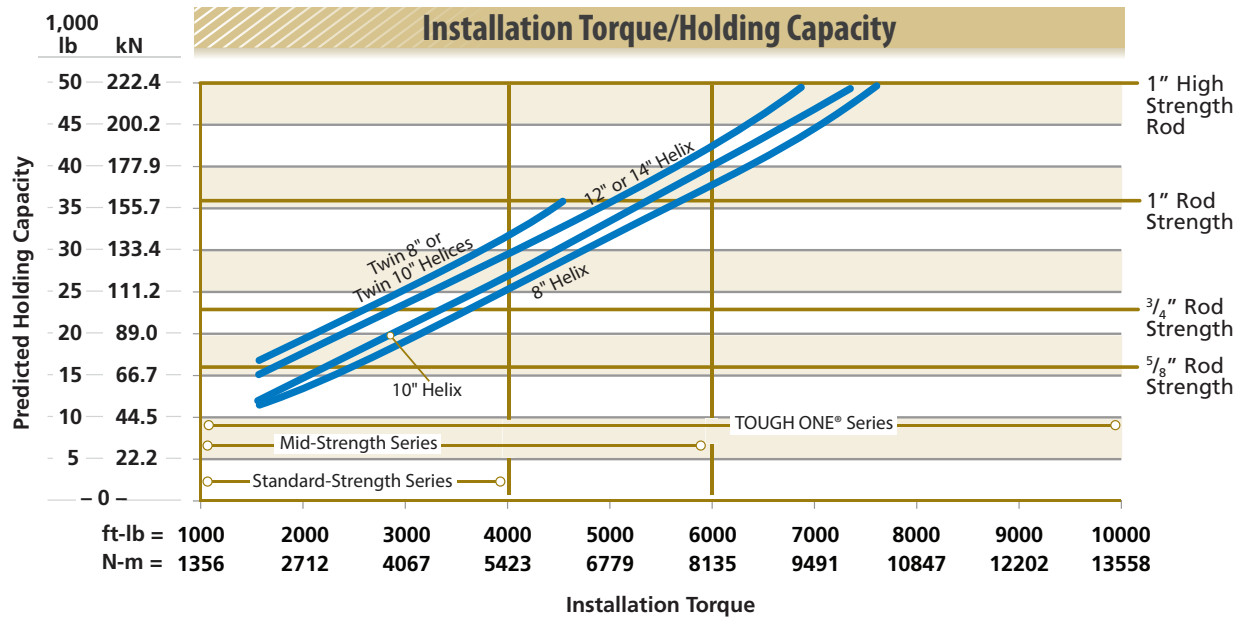
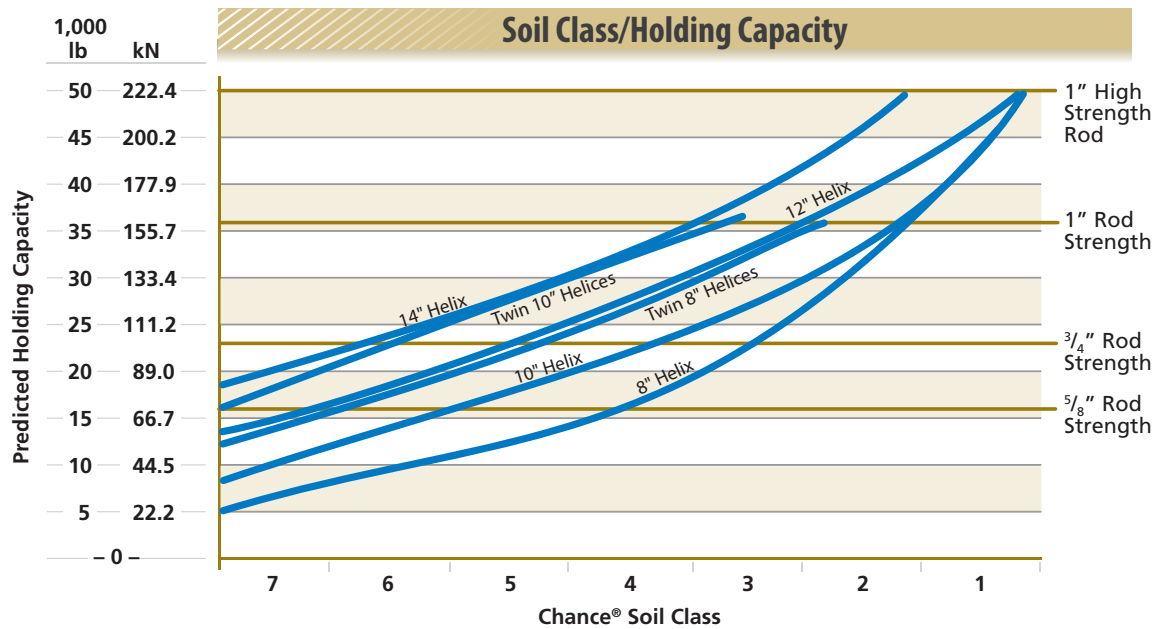
Soil Classification Data

| Class | Common Soil Type Description | Geological Soil Classification | Probe Values ft-lb (nm) | Typical Blow Count "N" per ASTM-D1586 |
|------------------|--------------------------------------------------------------------------------------------|-----------------------------------------------------------------|----------------------------|---------------------------------------------|
| 0 | Sound hard rock, unweathered (bedrock) | Granite, Basalt, Massive Limestone | — | — |
| 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 ⁽¹⁾ | 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 ⁽¹⁾ | 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 |

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

⁽¹⁾ 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®)



| Helix Diameter | Rod Diameter | Rod Strength |
|----------------|----------------------------|----------------------|
| 8" = 203.2 mm | 5/8" (0.625") = 15.9 mm | 16,000 lb / 71.2 kN |
| 10" = 254.0 mm | 3/4" (0.756") = 19.1 mm | 23,000 lb / 102.3 kN |
| 12" = 304.8 mm | 1" = 25.4 mm | 36,000 lb / 160.1 kN |
| 14" = 355.6 mm | 1" High Strength = 25.4 mm | 50,000 lb / 222.4 kN |

NOTE: 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.

Tough One® Anchor Helix Assemblies

Torque Ratings: 8,000 ft-lb and 10,000 ft-lb

SMALL HUB (2 1/4" 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 improves penetration and helps soil flow from below the hub to above the anchor.
- Tough One anchors use standard PISA® rods (see pages 8-9).
- Tough One anchors are painted with black paint.

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.



8,000 ft-lb Tough One Anchor 2 1/4" Square Inside Hub

Install with the Chance Standard (10,000 ft-lb) Wrench (see page 30)

| | 8" Diameter | Standard Pkg/Pallet | 10" Diameter | Standard Pkg/Pallet |
|-------------------------------------------------------|----------------------|---------------------|----------------------|---------------------|
| For 5/8" Diameter Rods For 3/4" & 1" Diameter Rods | C1025204 C1025208 | 4/144 4/144 | C1025205 C1025209 | 4/144 4/144 |
| | 12" Diameter | Standard Pkg/Pallet | 14" Diameter | Standard Pkg/Pallet |
| For 3/4" & 1" Diameter Rods For 5/8" Diameter Rods | C1025206 C1025210 | 2/72 2/72 | C1025207 | 2/48 |

10,000 ft-lb Tough One Anchor 2 1/4" Square Inside Hub

Install with the Chance Standard (10,000 ft-lb) Wrench (see page 30)

| | 8" Diameter | Standard Pkg/Pallet | 10" Diameter | Standard Pkg/Pallet |
|-----------------------------|--------------|---------------------|--------------|---------------------|
| For 3/4" & 1" Diameter Rods | C1025200 | 4/192 | C1025201 | 4/144 |
| | 12" Diameter | Standard Pkg/Pallet | 14" Diameter | Standard Pkg/Pallet |
| | C1025202 | 2/72 | C1025203 | 2/48 |

TOUGH ONE® Anchor Helix Assemblies

Torque Ratings: 10,000 ft-lb and 15,000 ft-lb

LARGE HUB (2½" SQUARE INSIDE)

- 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 improves penetration and helps soil flow from below the hub to above the anchor.
- Tough One anchors use standard PISA® rods (see pages 8-9).
- It's easy to upgrade your entire program with Tough One anchors.
- If soil conditions require installations above 10,000 ft-lb, 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 pages 32-33 for high-strength anchor installing wrench information.
- Tough One Anchors are painted with black paint.



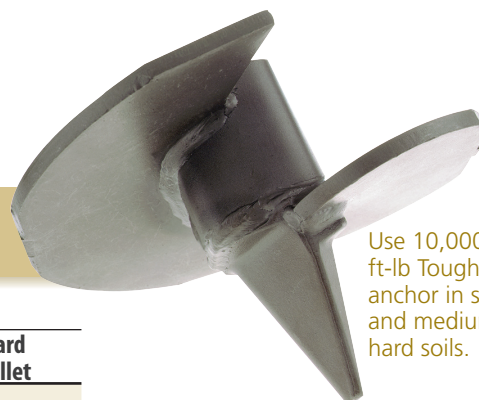
Use high-strength 15,000 ft-lb Tough One in very hard soils short of solid rock.

ANCHORING

10,000 ft-lb Tough One Anchor 2½" Square Inside Hub

Install with the Chance® Hybrid or Tough One Wrench (see pages 29-30)

| | 8" Diameter | Standard Pkg/Pallet | 10" Diameter | Standard Pkg/Pallet |
|-------------------------------------------------------|----------------------|---------------------|----------------------|---------------------|
| For 5/8" Diameter Rods For 3/4" & 1" Diameter Rods | C1025004 C1025008 | 4/144 4/144 | C1025005 C1025009 | 4/144 4/144 |
| | 12" Diameter | Standard Pkg/Pallet | 14" Diameter | Standard Pkg/Pallet |
| For 5/8" Diameter Rods For 3/4" & 1" Diameter Rods | C1025006 C1025010 | 2/72 2/72 | C1025007 | 2/48 |



Use 10,000 ft-lb Tough One anchor in soft and medium-hard soils.

15,000 ft-lb Tough One Anchor 2½" Square Inside Hub

Install with the Chance® Tough One Wrench System (see pages 29-30)

| | 8" Diameter | Standard Pkg/Pallet | 10" Diameter | Standard Pkg/Pallet |
|-----------------------------|--------------|---------------------|--------------|---------------------|
| For 3/4" & 1" Diameter Rods | C1025000 | 4/144 | C1025001 | 3/108 |
| | 12" Diameter | Standard Pkg/Pallet | 14" Diameter | Standard Pkg/Pallet |
| | C1025002 | 2/72 | C1025003 | 2/48 |

PISA® Anchor Helix Assemblies

Standard Strength and Mid Strength

ANCHORING



Chance® Standard-Strength 4,000 ft-lb anchors and Mid-Strength 6,000 ft-lb 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-Strength and Mid-Strength anchors as well as Tough One® C10252 series anchors. See pages 29-30 for installing wrench information. Anchors are painted with black paint.



PISA anchor installation takes about five minutes with two workers.

Standard-Strength Anchor Series

1 3/8" Core – 4000 ft-lb Typical Working Torque – Squared Helix 3" Helix Pitch

| Single Helix | Catalog Number | | | | | | | |
|-----------------------------|----------------|---------------------|--------------|---------------------|--------------|---------------------|--------------|---------------------|
| | 8" Diameter | Standard Pkg/Pallet | 10" Diameter | Standard Pkg/Pallet | 12" Diameter | Standard Pkg/Pallet | 14" Diameter | Standard Pkg/Pallet |
| For 5/8" Diameter Rods | 024474 | 8/240 | 024476 | 4/96 | 024462 | 4/80 | — | — |
| For 3/4" & 1" Diameter Rods | 024475 | 8/240 | 024478 | 4/96 | 024481 | 4/80 | 024484 | 2/32 |
| Twin Helix | Catalog Number | | | | | | | |
| | 8" Diameter | Standard Pkg/Pallet | 10" Diameter | Standard Pkg/Pallet | | | | |
| For 3/4" & 1" Diameter Rods | 012904 | 1/30 | 012905 | 1/30 | | | | |

Mid-Strength Anchor Series

1 3/8" Core – 6000 ft-lb Typical Working Torque – Squared Helix 3" Helix Pitch

| Single Helix | Catalog Number | | | | | | | |
|-----------------------------|----------------|---------------------|--------------|---------------------|--------------|---------------------|--------------|---------------------|
| | 8" Diameter | Standard Pkg/Pallet | 10" Diameter | Standard Pkg/Pallet | 12" Diameter | Standard Pkg/Pallet | 14" Diameter | Standard Pkg/Pallet |
| For 5/8" Diameter Rods | E1021629 | 8/240 | E1021630 | 4/144 | E1021631 | 4/96 | — | — |
| For 3/4" & 1" Diameter Rods | E1021632 | 8/240 | E1021633 | 4/144 | E1021634 | 4/96 | E1021801 | 2/32 |
| Twin Helix | Catalog Number | | | | | | | |
| | 4" Diameter | Standard Pkg/Pallet | 8" Diameter | Standard Pkg/Pallet | 10" Diameter | Standard Pkg/Pallet | | |
| For 3/4" & 1" Diameter Rods | E1021635 | 1/30 | E1021636 | 1/30 | E1021637 | 1/30 | | |

NOTE: See pages 8-9 for PISA anchor rods and eyenuts.

PISA® 6 and PISA 7 Anchor Helix Assemblies

- Chance® PISA-6 6000 ft-lb anchors and PISA-7 7000 ft-lb 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 pages 29-30 for information on the 1½" installing wrench.
- Anchors are painted with black paint.



ANCHORING

PISA 6 Anchor

| 1½" Core – 6000 ft-lb Typical Working Torque – Squared Helix – 3" Helix Pitch | | | | | | | | |
|-------------------------------------------------------------------------------|---------------------------|---------------------|------------------|---------------------|--------------|---------------------|--------------|---------------------|
| Single Helix | Catalog Number | | | | | | | |
| | 8" Diameter | Standard Pkg/Pallet | 10" Diameter | Standard Pkg/Pallet | 12" Diameter | Standard Pkg/Pallet | 14" Diameter | Standard Pkg/Pallet |
| | For ¾" Diameter Rods | E1020816 | 8/240 | E1020817 | 4/144 | — | — | — |
| For ¾" & 1" Diameter Rods | E1020819 | 8/240 | E1020820 | 4/144 | E1020821 | 4/80 | T1022142 | 2/32 |
| Twin Helix | Catalog Number | | | | | | | |
| | Two 8" Diameter | Standard Pkg/Pallet | Two 10" Diameter | Standard Pkg/Pallet | | | | |
| | For ¾" & 1" Diameter Rods | E1020822 | 1/30 | E1020823 | 1/30 | | | |

PISA 7 Anchor

| 1½" Core – 7000 ft-lb Typical Working Torque – Squared Helix – 3" Helix Pitch | | | | | | | | |
|-------------------------------------------------------------------------------|---------------------------|---------------------|-----------------|---------------------|-----------------|---------------------|--------------|---------------------|
| Single Helix | Catalog Number | | | | | | | |
| | 8" Diameter | Standard Pkg/Pallet | 10" Diameter | Standard Pkg/Pallet | 12" Diameter | Standard Pkg/Pallet | 14" Diameter | Standard Pkg/Pallet |
| | For ¾" & 1" Diameter Rods | E1021223 | 8/240 | E1020250 | 4/96 | T1022143 | 4/80 | T1022319 |
| | | | | | | | | 2/32 |
| Twin Helix | Catalog Number | | | | | | | |
| | Two 8" Diameter | Standard Pkg/Pallet | Two 4" Diameter | Standard Pkg/Pallet | Two 4" Diameter | Standard Pkg/Pallet | | |
| | For ¾" & 1" Diameter Rods | E1021219 | 1/30 | E1021220 | 1/30 | V1021428 | 1/30 | |

NOTE: See pages 8-9 for PISA anchor rods and eyenuts.

PISA® Anchor Rods, Eyenuts and Couplings

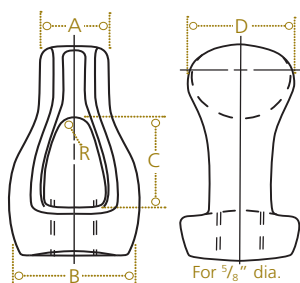
Eyenut

| | Catalog Number | | | | | |
|-----------------------------------|----------------|---------------------|----------|---------------------|-----------|---------------------|
| | Thimbleye® | Standard Pkg/Pallet | Twineye® | Standard Pkg/Pallet | Tripleye® | Standard Pkg/Pallet |
| For 5/8" Diameter Rods | 12587 | 25/2250 | 12589 | 25/1200 | 12593 | 25/750 |
| For 3/4" & 1" Diameter Rods | 6512 | 25/1200 | 6562 | 25/1200 | 12585 | 25/1200 |
| For 1" Diameter HS ⁽¹⁾ | — | — | 6562H | 25/1200 | 12585H | 25/1250 |

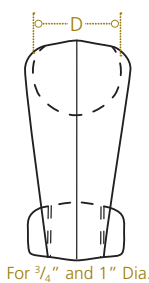
(1) HS Eyenuts are galvanized and painted orange.

Thimbleye Nuts

| | A Inches | B Inches | C Inches | D Inches | R Inches |
|-----------------------------|----------|----------|----------|----------|----------|
| For 5/8" Diameter Rods | 7/8 | 1 7/8 | 1 3/8 | 1 11/64 | 1/4 |
| For 3/4" & 1" Diameter Rods | 1 1/8 | 2 5/64 | 1 19/32 | 1 5/8 | 1 3/32 |



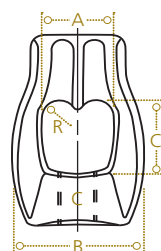
For 5/8" dia.



For 3/4" and 1" Dia.

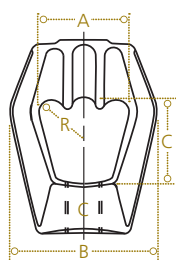
Twineye Nuts

| | A Inches | B Inches | C Inches | D Inches | R Inches |
|-----------------------------------|----------|----------|----------|----------|----------|
| For 5/8", 3/4" & 1" Diameter Rods | 1 13/32 | 2 25/64 | 1 27/64 | 1 1/2 | 5/16 |



Tripleye Nuts

| | A Inches | B Inches | C Inches | D Inches | R Inches |
|-----------------------------------|----------|----------|----------|----------|----------|
| For 5/8", 3/4" & 1" Diameter Rods | 1 3/4 | 2 13/16 | 1 5/8 | 1 1/2 | 1/4 |



Rod

| | 3 1/2-ft Rod | | 7-ft Rod | | Ultimate Strength lb ⁽¹⁾ |
|--------------------|----------------|---------------------|----------------|---------------------|-------------------------------------|
| | Catalog Number | Standard Pkg/Pallet | Catalog Number | Standard Pkg/Pallet | |
| For 5/8" Diameter | 12336P | 5/50 | 12332P | 5/50 | 16,000 |
| For 3/4" Diameter | 12634P | 5/50 | 12632P | 5/50 | 23,000 |
| For 1" Diameter | 12338P | 5/50 | 12334P | 1/50 | 36,000 |
| For 1" Diameter HS | C1021987 | 5/50 | C1021986 | 2/50 | 50,000 |

(1) Ultimate strength ratings apply to properly installed anchors only. Failure to install within 5° of alignment with the guy load will significantly lower strength.

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

PISA® Anchor Rods, Eyenuts and Couplings *(continued)*

Coupling

| Coupling | Catalog Number | Standard Pkg/Pallet | Ultimate Strength |
|-----------------------------|----------------|---------------------|-------------------|
| For 5/8" Diameter Rods | 12245P | 50/1950 | 16,000 lbs |
| For 3/4" & 1" Diameter Rods | 12247P | 50/2400 | 50,000 lbs |

NOTE: Couplings are required only when it is necessary to add additional rods of 3½ ft or 7 ft to form an extension.

Extension Rod & Coupling Combinations

| Extension Rod & Coupling Combinations | 3½-ft Rod | | 7-ft Rod | |
|---------------------------------------|----------------|---------------------|----------------|---------------------|
| | Catalog Number | Standard Pkg/Pallet | Catalog Number | Standard Pkg/Pallet |
| 5/8" Diameter | 12249A | 5/50 | — | — |
| 3/4" Diameter | 12250A | 5/50 | C1022328 | 5/50 |
| 1" Diameter | 12251A | 5/50 | 12255A | 2/50 |

PISA Rod & Eyenut Combinations

| Catalog Number | Rod & Eyenut |
|----------------|----------------------------------|
| E1020031 | 58" x 3½' Rod & Thimbleye Nut |
| E1020047 | 58" x 31/2' Rod & Tripleye Nut |
| E1020035 | 58" x 7' Rod & Thimbleye Nut |
| E1020043 | 58" x 7' Rod & Twineye Nut |
| E1020051 | 58" x 7' Rod & Tripleye Nut |
| E1020032 | 3/4" x 31/2' Rod & Thimbleye Nut |
| E1020040 | 3/4" x 31/2' 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 31/2' Rod & Twineye Nut |
| E1020049 | 1" x 31/2' 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 Catalog Number | Fits Rod Size | Standard Pkg/Pallet |
|-------------------------|---------------|---------------------|
| C1021996 | 1" x 7' | 2/50 |
| C1022061 | 1" x 3½' | 5/50 |
| Coupling Catalog Number | Fits Rod Size | Standard Pkg/Pallet |
| C1025240 | 1" | 50/2400 |

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

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



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 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 Number | Length ft | Helix Combinations Inches | Standard Pkg/Pallet | Holding Capacity vs Soil Class lb | | |
|----------------|-----------|---------------------------|---------------------|-----------------------------------|---------|---------|
| | | | | Class 7 | Class 6 | Class 5 |
| 012690AE | 7 | 8 - 10 | 1/20 | 19,000 | 23,000 | 27,000 |
| 012690AEJ | 7 | 8 - 10 - 12 | 1/20 | 26,000 | 32,000 | 39,000 |
| V1090007 | 7 | 10 - 10 - 10 | 1/15 | 25,000 | 31,000 | — |
| V1090006 | 7 | 10 | 1/20 | 17,000 | 21,000 | 24,000 |

Extensions

| Catalog Number | Nominal Length ft | Standard Pkg/Pallet |
|----------------|-------------------|---------------------|
| 12696 | 3½ | 1/50 |
| 12697 | 5 | 1/50 |
| 12698 | 7 | 1/30 |
| 12699 | 10 | 1/50 |

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

Guy Adapters

| Catalog Number | Nominal Length Inches | Description | Standard 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 |

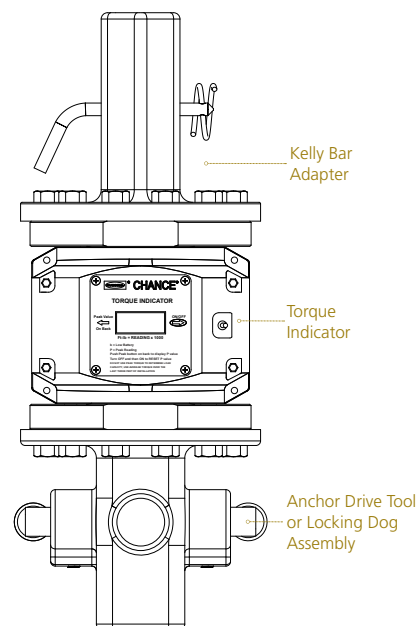
Load Capacity⁽¹⁾ Based on Installation Torque⁽²⁾ Load Capacity of RR Anchors in Soil (Pounds Tension)

| Helix Combinations Inches | Installation Torque | | |
|---------------------------|---------------------|--------|--------|
| | 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 |

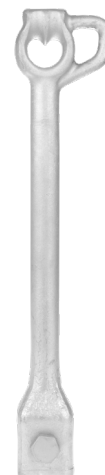
(1) Load capacities listed above are ultimate values based on average test data and are offered as an application guide. Typical deflection at ultimate load ranges between 2 and 4 inches. The listed values should be reduced by an appropriate factor of safety. More specific data on soils and anchor performance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

(2) The 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.

Typical "RR" Drive String



Extension



Guy Adapter



Lead Section

SS5 (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 pages 29-44. SS Screw Anchors consist of three galvanized components: Lead Section, Extension Shaft (which includes an integral coupling) and 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. Ultimate strength ratings apply to properly installed anchors only. Failure to install within 5° of alignment with the guy load will significantly lower strength.

| Lead Sections ⁽¹⁾ | | | | | | | | | |
|------------------------------|-----------|---------------------------|---------------------|-------------------------------------|---------|---------|---------|---------|---------|
| Catalog Number | Length ft | Helix Combinations Inches | Standard Pkg/Pallet | Holding Capacity – lb vs Soil Class | | | | | |
| | | | | Class 7 | Class 6 | Class 5 | Class 4 | Class 3 | Class 2 |
| 012642AE | 3 | 8 - 10 | 1/20 | 19,000 | 23,000 | 27,000 | 32,000 | 36,000 | 41,000 |
| 012642EJ | 3½ | 10 - 12 | 1/20 | 21,000 | 26,000 | 31,000 | 36,000 | 41,000 | 46,000 |
| 012642AEJ | 5½ | 8 - 10 - 12 | 1/20 | 26,000 | 32,000 | 39,000 | 46,000 | 51,000 | 58,000 |
| 012642EJN | 7 | 10 - 12 - 14 | 1/20 | 29,000 | 37,000 | 45,000 | 53,000 | 61,000 | 69,000 |
| 012642AEJN | 10½ | 8 - 10 - 12 - 14 | 1/20 | 31,000 | 40,000 | 49,000 | 58,000 | 67,000 | — |
| 012642EJNS | 10½ | 10 - 12 - 14 - 14 | 1/20 | 40,000 | 51,000 | 62,000 | 70,000 | — | — |

(1) Lead sections are banded to wood blocks to facilitate forklift handling.

| Extensions | | | |
|----------------|-------------------|------------------|---------------------|
| Catalog Number | Nominal Length ft | Helix Dia Inches | Standard Pkg/Pallet |
| 12655 | 3½ | — | 1/50 |
| 12656 | 5 | — | 1/50 |
| 12657 | 7 | — | 1/40 |
| 12658 | 10 | — | 1/30 |
| 12656N | 5 | 14 | 1/20 |
| 12655J | 3½ | 12 | 1/20 |

NOTE: Extension shafts are banded to wood blocks to facilitate forklift handling.

NOTE: Load 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, Inc. The 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. Minimum depth is five x diameter of largest helix.

| Guy Adapters | | | |
|----------------|-----------------------|---------------|---------------------|
| Catalog Number | Nominal Length Inches | Description | Standard Pkg/Pallet |
| C1020023 | 18 | Thimbleye® | 5/200 |
| C1020024 | 18 | Twineye® | 5/200 |
| C1020025 | 18 | Tripleye® | 5/200 |
| C1100026 | 20 | Threaded Stud | 5/200 |
| C1100041 | 18 | Ovaleye | 5/200 |

NOTE: Guy adapters are shipped in corrugated cartons.

| Extra Bolt & Nut | |
|------------------------------------------------------------|----------------|
| for Extensions & Guy Adapters Standard Package: 10 each | |
| Catalog Number | Description |
| P0010041P | Extra SS5 Bolt |
| 055449P | Extra SS5 Nut |



Guy Adapter



Extension

SS5 (Square Shaft) Screw Anchors *(continued)*

Lead Section & Guy Adapter Combinations⁽¹⁾

| Catalog Number | Guy Adapter | Helix Combinations Inches |
|----------------|-------------|---------------------------|
| 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 |

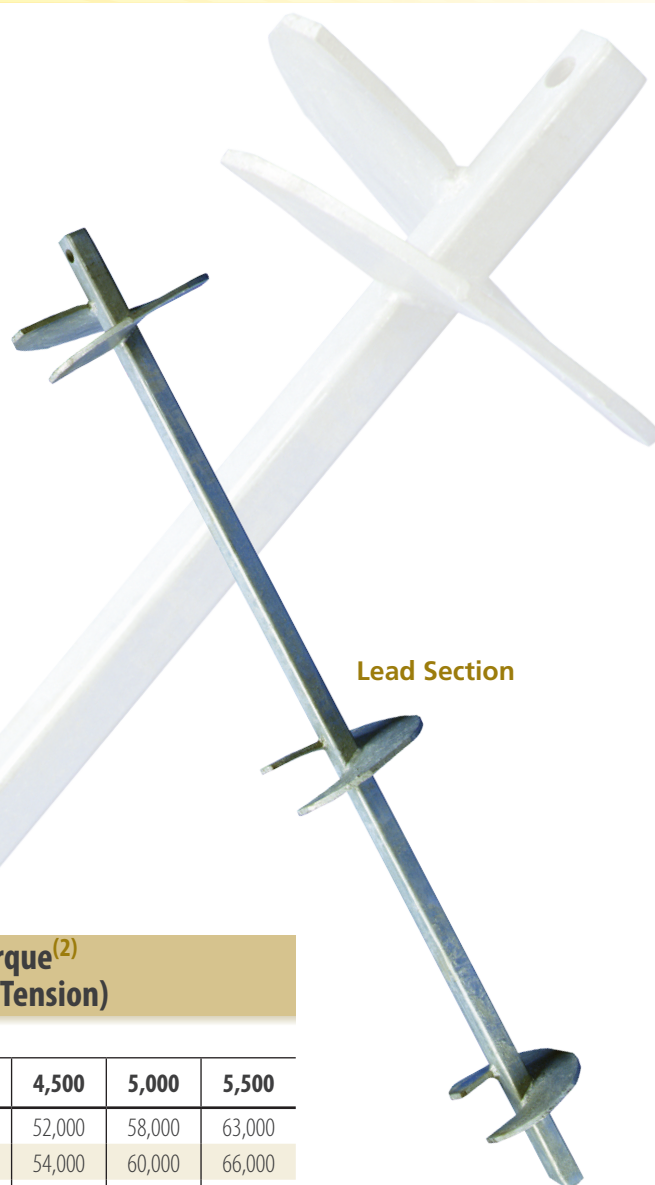
⁽¹⁾ Lead sections are banded to wood blocks to facilitate forklift handling. Guy adapters are shipped in separate corrugated cartons.

Load Capacity⁽¹⁾ Based on Installation Torque⁽²⁾ Load Capacity of SS Anchors in Soil (Pounds Tension)

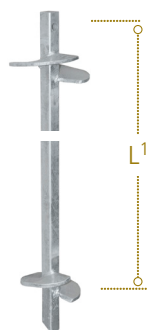
| Helix Combinations Inches | Installation Torque | | | | | | | | |
|---------------------------|---------------------|--------|--------|--------|--------|--------|--------|--------|--------|
| | 1,500 | 2,000 | 2,500 | 3,000 | 3,500 | 4,000 | 4,500 | 5,000 | 5,500 |
| 8 - 10 | 17,000 | 23,000 | 29,000 | 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 |

⁽¹⁾ Load 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, Inc.

⁽²⁾ The 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. Minimum depth is five x diameter of largest helix.



High-Strength SS Anchors for Heavy Tension Loading



Lead Section



Lead Section



Plain
Extension



Single Helix
Extension



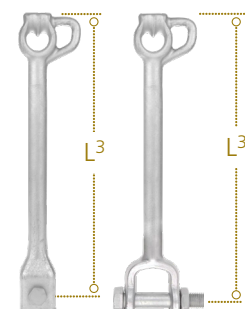
Twin Helix
Extension



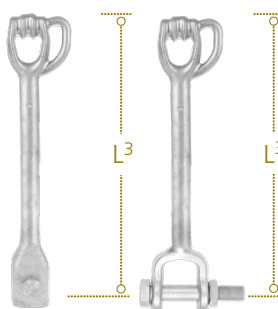
Chain
Shackle



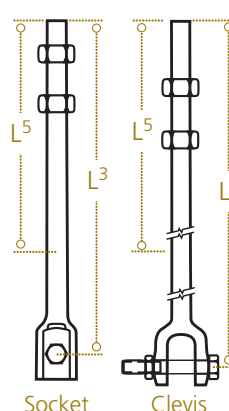
Thimbleye®
Adapter



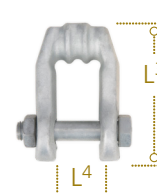
Twineye®
Adapter



Tripleye®
Adapter



Threaded
Adapter



Tripleye®
Chain Shackle

Ratings

| Mechanical Properties | SS 150 1½" Square Shaft | SS 175 1¾" Square Shaft | SS 200 2" Square Shaft | SS 225 2¼" Square Shaft |
|-------------------------------|----------------------------|----------------------------|---------------------------|----------------------------|
| Max Installation Torque | 7,000 ft-lb | 10,500 ft-lb | 16,000 ft-lb | 21,000 ft-lb |
| Min Ultimate Tension Strength | 70,000 lb | 100,000 lb | 150,000 lb | 200,000 lb |

Lead Sections – Hot-Dip Galvanized

| Helix Configuration Inches | SS 150 | | SS 175 | | SS 200 | | SS 225 | |
|----------------------------------|-------------------|--------------|-------------------|--------------|-------------------|--------------|-------------------|--------------|
| | Catalog Number | L¹ Inches | Catalog Number | L¹ Inches | Catalog Number | L¹ Inches | Catalog Number | L¹ Inches |
| 8 & 10 | C1100385 | 30 | C1100227 | 30 | — | — | — | — |
| 10 & 12 | C1100871 | 42 | C1100884 | 58 | — | — | — | — |
| 6, 8 & 10 | — | — | — | — | C1100569 | 60 | C1100543 | 54 |
| 8, 10 & 12 | C1100386 | 57 | C1100235 | 60 | C1100570 | 60 | C1100544 | 75 |
| 10, 12 & 14 | C1100838 | 84 | C1100923 | 84 | C1100791 | 84 | — | — |
| 14, 14 & 14 | C1100504 | 120 | C1100505 | 124 | C1100572 | 122 | C1100545 | 114 |
| 8, 10, 12 & 14 | T1100521 | — | C1100247 | 124 | C1100573 | 122 | C1100591 | 115 |

High-Strength SS Anchors for Heavy Tension Loading *(continued)*

Extensions – Hot-Dip Galvanized

| Helix Configuration | SS 150 | | SS 175 | | SS 200 | | SS 225 | |
|---------------------|----------------|-----------------------|----------------|-----------------------|----------------|-----------------------|----------------|-----------------------|
| | Catalog Number | L ² Inches | Catalog Number | L ² Inches | Catalog Number | L ² Inches | Catalog Number | L ² Inches |
| None | C1100388 | 37 | C1100136 | 37 | C1100563 | 37 | C1100645 | 33 |
| None | C1100470 | 59 | C1100137 | 59 | C1100564 | 58 | C1100646 | 60 |
| None | C1100389 | 80 | C1100138 | 80 | C1100565 | 80 | C1100647 | 80 |
| None | C1100440 | 122 | C1100140 | 124 | C1100566 | 123 | — | 120 |
| Single 14" Helix | C1100471 | 48 | C1100472 | 48 | C1100577 | 45 | C1100650 | 39 |
| Twin 14" Helices | C1100454 | 80 | C1100450 | 80 | C1100581 | 80 | C1100652 | 78 |
| Triple 14" Helices | C1100475 | 123 | C1100476 | 124 | C1100586 | 123 | — | 120 |

Termination Adapters – Hot-Dip Galvanized

| Description | SS 150 | | | SS 175 | | | SS 200 | | | SS 225 | | |
|-------------------|-------------------------|---------------------|-----------|----------------------------|---------------------|-----------|-------------------------|---------------------|-----------|----------------|---------------------|-----------|
| | Catalog Number | Notes | L3 Inches | Catalog Number | Notes | L3 Inches | Catalog Number | Notes | L3 Inches | Catalog Number | Notes | L3 Inches |
| Thimbleye Adapter | C1020023 | — | 17 | T1100311 ⁽¹⁾ | — | 17 | T1100312 ⁽²⁾ | — | 17 | — | — | — |
| Twineye Adapter | C1020024 | — | 17 | T1100964 ⁽¹⁾ | — | — | — | — | — | — | — | — |
| Tripleye Adapter | C1020025 | — | 17 | T1100465 ⁽¹⁾ | — | 17 | T1100629 ⁽²⁾ | — | — | — | — | — |
| Ovaleye Adapter | C1100041 | — | 17 | — | — | — | — | — | — | — | — | — |
| Threaded Adapter | C1100026 | L ⁵ =13½ | 20 | T1100352 ⁽¹⁾⁽³⁾ | L ⁵ =36" | 48 | — | — | — | — | — | — |
| Chain Shackle | C1100574 ⁽⁴⁾ | L ⁴ =1½ | 5⅞ | T1100134 | L ⁴ =1⅓⅙ | 6⅝ | C1100557 | L ⁴ =2¼" | 8¼ | C1100558 | L ⁴ =2⅜" | 9 |

(1) Clevis fitting. Others have Socket fitting.

(2) Rated at 70,000 lb.

(3) T1100352 includes two nuts.

(4) Tripleye shackle.

Extra Bolt & Nut– Hot-Dip Galvanized

for Extensions & Guy Adapters (socket and clevis types) Standard Package: 10 each

| Description | SS5/SS 150 | SS 175 | SS 200 | SS 225 |
|------------------------------|------------|-----------|-----------|-----------|
| Extra Bolt– Extension | P0010041P | P0011443P | P0011445P | P0011771P |
| Extra Bolt– Adapter | P0010041P | P0011444P | P0010690P | – |
| Extra Nut– Both | 055449P | 055591P | P0010030P | 056292P |

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. Maximum installing torque is 2,300 ft-lb 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 Number 63461.



Application and Ordering Information

| Catalog Number | Description | Anchor Size Dia Inches | Rod Dia & Length Inches | Standard Pkg/Pallet | No-Wrench Screw Anchor Holding Capacity lb vs Soil Class | | |
|---------------------|-------------|------------------------|-------------------------|---------------------|----------------------------------------------------------|---------|---------|
| | | | | | Class 5 | Class 6 | Class 7 |
| 4345 | Tripleye | 4 | ¾ x 54 | 1/100 | 4,500 | 3,000 | 1,500 |
| 6346 ⁽¹⁾ | Tripleye | 6 | ¾ x 66 | 1/100 | 6,500 | 5,000 | 2,500 |
| PS816 | Tripleye | 8 | 1 x 66 | 1/60 | 11,000 | 9,000 | 6,000 |
| 10146 | Tripleye | 10 | 1¼ x 66 | 1/20 | 13,000 | 10,000 | 7,000 |
| 10148 | Tripleye | 10 | 1¼ x 96 | 1/20 | 13,000 | 10,000 | 7,000 |
| 12537 | Tripleye | 14 | 1¼ x 96 | 1/20 | 16,000 | 15,000 | 12,000 |
| 15148 | Tripleye | 15 | 1¼ x 96 | 1/20 | 19,000 | 17,000 | 14,000 |
| 43451 | Thimbleye | 4 | ¾ x 54 | 1/100 | 4,500 | 3,000 | 1,500 |
| 63461 | Thimbleye | 6 | ¾ x 66 | 1/100 | 6,500 | 5,000 | 2,500 |
| 8161 | Thimbleye | 8 | 1 x 66 | 1/60 | 11,000 | 9,000 | 6,000 |

Extension Rod

| | | | | | | | |
|-----|----------|---|---------|------|---|---|---|
| 402 | Tripleye | — | 1¼ x 72 | 1/50 | — | — | — |
|-----|----------|---|---------|------|---|---|---|

(1) RUS accepted.

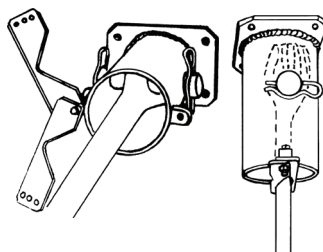
NOTE: If hand installed, holding capacity may be reduced by as much as 10% to 20%. Capacity ratings apply to properly installed anchors only. Failure to install within 5° of alignment with the guy load will significantly lower strength.

No-Wrench Power Installation Tool

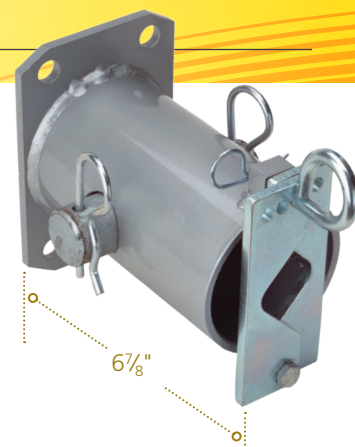
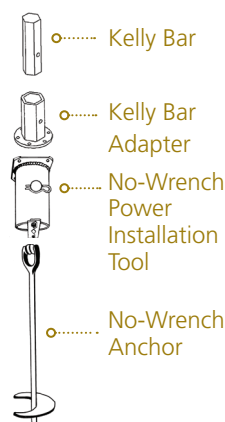
This tool bolts directly to the installer's output flange or appropriate Kelly Bar Adapter. Adjustable pivot plates accept rods from ¾" to 1¼" diameter. Through-pin with retainer clip passes through the eyenut.

It has 4 holes on a 5¼" bolt circle for attachment and includes 4½" x 1½" bolts, nuts and lockwasher.

Tool can be attached to any Chance Torque Indicator.



No-Wrench Typical Drive String



| Catalog Number | Weight lb |
|----------------|-----------|
| E3030255 | 9 |

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 and 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 Inches | Area Square Inches | Rod Size ⁽¹⁾ Inches | Standard Pkg/Pallet | 8-Way Anchor Holding Capacity – lb vs Soil Class | | | | |
|----------------|-------------------------|--------------------|--------------------------------|---------------------|--------------------------------------------------|-----------------------|-----------------------|---------|---------|
| | | | | | Class 3 | Class 4 | Class 5 | Class 6 | Class 7 |
| 6870 | 6 | 70 | 5/8 | 12/288 | 16,000 | 14,000 | 11,000 | 8,500 | 5,000 |
| 88135 | 8 | 135 | 5/8 or 3/4 | 6/150 | 26,500 ⁽²⁾ | 22,000 ⁽²⁾ | 18,000 ⁽²⁾ | 15,000 | 10,000 |
| 1082 | 10 | 200 | 1 | 2/48 | 31,000 | 26,500 | 21,000 | 16,500 | 12,000 |
| 108234 | 10 | 200 | 3/4 | 2/48 | 31,000 ⁽²⁾ | 26,500 ⁽²⁾ | 21,000 | 16,500 | 12,000 |
| 1283 | 12 | 300 | 1 1/4 | 2/36 | 40,000 | 34,000 | 26,500 | 21,500 | 16,000 |
| 12831 | 12 | 300 | 1 | 2/36 | 40,000 ⁽²⁾ | 34,000 | 26,500 | 21,500 | 16,000 |

NOTE: Capacity ratings apply to properly installed anchors only. Failure to install within 5° of alignment with the guy load will significantly lower strength.

(1) Order separately.

(2) Ultimate strength of rod may limit holding capacity. See pages 19-20 for rod ratings and selection. Add suffix "G" for galvanized. Example: 88135G.

Expanding and 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. To order fiberglass replacement handles or expander head, see page 39.

| Catalog Number | Description | Length ft | Weight lb |
|----------------|-------------------------|-----------|-----------|
| C3020003 | Expanding & Tamping Bar | 10 | 22 |
| C3020004 | Expanding & Tamping Bar | 12 | 24 |



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 Inches | Standard Pkg/Pallet | Approx Wt per Carton ⁽¹⁾ lb | Area Sq In | Rod Size ⁽²⁾ Inches | Holding Capacity ⁽³⁾ lb (No Safety Factors Included) vs Soil Class | | | | |
|---------------------|------------------|---------------------|----------------------------------------|------------|--------------------------------|----------------------------------------------------------------------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| | | | | | | Class 3 | Class 4 | Class 5 | Class 6 | Class 7 |
| X16 | 16 | 3/162 | 62 | 150 | 5/8 & 3/4 | 26,500 ⁽³⁾ | 22,500 ⁽³⁾ | 18,500 ⁽³⁾ | 14,500 | 9,500 |
| X20 | 20 | 2/64 | 64 | 250 | 5/8 & 3/4 | 34,000 | 29,000 ⁽³⁾ | 24,000 ⁽³⁾ | 19,000 ⁽³⁾ | 14,000 |
| X201 | 20 | 2/64 | 64 | 250 | 1 | 34,000 | 29,000 | 24,000 | 19,000 | 14,000 |
| X2434 | 24 | 1/48 | 34 | 400 | 5/8 & 3/4 | 45,000 ⁽³⁾ | 37,000 ⁽³⁾ | 30,000 ⁽³⁾ | 23,500 ⁽³⁾ | 18,000 ⁽³⁾ |
| X24 ⁽¹⁾ | 24 | 1/48 | 34 | 400 | 1 | 45,000 ⁽³⁾ | 37,000 ⁽³⁾ | 30,000 | 23,500 | 18,000 |
| X241 ⁽¹⁾ | 24 | 1/48 | 34 | 400 | 1 1/4 | 45,000 | 37,000 | 30,000 | 23,500 | 18,000 |

NOTE: Capacity ratings apply to properly installed anchors only. Failure to install within 5° of alignment with the guy load will significantly lower strength.

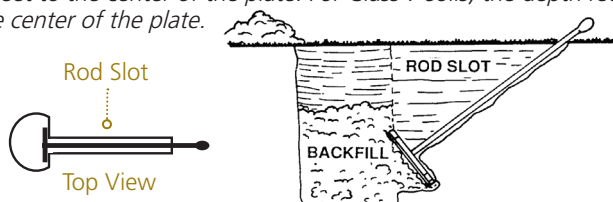
(1) X24 Series are not available in cartons and are shipped as individual pieces.

(2) Order separately.

(3) Ultimate strength of rod may limit holding capacity. Add suffix "G" for galvanized. Example: X20G.

Holding capacities are ultimate values. An appropriate factor of safety should be used to determine the allowable or service load. Hubbell Power Systems, Inc. recommends a factor of safety of at least 2 for permanent structures

For Class 3, 4, 5, and 6 soils, the depth required to achieve the holding capacities listed in the table is 5 vertical feet to the center of the plate. For Class 7 soils, the depth required is 7 vertical feet to the center of the plate.



*Order Anchor Rod Separately

Anchor Rod Extensions

These Anchor Rod Extensions are primarily 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. Each extension rod is hot-dip galvanized and includes a high-strength bolt and nut.

Welded Clevis Style



| Catalog Number | Description | Rod Dia & Length Inches | Clevis Bolt Dia Inches | Standard Pkg/Pallet | Strength lb |
|----------------|-------------|-------------------------|------------------------|---------------------|-------------|
| PSC1022176 | Tripleye® | 3/4 x 24 | 3/4 | 5/50 | 23,000 |
| PSC1022177 | Tripleye® | 3/4 x 36 | 3/4 | 1/50 | 23,000 |
| PSC1022178 | Tripleye® | 3/4 x 72 | 3/4 | 1/50 | 23,000 |
| PSC1022183 | Twineye® | 1 x 24 | 7/8 | 5/50 | 36,000 |
| PSC1022305 | Tripleye® | 1 x 24 | 7/8 | 1/50 | 36,000 |
| PSC1022184 | Twineye® | 1 x 36 | 7/8 | 1/50 | 36,000 |
| PSC1022306 | Tripleye® | 1 x 36 | 7/8 | 1/50 | 36,000 |
| PSC1022185 | Twineye® | 1 x 72 | 7/8 | 1/50 | 36,000 |
| PSC1022307 | Tripleye® | 1 x 72 | 7/8 | 1/50 | 36,000 |

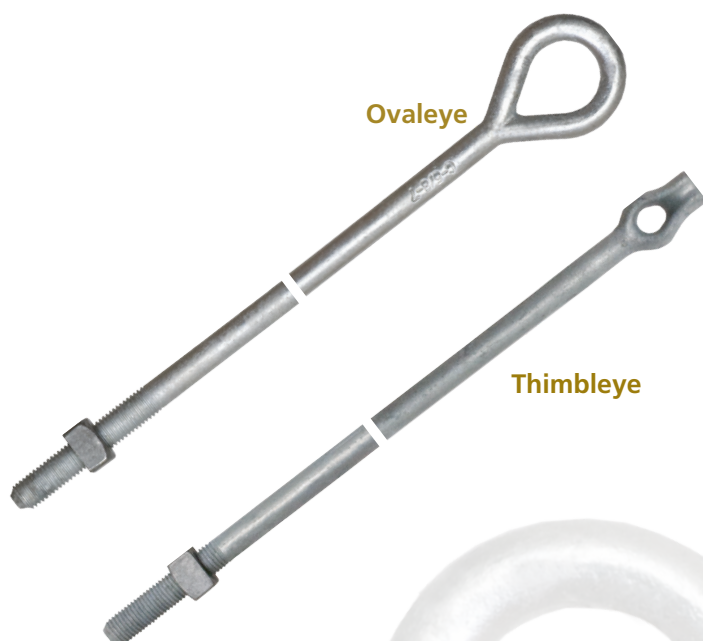
Forged Clevis Style



| Catalog Number | Description | Rod Dia & Length Inches | Clevis Bolt Dia Inches | Standard Pkg/Pallet | Strength lb |
|----------------|-------------|-------------------------|------------------------|---------------------|-------------|
| 4022 | Tripleye® | 1 1/4 x 24 | 1 | 1/50 | 40,000 |
| PS4023 | Tripleye® | 1 1/4 x 36 | 1 | 1/50 | 40,000 |
| 402 | Tripleye® | 1 1/4 x 72 | 1 | 1/50 | 40,000 |

Galvanized Anchor Rods

- Available for one, two or three guys for use with expanding and Cross Plate Anchor.
- 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 3½" minimum length.
- Nuts are included.



Ovaleyeye Adapter

| D Inches | A Inches | B Inches | C Inches |
|-------------|-------------|-------------|-------------|
| 5/8 | 9/16 | 1½ | 2 |
| 1 | 7/8 | 1½ | 2 |



Tensile Strength⁽¹⁾

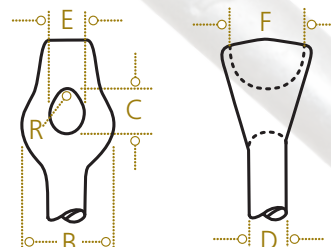
| Rod Size inches | Strength lb | Nut Part Number |
|--------------------|----------------|--------------------|
| ½ | 10,000 | 55058P |
| 5/8 | 16,000 | 55006P |
| ¾ | 23,000 | 55312P |
| 1 | 36,000 | 55320P |
| 1¼ | 58,000 | 56001P |

(1) Ultimate strength ratings apply to properly installed anchors only. Failure to install within 5° of alignment with the guy load will significantly lower strength.

Thimbleye Adapter

| D Inches | R ⁽¹⁾ Inches | B Inches | C Inches | E Inches | F Inches |
|-------------|----------------------------|-------------|-------------|-------------|-------------|
| ½ | 3/16 | 1¼ | 9/16 | ½ | 1¼ |
| 5/8 | ¼ | 1½ | 11/16 | 9/16 | 13/8 |
| ¾ | 9/32 | 15/8 | 13/16 | 11/16 | 1½ |
| 1 | 13/32 | 2¼ | 1½ | 15/16 | 15/8 |

(1) 2 x R or 2 x R1 = maximum-diameter guy strand.

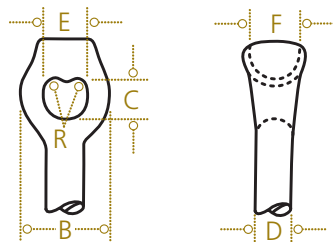


Galvanized Anchor Rods (continued)

Twineye Adapter

| D Inches | R ⁽¹⁾ Inches | B Inches | C Inches | E Inches | F Inches |
|-------------|----------------------------|-------------|-------------|-------------|-------------|
| 5/8 | 7/32 | 1 3/4 | 7/8 | 1 5/16 | 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 |

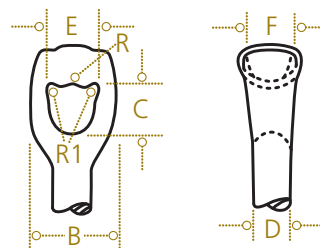
(1) 2 x R or 2 x R1 = maximum-diameter guy strand.



Tripleye Adapter

| D Inches | R ⁽¹⁾ Inches | R1 ⁽²⁾ Inches | B Inches | C Inches | E Inches | F Inches |
|-------------|----------------------------|-----------------------------|-------------|-------------|-------------|-------------|
| 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 |

(1) 2 x R or 2 x R1 = maximum-diameter guy strand.



| Catalog Number | | | | Size | Protected Rods ⁽¹⁾ – Catalog Number | | |
|-----------------------|---------------------|----------------------|--------------------|--------------|------------------------------------------------|---------------------|----------------------|
| 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 ⁽²⁾ | 5346 | — | — | 5/8" x 6' | — | — | — |
| 5317 ⁽²⁾ | 5347 ⁽²⁾ | — | PS6417 | 5/8" x 7' | — | — | — |
| 5318 ⁽²⁾ | 5348 ⁽²⁾ | — | — | 5/8" x 8' | — | — | — |
| 5326 ⁽²⁾ | 5356 ⁽²⁾ | — | — | 3/4" x 6' | C2000088 | C2000092 | — |
| 5327 ⁽²⁾ | 5357 ⁽²⁾ | 7557 ⁽²⁾ | — | 3/4" x 7' | C2000089 | C2000093 | C2000099 |
| 5328 ⁽²⁾ | 5358 ⁽²⁾ | 7558 | — | 3/4" x 8' | C2000090 | C2000094 | C2000098 |
| — | 5359 ⁽²⁾ | 7559 | — | 3/4" x 9' | — | C2000095 | C2000097 |
| — | 5360 | — | — | 3/4" x 10' | C2000091 | C2000096 | — |
| 5338 ⁽²⁾ | 5368 ⁽²⁾ | 7568 | — | 1" x 8' | C2000102 | — | C2000105 |
| — | 5369 | — | — | 1" x 9' | — | C2000100 | — |
| 5340 ⁽²⁾ | 5370 ⁽²⁾ | 7570 | 6440 | 1" x 10' | C2000103 | C2000101 | C2000104 |
| — | — | C2000028 | — | 1 1/4" x 8' | — | — | — |
| — | 15129 | 7574 | — | 1 1/4" x 10' | — | — | — |

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

(2) IEEE standard.



Twineye

Tripleye

Expanding Rock Anchors

Saves Time, Labor and 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.

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 and bending. And it allows slack to be pulled up without binding, damaging or weakening the guy.

| Catalog Number | Rod Dia Inches | Rod Length Inches | Anchor Size Inches | Anchor Fully Expanded | Hole Size Inches | Approx Wt Per 100 | Number in Bundle |
|----------------|----------------|-------------------|--------------------|-----------------------|------------------|-------------------|------------------|
| R315 | ¾ | 15 | 1¾ | 2¾ | 2 | 500 | 5 |
| R330 | ¾ | 30 | 1¾ | 2¾ | 2 | 700 | 5 |
| R353 | ¾ | 53 | 1¾ | 2¾ | 2 | 960 | 5 |
| R360 | ¾ | 60 | 1¾ | 2¾ | 2 | 1,040 | 5 |
| R372 | ¾ | 72 | 1¾ | 2¾ | 2 | 1,200 | 4 |
| R384 | ¾ | 84 | 1¾ | 2¾ | 2 | 1,300 | 4 |
| R396 | ¾ | 96 | 1¾ | 2¾ | 2 | 1,460 | 3 |
| R130L | 1 | 30 | 2¼ | 3½ | 2½ | 1,166 | 3 |
| R153L | 1 | 53 | 2¼ | 3½ | 2½ | 1,833 | 3 |
| R172L | 1 | 72 | 2¼ | 3½ | 2½ | 2,133 | 2 |
| R196L | 1 | 96 | 2¼ | 3½ | 2½ | 2,666 | 2 |

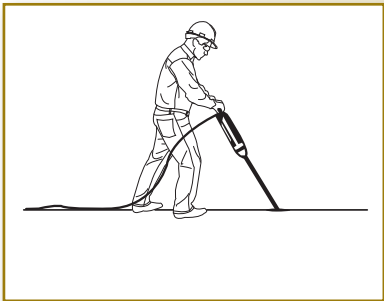
NOTE: ¾" rod minimum ultimate strength of 23,000 pounds.
1" rod minimum ultimate strength of 36,000 pounds. Ultimate strength ratings apply to properly installed anchors only. Failure to install within 5° of alignment with the guy load will significantly lower strength. Recommended minimum installation depth is 12" in solid rock. Rods and wedges are hot-dip galvanized.



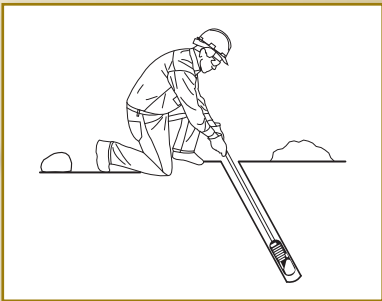
Expanding Rock Anchors *(continued)*

Installation is quick and simple.

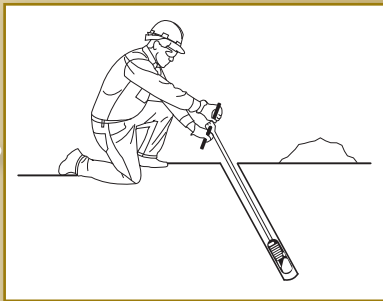
- Bore the hole with hand or power drill, making sure that the diameter of the hole is ¼-inch larger than the diameter of the unexpanded anchor.
- Drop the anchor in the hole. Put a bar through the large eye of the anchor rod.
- Turn the rod until the anchor is firmly expanded against the sides of the 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.



Bore hole



Drop anchor into hole



Turn rod to expand

EXTENDABLE ROCK ANCHOR

The Chance® Extendable Rock Anchor uses standard PISA® couplings and rods to install the rock anchor at depths greater than standard Expandable Rock Anchors (96"). For rods, couplings and eyenuts, see pages 8-9. Hot-dip galvanized.

| Catalog Number | Rod Diameter Inches | Rod Length Inches | Standard Pkg/Pallet |
|----------------|---------------------|-------------------|---------------------|
| R84LE | 1 | 84 | 2/50 |



Grouted Rock Anchors

The Chance® Grouted Rock Anchor is designed to be used in situations where the soil is too rocky to use screw anchors, but the rock is fractured preventing the use of wedge style rock anchors. The forged knob on the end of the anchor along with any extension couplings provides the interference fit with the grout. The holding capacity of the anchor is dependent on the bond stress between the rock and the grout. The Grouted Rock Anchor is designed to be used inline with the guy. Failure to install within 5° of alignment with the guy load will significantly lower strength.

Installing a Grouted Rock Anchor requires first drilling a 6" diameter hole. Then insert the anchor, assembled with any Round Rod Extensions and Guy Adapter needed. Portland Cement grout pumped in to completely fill the hole around the anchor takes approximately 5 days to cure.

Grouted Rock Anchor – 1¼" Diameter Rod

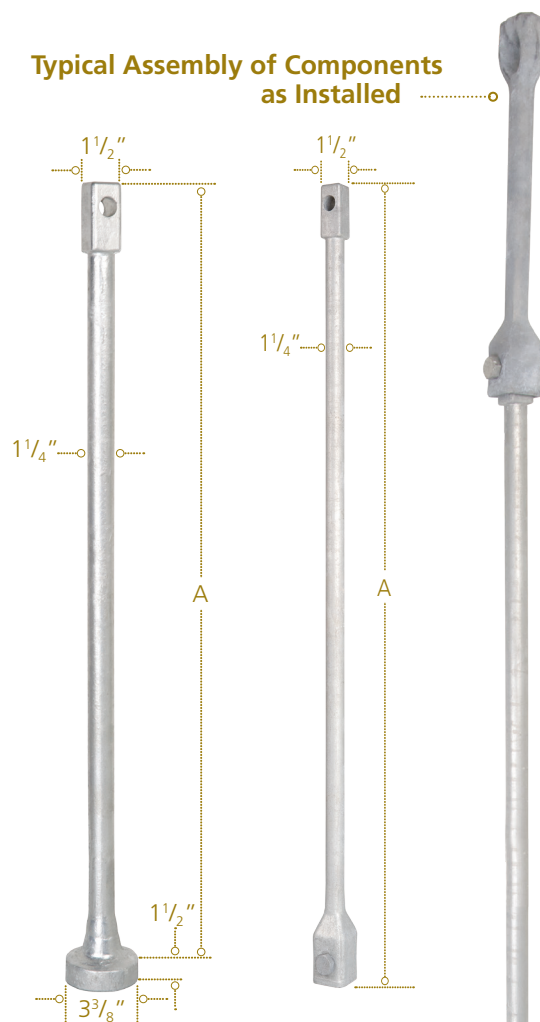
| Catalog Number | Length A Inches | Approx Ship Wt Each lb | Standard Pkg/Pallet |
|----------------|-----------------|------------------------|---------------------|
| W1040004 | 36 | 17.6 | 1/40 |
| W1040055 | 84 | 38.0 | 1/30 |

Round Rod Extension – 1¼" Diameter Rod

| Catalog Number | Length A Inches | Approx Ship Wt Each lb | Standard Pkg/Pallet |
|----------------|-----------------|------------------------|---------------------|
| 12696 | 42 | 17.6 | 1/50 |
| 12697 | 60 | 38.0 | 1/50 |
| 12698 | 84 | 24.0 | 1/30 |
| 12699 | 120 | 46.8 | 1/50 |

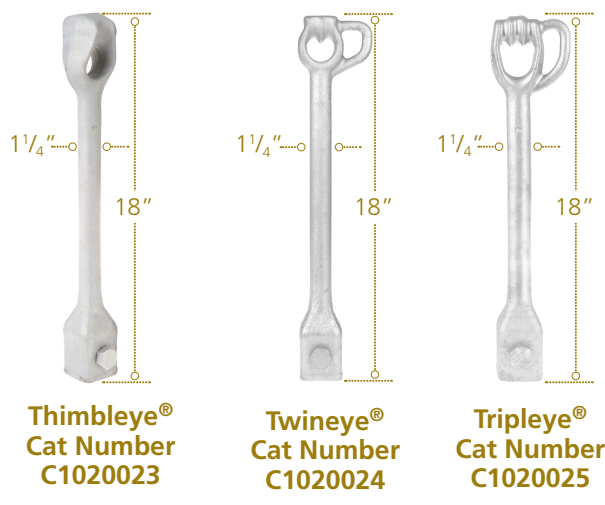
NOTE: Galvanized per ASTM A-153. SS5 and SS150 extensions can be used in place of the RR extensions listed above.

Typical Assembly of Components as Installed



Grouted Rock Anchor RR Extension

Guy Adapters



Thimbleye®
Cat Number
C1020023

Twineye®
Cat Number
C1020024

Tripleye®
Cat Number
C1020025

Grouted Rock Anchors *(continued)*

Application Table for Catalog Numbers W1040004 and W1040055

| Rock | Ultimate Bond Stress Between Rock & Grout psi ^{(1) (2) (3)} | Allowable Load Capacity for 6" Dia x 1' Long Grout Column lb/ft of Length ⁽⁴⁾ |
|----------------------|----------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|
| Granite | 200 | 15,000 |
| Basalt | | |
| Dolomitic Limestone | | |
| Soft Limestone | 100 | 7,500 |
| Slates & Hard Shales | | |
| Sandstones | | |
| Soft Shales | 30 | 1,800 |
| Soil ⁽⁵⁾ | 8 | 600 |
| Class 5 | | |

- (1) Ultimate bond stress values from the Post Tensioning Institute and the grout-to-ground bond values from the Federal Highway Administration were used to arrive at the indicated ultimate bond stress between rock and grout used in the above chart.
- (2) Identification of the rock and application of the chart values is the responsibility of those designing the rock anchor.
- (3) The values in the chart are intended to provide conservative results.
- (4) Higher bond stress values may be obtainable, but the associated investigation to determine appropriate values and the use of those values is left to those designing the rock anchor.
- (5) For recommendations concerning bonded lengths and unbonded lengths, reference the Post Tensioning Institute specifications.

NOTE:

- The given ultimate stresses were applied over the surface of a 6" diameter x 1' long grout column, then divided by 3 to obtain the recommended allowed load per foot of length in the indicated rock or soil.
- Actual capacities will depend on the strength of the rock, grout strength and quality of the installation.
- A rough surface in the drilled hole is preferred as well as a clean hole free of loose material, soil, dust, etc.
- A 6" diameter hole is recommended for the use of the W1040004 and W1040055 rock anchors.
- The minimum bond length of the rock anchor to be engaging the rock is 5 feet.
- It is recommended that field testing be accomplished to confirm capacities.
- Anchor grout is to be made using Type I, II, III, or V Portland Cement conforming to ASTM C-150 specifications.
- The compressive strength of the grout shall be 3000 psi at the time of stressing.
- Grout should be flowable to reach the bottom of the drilled hole or pumpable if it is to be placed via a grout pump.
- The ultimate mechanical strength of the W1040004 and W1040055 rock anchors and associated extensions and terminations is 70,000 lb when Chance/Hubbell anchor components are used.
- Water used in the grout mix should be potable (suitable for public consumption), clean and free of substances known to be harmful to portland cement or steel.
- It is recommended that grout be placed in the hole prior to inserting the rock anchor.
- When using pre-packaged grout mixes, follow the directions and use the water cement ratio recommended by the manufacturer.
- The rock anchor is to be installed in line with the guy wire. Any misalignment is to be no more than ± 5 degrees.

Expanding Pole Key Anchor

• Quicker Installing, More Efficient Than Wood Key



Closed

The Chance Pole Key can be used to reinforce poles in soft soils where the load is unbalanced and the pole must resist the load. However, it is recommended that Pole Keys only be used where a proper guy wire and guy anchor cannot be used, since a guy and anchor will generally provide more resistance to lateral movement. The Pole Keys will not withstand the same load, or perform as well as a proper guy and anchor.

The Chance Pole Key can be installed next to the distribution pole butt to help hold it in place against light overturning loads such as service drops, prevailing winds or small line angles.

The additional lateral load and resulting overturning moment which can be resisted by Pole Keys depends on the height of the load, the locations of the Pole Keys, the allowable lateral deflection of the pole at ground line and the quality of the installation.

The % capacity increase shown in the table is based on analyses that used 2" lateral deflection at the ground line as the upper capacity limit.



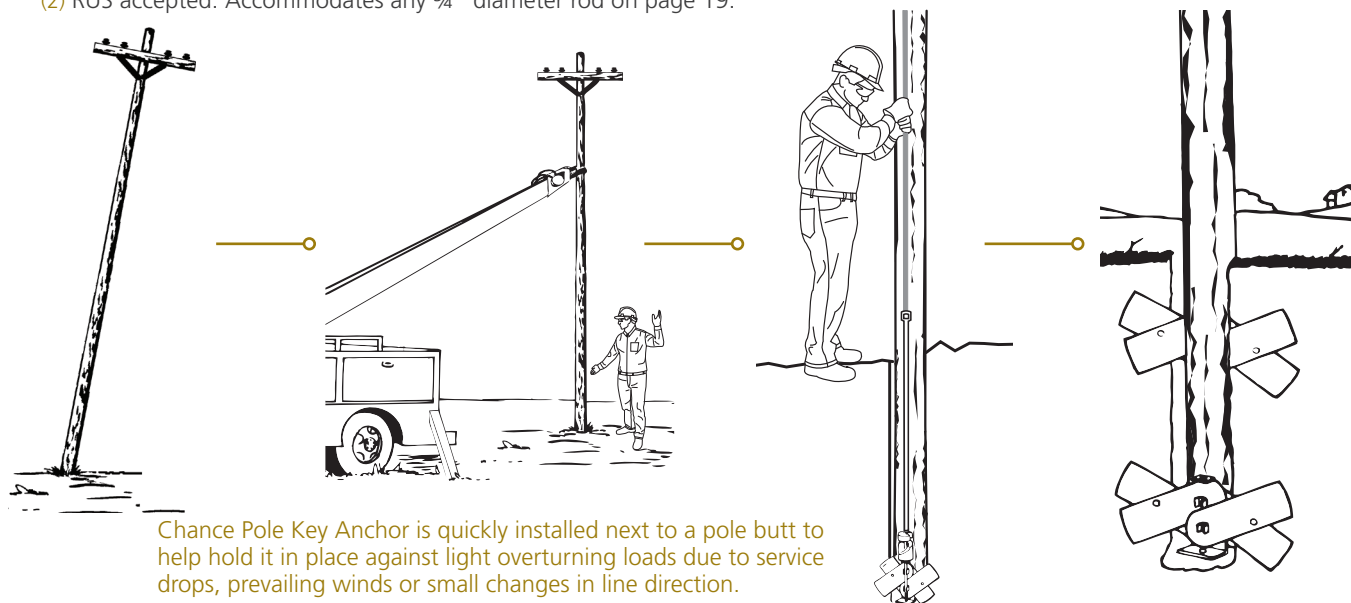
Expanded

Application and Ordering Information

| Catalog Number | Width Expanded Inches | Blade Width Inches | Area Expanded sq in | Approx Weight lb | Pole Height and Class | % Capacity Increase by adding two Pole Keys |
|----------------------|-----------------------|--------------------|---------------------|------------------|-----------------------|---------------------------------------------|
| P4817 ⁽²⁾ | 27¼ | 7 | 276 | 24½ | 35' Cl 5 | 30 |
| | | | | | 40' Cl 4 | 24 |
| | | | | | 60' Cl 3 | 13 |

(1) 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.

(2) RUS accepted. Accommodates any ¾" diameter rod on page 19.



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.

Corrosion-Resistant Anchor

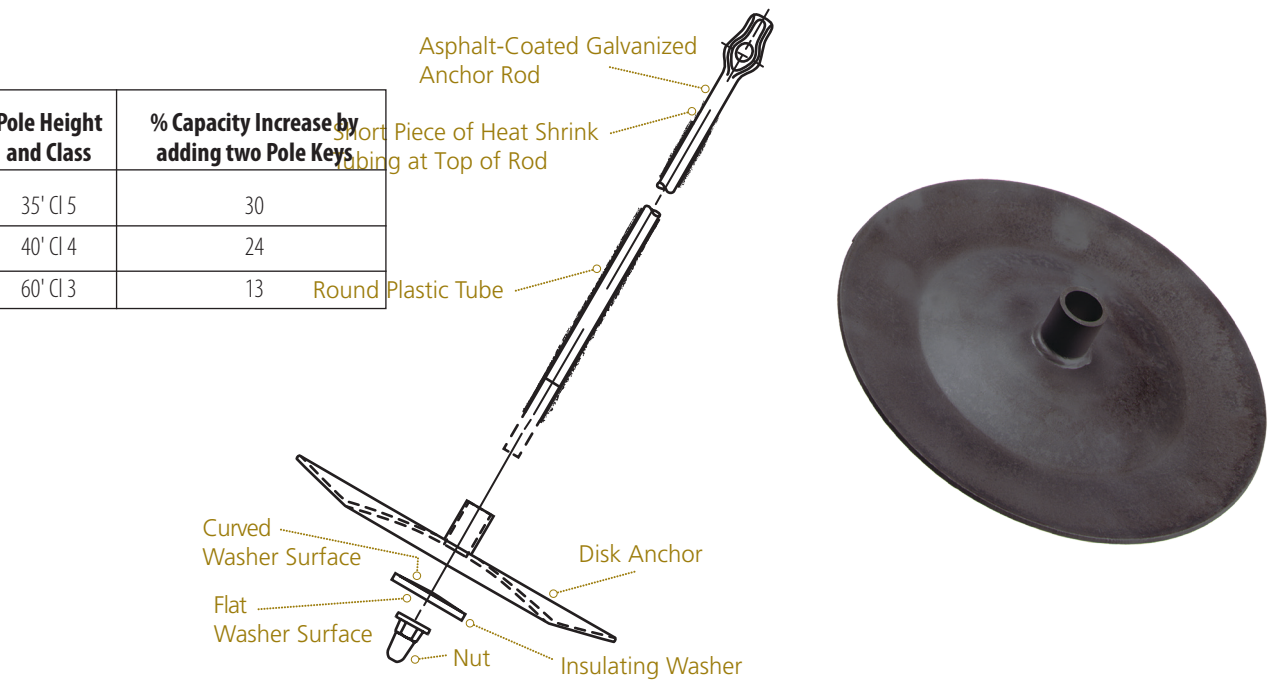
Chance® Design Offers Many Advantages.

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 cast. 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 | | | | | | | | |
|----------------------------|------------------------|------------------|--------------------------------|------------------------------------------------------------------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|
| Catalog Number | Description | Hole Size Inches | Fits Protected Rod Size Inches | Holding Capacity ⁽¹⁾ – lb (No Safety Factors Included) vs Soil Class | | | | |
| | | | | 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 | 31,000 ⁽¹⁾ | 26,500 ⁽¹⁾ | 21,000 | 16,500 | 12,000 |
| C1022009 | 16" Anchor .187" Thick | 16 | 1 | 31,000 ⁽¹⁾ | 26,500 | 21,000 | 16,500 | 12,000 |
| C1022011 | 20" Anchor .187" Thick | 20 | 1 | 40,000 ⁽¹⁾ | 34,000 | 26,000 | 21,500 | 16,000 |
| C1022012 | 20" Anchor .250" Thick | 20 | 1 | 40,000 ⁽¹⁾ | 34,000 | 26,000 | 21,500 | 16,000 |
| C1022054 | 24" Anchor .187" Thick | 24 | 1 | 50,000 ⁽¹⁾ | 41,000 ⁽¹⁾ | 33,500 | 26,000 | 20,000 |
| C1022050 | 24" Anchor .250" Thick | 24 | 1 | 50,000 ⁽¹⁾ | 41,000 ⁽¹⁾ | 33,500 | 26,000 | 20,000 |
| C1022381 | 30" Anchor .375" Thick | 30 | 1 1/4 | 78,100 | 64,000 | 52,300 | 40,600 | 31,200 |

NOTE: Capacity ratings apply to properly installed anchors only. Failure to install within 5° of alignment with the guy load will significantly lower strength.

(1) Ultimate strength of rod may limit holding capacity.



Corrosion-Resistant Anchor *(continued)*

Fiber-Reinforced Washer

| Catalog Number | Fits Rod Size Inches | Approx Wt lb Per 100 Pcs |
|----------------|----------------------|--------------------------|
| C2100033 | ¾ | 23 |
| C2100034 | 1 | 19 |
| C2100050 | 1-¼ | 30 |



Cap Nut

| Catalog Number | Fits Rod Size Inches | Approx Wt lb Per 100 Pcs |
|----------------|----------------------|--------------------------|
| C2050407 | ¾ | 242 |
| C2050408 | 1 | 242 |
| C2050590 | 1-¼ | 300 |



These rods include fiber-reinforced washer and heavy-forged cap nut. Nut and washer is attached to rod.

Galvanized rod meets NEMA specification PH2 and has an asphalt coating, polyethylene tube and heat shrink collar. For additional sizes of rods, contact Hubbell Power Systems, Inc.

Protected Rod for Corrosion-Resistant Anchor

| Rod Size | Rod Tensile Strength lb | Thimbleye® Adapter | | Twineye® Adapter | | Tripleye® Adapter | |
|------------|-------------------------|--------------------|----------------|------------------|----------------|-------------------|----------------|
| | | Catalog Number | Lb Per 100 Pcs | Catalog Number | Lb Per 100 Pcs | Catalog Number | Lb Per 100 Pcs |
| ¾" x 6' | 23,000 | C2000047 | 1,330 | C2000053 | 1,362 | C2000106 | — |
| ¾" x 7' | 23,000 | C2000048 | 1,450 | C2000054 | 1,470 | — | 1,630 |
| ¾" x 8' | 23,000 | C2000049 | 1,566 | C2000055 | 1,650 | C2000061 | 1,783 |
| ¾" x 9' | 23,000 | — | — | C2000056 | 1,750 | C2000062 | 1,883 |
| ¾" x 10' | 23,000 | C2000050 | 1,826 | C2000057 | 1,910 | — | — |
| 1" x 7' | 36,000 | — | — | C2000114 | — | — | — |
| 1" x 8' | 36,000 | C2000051 | 2,500 | C2000108 | — | C2000063 | 2,730 |
| 1" x 9' | 36,000 | — | — | C2000058 | 2,800 | — | — |
| 1" x 10' | 36,000 | C2000052 | 3,005 | C2000059 | 3,050 | C2000064 | 3,270 |
| 1-¼" x 15' | 58,000 | — | — | C2000141 | 5,000 | — | — |
| 1-¼" x 15' | 58,000 | — | — | — | — | C2000140* | 7,500 |

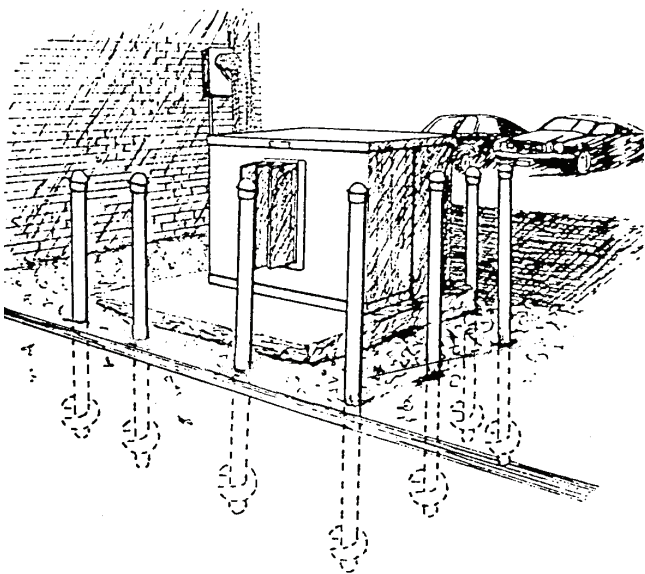
secure

Bumper Posts

For Instant Equipment Protection

- 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.

Power-Installed Design



ANCHORING

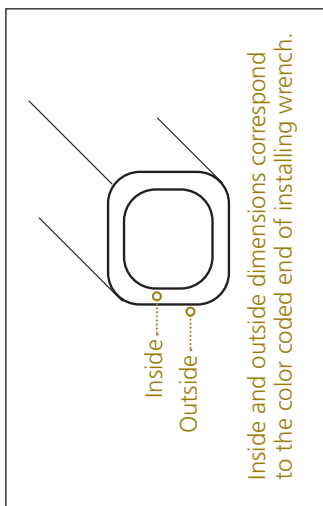
INSTALLING TOOLS

- Additional tools may not be required for Bumper Post if Kelly Bar can be inserted into the 3.06" inside diameter 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 catalog number C3030737 for Kelly Bar attachment or C3030739 for use with Locking Dog Assembly. Bumper Post is inserted into the drive tool and held by the provided Bent Arm Pin.

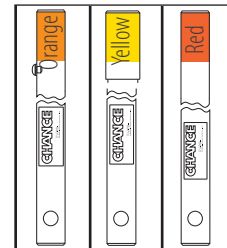
8,000 ft-lb Typical Working Torque

| Catalog Number | Standard Pkg/Pallet | Weight Each lb | Description |
|----------------|---------------------|----------------|--------------------------------|
| T1120192 | 1/12 | 45 | 8" Helix, 3½" O.D. x 60" Shaft |
| T1120224 | 1/12 | 53 | 8" Helix, 3½" O.D. x 75" Shaft |
| C1120275 | 1/12 | 61 | 8" Helix, 3½" O.D. x 84" Shaft |

How to Match Anchors and Installing Wrenches



| | Installing Wrench Catalog Number | Length ft | Maximum Installing Torque Rating ft-lb | Outside Dimension Inches | Inside Dimension Inches |
|------------------------------------------------|----------------------------------|-----------|----------------------------------------|--------------------------|-------------------------|
| C102-50XX Series Tough One® Anchor - Large Hub | C102-1583 ⁽¹⁾ | 7 | 10,000 | 2.16 | 1.46 |
| C102-50XX Series Tough One® Anchor - Large Hub | C102-1595 ⁽¹⁾ | 3½ | 10,000 | 2.16 | 1.46 |
| C102-52XX Series Tough One® Anchor - Small Hub | C303-1064 ⁽¹⁾ | 7 | 10,000 | Top: 2.16 Bot: 2.44 | Top: 1.46 Bot: 1.54 |
| C102-52XX Series Tough One® Anchor - Small Hub | C303-1063 ⁽¹⁾ | 3½ | 10,000 | Top: 2.16 Bot: 2.44 | Top: 1.46 Bot: 1.54 |
| Mid-Strength PISA® Anchor | C303-0983 ⁽²⁾ | 7 | 15,000 | 2.44 | 1.54 |
| Standard-Strength PISA® Anchor | C303-0982 ⁽²⁾ | 3½ | 15,000 | 2.44 | 1.54 |
| PISA® 7 Anchor | | | | | |
| PISA® 6 Anchor (formerly PISA® 5 Anchor) | | | | | |



Maximum Installation Torque Rating ft-lb

(1) Fits Locking Dog Assembly CC303-0069HD.

(2) Fits Locking Dog Assembly CC303-0981.

Standard and Hybrid PISA® Anchor Installing Tools

For Installing Torques up to 10,000 ft-lb

A complete tool system consists of: Kelly Bar Adapter, Torque Indicator, Locking Dog Assembly and Drive-End assembly. For instructions for selecting the proper Kelly Bar Adapter, see page 31.

Convertible to Extension Use

Extension assemblies can be added where soil conditions dictate that anchors be set more than one rod length deep or where digger to ground clearances are limited.

Each Standard Kelly Bar Adapter has six holes for ½" bolts on a 5¼" bolt circle and comes with six ½" Grade 5 bolts, nuts, lockwashers and Bent Arm Pin with Coil Lock.



Kelly Bar Adapter

Kelly Bar

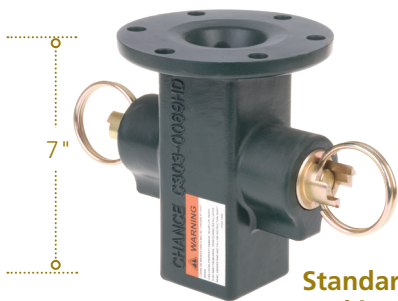
Standard Kelly Bar Adaptor with Bent Arm Pin

(5" Bolt Circle)

| Part Number | Kelly Bar Shape | Kelly Bar Dimension | | | Wt Each lb |
|-------------|-----------------|---------------------|-----|-----|------------|
| | | X | Y | Z | |
| 630013 | Hex | 2" | 5' | 6⅞" | 10 |
| 630011HD | Hex | 2½" | 4¼" | 8⅞" | 18 |
| 630012HD | Hex | 2⅝" | 4¼" | 8⅞" | 18 |
| 630015 | Square | 2½" | 2¾" | 7" | 13¼ |
| 630017 | Square | 2½" | 2½" | 3½" | 9 |

Bolt, Nut, Lockwasher

| Part Number | Description |
|-------------|-------------|
| P0010259P | Hex Bolt |
| 055371P | Lock Washer |
| 055635P | Hex Nut |



Standard Locking Dog Assembly C3030069HD

Standard Locking Dog Assembly has six holes for ½" bolts on a 5¼" bolt circle, comes with six ½" Grade 5 bolts, nuts and lockwashers.

Standard Locking Dog Assembly

| Catalog Number | Description | Wt Each lb |
|----------------|--------------------------------------------------------------------------------|------------|
| C3030069HD | Complete Standard Locking Dog Assembly | 20 |
| C3030070 | Locking Dog replacement Kit includes parts needed to replace both Locking Dogs | 4 |
| P1300007P | Replacement ring only | 0.10 |

Standard and Hybrid PISA[®] Anchor Installing Tools *(continued)*

For Installing Torques up to 10,000 ft-lb

Transmits Torque to Anchor Core

The wrench transmits the torque from the Kelly Bar of the digger to the hub of the Power-Installed Screw Anchor so that the anchor rod need be only large enough in diameter to support the guy load.

7-ft Drive-End Wrench

| Catalog Number | Description | Wt Each lb |
|-----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|
| C1021583 | Standard Drive-End Wrench Installs 8,000 ft-lb (small-hub) Tough One [®] Anchors 10,000 ft-lb (small-hub) Tough One Anchors 4,000 ft-lb Standard-Strength PISA Anchors 6,000 ft-lb Mid-Strength PISA Anchors | 57 |
| C3031064 ^{(1) (2)} | Hybrid Drive-End Wrench Installs 10,000 ft-lb (large-hub) Tough One Anchors 6,000 ft-lb PISA 6 Anchors 7,000 ft-lb PISA 7 Anchors | 64 |

3½-ft Drive-End Wrench

| Catalog Number | Description | Wt Each lb |
|-----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|
| C1021595 | Standard Drive-End Wrench Installs 8,000 ft-lb (small-hub) Tough One Anchors 10,000 ft-lb (small-hub) Tough One Anchors 4,000 ft-lb Standard-Strength PISA Anchors 6,000 ft-lb Mid-Strength PISA Anchors | 29 |
| C3031063 ^{(1) (2)} | HYBRID Drive-End Wrench Installs 10,000 ft-lb (large-hub) Tough One Anchors 6,000 ft-lb PISA 6 Anchors 7,000 ft-lb PISA 7 Anchors | 28 |

Extension Wrench for Standard and Hybrid Drive-End Wrenches

| Catalog Number | Description | Wt Each lb |
|----------------|------------------|------------|
| 630027 | 3½' ft Extension | 42 |
| 630028 | 7' ft Extension | 70 |

(1) These wrenches will fit 15,000 ft-lb Tough One Anchors dimensionally, but must not be used for torques in excess of 10,000 ft-lb.

(2) The old-style Hybrid wrenches C3031063 and C3031064, having a collar welded around the drive end, fit only PISA 6 and PISA 7 anchors.



Drive-End Wrench
C1021583



Drive-End Wrench
C3031064



Extension Wrench
630027
630028

Replacement Dog Bolt
630002P (2 per wrench)



Screw Anchor Drive Tool Strings

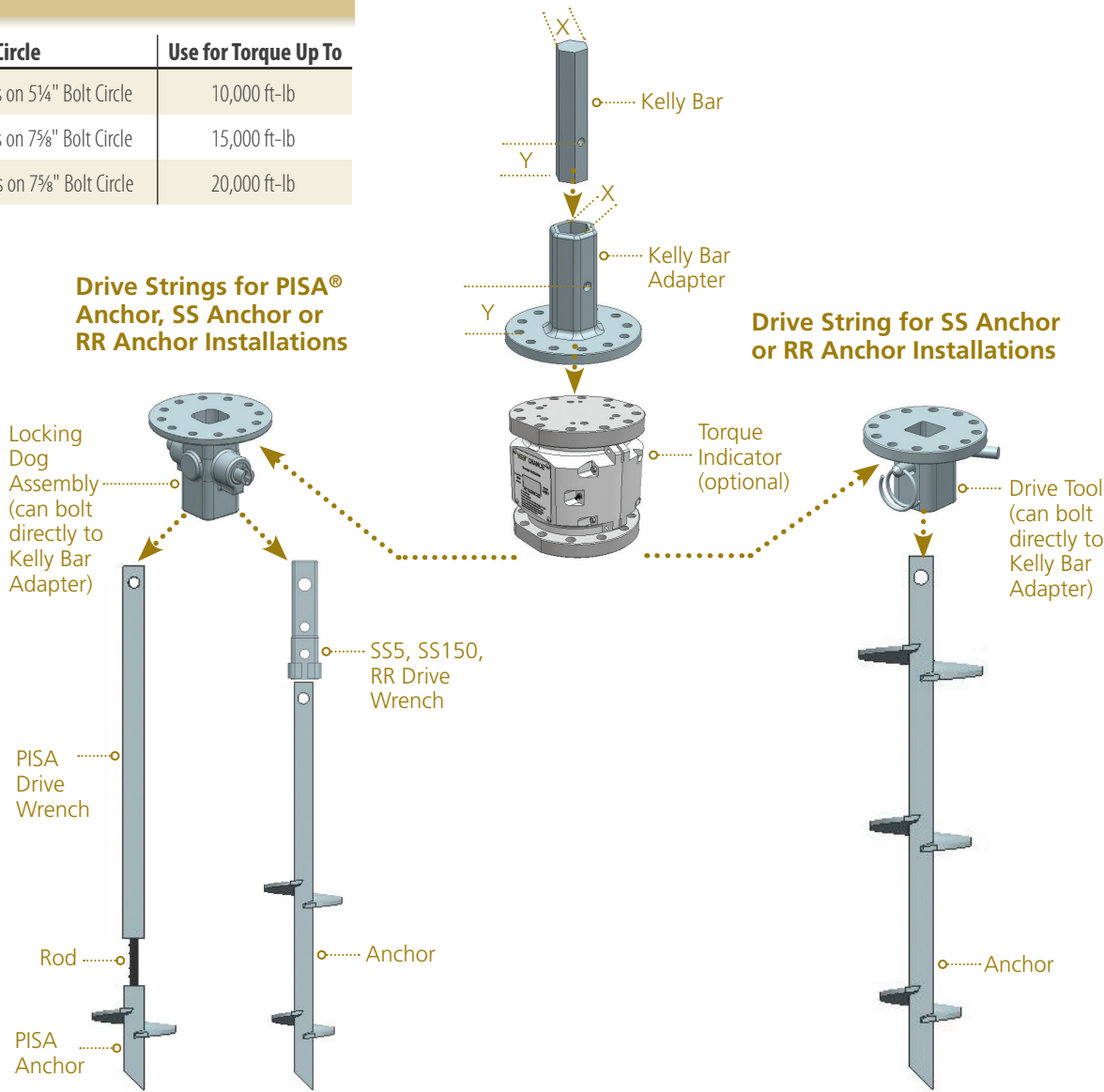
Selecting the correct Kelly Bar Adapter is key to building a successful Drive String. Follow these two easy steps:

- 1. Remove the auger from the digger and carefully measure the X and Y dimensions of the Kelly Bar.
- 2. Match the shape of the Kelly Bar and the X and Y dimensions with the Kelly Bar Adapter chart provided on pages 29-30 and 32-33. The Y dimension on the Kelly Bar Adapter must be equal to or greater than the Y dimension on the Kelly Bar itself.

BOLT CIRCLES

Chance® anchor installing tools are provided with appropriate bolt circles for the expected service. The torque limitations for the three standard bolt circles are give below. Never exceed the rated torque of any Chance installing tool.

| Bolt Circle | Use for Torque Up To |
|------------------------------------------|----------------------|
| (6) ½" Grade 5 Bolts on 5¼" Bolt Circle | 10,000 ft-lb |
| (6) ⅝" Grade 2 Bolts on 7⅝" Bolt Circle | 15,000 ft-lb |
| (12) ⅝" Grade 2 Bolts on 7⅝" Bolt Circle | 20,000 ft-lb |



ANCHOR TOOLS

Tough One[®] Anchor Installing Tools

For Installing Torques up to 15,000 ft-lb

A complete tool system consists of: Kelly Bar Adapter, Torque Indicator, Locking Dog Assembly and Drive-End Assembly. For instructions for selecting the proper Kelly Bar Adapter, see page 31.

Tough One Kelly Bar Adapter with Bent Arm Pin

(7⁵/₈" Bolt Circle)

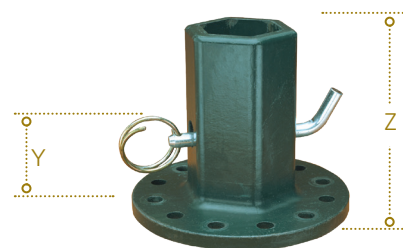
| Part Number | Kelly Bar Shape | Kelly Bar Dimensions Inches | | | Wt lb | ⁵ / ₈ " Grade 2 Bolts Included | Bent Arm Pin Included |
|-------------|-----------------|-----------------------------|---------|----|-------|------------------------------------------------------|-----------------------|
| | | X | Y | Z | | | |
| C3030936 | Hex | 2½ | 3¾ | 8¼ | 23 | 12 | C3031223 |
| C3030937 | Hex | 2¾ | 3¾ | 8¼ | 23 | 12 | C3031223 |
| C3030940 | Hex | 3 | 4½ | 8 | 27 | 12 | C3031222 |
| C3030955 | Square | 2½ | 4¾ | 7 | 22 | 12 | C3031227 |
| C3030958 | Square | 3 | 3½ & 2¼ | 7 | 23 | 12 | C3031227 |
| C3031571 | Square | 3½ | 2 & 4 | 6¼ | 33 | 12 | C3031227 |

NOTE: Each Tough One Kelly Bar Adapter has twelve holes for ⁵/₈" bolts on a 7⁵/₈" bolt circle, comes with twelve ⁵/₈" Grade 2 bolts, nuts & lockwashers and Bent Arm Pin with Coil Lock.

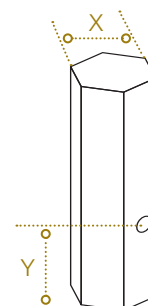
Digital Torque Indicator⁽¹⁾

| Catalog Number | Description | Weight lb |
|----------------|----------------------------------------------------------------------------|-----------|
| C3031836 | Torque Indicator adaptable to 5¼" BC or 7 ⁵ / ₈ " BC | 65 |

(1) See pages 36-37 for additional information on Torque Indicators.



Kelly Bar Adapter



Kelly Bar



Torque Indicator



Tough One® Anchor Installing Tools *(continued)*

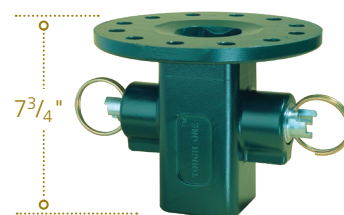
For Installing Torques up to 15,000 ft-lb

Tough One Locking Dog Assembly

| Catalog Number | Description | Weight lb |
|----------------|--------------------------------------------------------------------------------------|-----------|
| C3030981 | Complete Tough One Locking Dog Assembly | 28 |
| C3031026 | Locking Dog Replacement Kit Includes all parts less casting, bolts, nuts, washers | 5 |

NOTE: Tough One Locking Dog Assembly has twelve holes for $\frac{5}{8}$ " bolts on a $7\frac{5}{8}$ " bolt circle and comes with twelve $\frac{5}{8}$ " Grade 2 bolts, nuts and lockwashers.

| Part Number | Description |
|-------------|-------------|
| 056653P | Hex Bolt |
| 055827P | Lock Washer |
| 055803P | Hex Nut |



Locking Dog Assembly

Tough One Drive-End Wrenches

| Catalog Number | Length ft | Description | Weight lb |
|----------------|-----------|------------------------------------------------------------------------------------------------------------------|-----------|
| C3030982 | 3½ | Installs 15,000 ft-lb (large hub) Tough One anchors, 10,000 ft-lb (large hub) Tough One and all 1½" Core Anchors | 36 |
| C3030983 | 7 | | 73 |

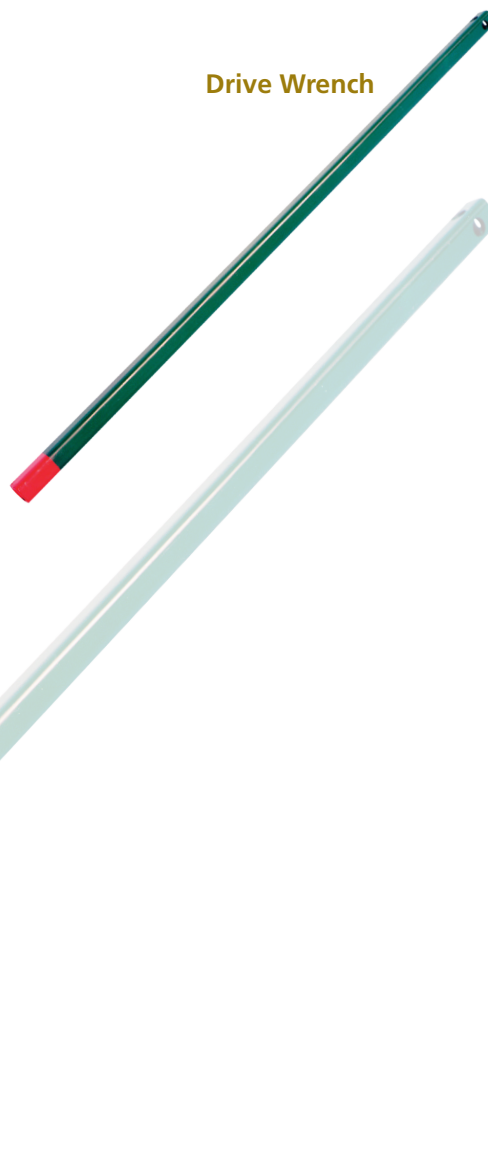
NOTE: Tough One Drive Ends are painted with a red band on the bottom.

Extension Assemblies for Tough One Drive-End Wrenches

| Catalog Number | Length ft | Description | Weight lb |
|----------------|-----------|--------------------------------------------------------------------------|-----------|
| C3030987 | 3½ | Extension attaches to drive-end wrench when additional depth is required | 53 |
| C3030988 | 7 | | 89 |

NOTE: For SS and RR Anchor Tool options when using the Tough One Drive String System, see pages 34-35.

Drive Wrench



Anchor Installing Tool Bent Arm Pin with Coil Lock

Use with Standard and Tough One® Kelly Bar Adapters, SS, RR and Bumper Post Installing Tools

Each Chance® plated-steel Bent Arm Pin is designed to attach a Kelly Bar Adapter to a Kelly Bar, and to secure SS, RR and Bumper Post Anchors to Anchor Drive Tools.

Bent Arm Pins with Coil Locks are included with new tools as required. Order Pins and Coil Locks for existing tools as shown below.

| Kelly Bar Adapter | Bent Arm Pin and Coil Lock Assembly | SS/RR Tools | Bent Arm Pin and Coil Lock Assembly |
|-----------------------|-------------------------------------|-------------|-------------------------------------|
| 630010 ⁽¹⁾ | C3031227 | 639001 | C3031226 |
| 630011 ⁽¹⁾ | C3031223 | C3030195 | C3031225 |
| 630011HD | C3031223 | C3030201 | C3031224 |
| 630012 ⁽¹⁾ | C3031223 | C3030202 | C3031224 |
| 630012HD | C3031223 | C3030020 | C3031226 |
| 630013 | C3031223 | | |
| 630013A | C3031223 | | |
| 630014 | C3031222 | | |
| 630015 | C3031222 | | |
| 630016 | C3031227 | | |
| 630017 | C3031227 | | |
| C3030936 | C3031223 | | |
| C3030937 | C3031223 | | |
| C3030940 | C3031222 | | |
| C3030955 | C3031227 | | |
| C3030958 | C3031227 | | |
| C3031571 | C3031227 | | |

Bumper Post Tools

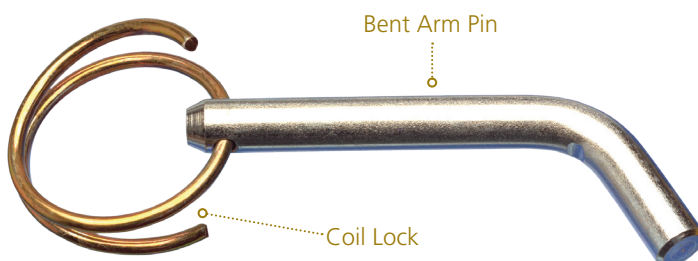
| Bent Arm Pin and Coil Lock Assembly |
|-------------------------------------|
| C3030737 |
| C3030739 |

(1) Old-style Kelly Bar Adapters are no longer available.



Bent Arm Pin and Coil Lock Assembly

| Catalog Number | Size Inches |
|----------------|---------------|
| C3031226 | 3 x 5/8 |
| C3031225 | 3 1/2 x 3/4 |
| C3031224 | 4 1/2 x 1 |
| C3031227 | 5 x 3/4 |
| C3031223 | 4 1/2 x 1 1/2 |
| C3031222 | 5 x 5/8 |



To order Coil Lock only, order Part Number P3031215P.

! WARNING

Always use the approved combination of Coil Locks and Bent Arm Pins. Never attempt to use any other combinations, such as hair pins, cotter keys, etc., with Bent Arm Pins.

! WARNING

Chance Bent Arm Pins with Coil Locks are the only tested and approved means for through-pin attachment of drive tools. Do not attempt to use any other means of attachment.

Adapters

For Torques up to 10,000 ft-lb

BOLT CIRCLE ADAPTERS

These adapters are used to connect two tools having incompatible bolt circles. The C3030115 is for use between two tools having tapped 5¼" bolt circles. The T3030166 is for use between a tool having a 5¼" bolt circle and one having a 7⅝" bolt circle. Both are limited to 10,000 ft-lb.

| Catalog Number | Description | Weight lb |
|----------------|--------------------------------------------------------------------------------|-----------|
| C3030115 | Bolt Circle Adapter with two ½" x 5¼" bolt circles | 11 |
| T3030166 | Bolt Circle Adapter with one ½" x 5¼" bolt circle and one ⅝" x 7⅝" bolt circle | 18 |



C3030115



T3030166

FOR INSTALLING SS OR RR ANCHORS

These Drive Tools require the appropriate Kelly Bar Adapter. Each comes with bolts, nuts and lockwashers.

| Catalog Number | Description | Bolt Circle | Approx Wt lb |
|-------------------------|-------------------------|-------------------------|--------------|
| 639001 | SS5/SS150/RR Drive Tool | (6) ½" holes on 5¼" BC | 7 |
| C3030195 ⁽¹⁾ | SS 175 Drive Tool | (12) ⅝" holes on 7⅝" BC | 18 |
| C3030201 ⁽¹⁾ | SS200 Drive Tool | (12) ⅝" holes on 7⅝" BC | 30 |
| C3030202 ⁽¹⁾ | SS225 Drive Tool | (12) ⅝" holes on 7⅝" BC | 30 |

(1) Requires use of T3030166 adapter, and limited to 10,000 ft-lb when used with Standard Kelly Bar Adapter (with a 5¼" bolt circle).

| Catalog Number | Description | Unit Fits | Approx Wt lb |
|----------------|-------------------------|---------------------------------|--------------|
| C3030020 | SS5/SS150/RR Drive Tool | Standard Locking Dog Assembly | 8 |
| C3031035 | SS5/SS150/RR Drive Tool | Tough One® Locking Dog Assembly | 11 |
| T3031403 | SS175 Drive Tool | Tough One Locking Dog Assembly | 26 |
| C3031077 | SS 200 Drive Tool | Tough One Locking Dog Assembly | 23 |

NOTE: These tools slide into Locking Dog Adapter and are retained by spring loaded dogs.

| Catalog Number | Description | Bolt Circle | Approx Wt lb |
|----------------|----------------------------------------|-------------------------|--------------|
| C3031650 | SS5/SS150 Drive Tool with Locking Dogs | (6) ½" holes on 5¼" BC | 10 |
| C3031645 | SS175 Drive Tool with Locking Dogs | (12) ⅝" holes on 7⅝" BC | 21 |



639001



C3030020



C3031650

ANCHOR TOOLS

Chance® Torque Indicators

FOR INSTALLING NO-WRENCH ANCHOR AND MANUAL FOUNDATION TOOL

Designed for use with the Chance® Portable Anchor Installer. This tool bolts directly to the installer's output flange or Kelly Bar Adapter having six ½" diameter holes on a 5¼" bolt circle. Adjustable pivoting plates accept rods from ¾" to 1¼" diameter.

For manually-installed foundations, eyenut must be temporarily installed for installation. Has four holes on 5¼" bolt circle for attachment. Includes four ½" x 1½" bolts, nuts and lockwashers.

| Catalog Number | Weight lb |
|----------------|-----------|
| E3030255 | 9 |



E3030255

SHEAR PIN TORQUE LIMITER

Catalog Number C3030044 for Installing Torques up to 10,000 ft-lb

- Protection for anchors and installing tools by disconnecting the power when the installing torque reaches a preselected level.
- Useable in very rocky soil.
- Durable – does not require special storage or handling.
- Top and bottom each has six holes tapped ½"-13 on a 5¼" bolt circle.

| Catalog Number | Description | Wt lb |
|-------------------------|---------------------------------------------|-------|
| C3030044 | Shear Pin Torque Indicator | 54 |
| C3030045 ⁽¹⁾ | One Carton of Shear Pins (approx 1700 pins) | 50 |
| T3031420 ⁽¹⁾ | One Box of Shear Pins (approx 510 pins) | 15 |

(1) Each Shear Pin provides 500 ft-lb of torque.



C3030044



C3030045

ANCHOR TOOLS

accurate

Chance® Torque Indicators

DIGITAL TORQUE INDICATOR

Catalog Number C3031836

Avoid excessive torsional loading

Using the Wireless Chance® Torque Indicator, you can install screw anchors to a pre-determined torque value, which gives a positive indication of anchor holding capacity in any soil type.

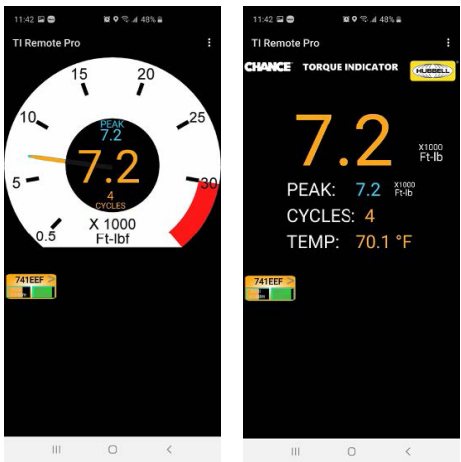
The Indicator mounts between the Kelly bar adapter and drive tool (or locking dog assembly). The LCD display is easy to read in full daylight and gives the operator a direct readout of installation torque at all times.

FEATURES & BENEFITS

- Measuring torque is the most accurate way to determine the capacity of helical piles and anchors
- Torque is displayed on Base Unit and transmitted via Bluetooth® to Android and iOS phones and smart devices
- Multiple Bluetooth display devices can be linked to Base Unit
- Download free Torque Indicator Remote Pro app from Apple App Store or Google Play Store
- Torque Indicator Remote Pro app allows torque readings to be sent via email to be downloaded
- Certificate of Calibration supplied with each new unit in case
- Operational temperature range: -30° to 70°C (-22° to 158° F)
- Measures torque up to 30,000 ft-lb
- Accuracy: ±500ft-lb at any reading
- Torque is measured using strain gauges mounted inside the Base Unit.
- No shear pins to replace
- Powered by two standard 9V batteries
- Solid one-piece spool design to withstand most bending loads.
- Top and bottom flange, each provides six holes tapped ½"-13 on a 5-¼" bolt circle and twelve holes tapped 5/8"-11 on a 7-5/8" bolt circle.
- Supplied with Twelve (12) 1/2 - 13 UNC - 2A bolts, 1 3/4" long, grade 5, with lock washers and Twenty-four (24) 5/8 - 11 UNC - 2A bolts, 2" long, grade 5, with lock washers.



Base Unit



Digital Display

ANCHOR TOOLS

| Catalog Number | Description |
|----------------|-----------------------------|
| C3031836 | Torque Indicator Base Unitn |

Soil Test Probe

Determine Soil Conditions Without Taking Core Samples

The Chance® Soil Test Probe is a mechanical instrument which enables the operator to determine the condition of the sub-soil without core samples. A ratchet-handle torque wrench which slides up and down on the shaft is used to install or retract the probe. Torque wrench readings, in inch-pounds, provide a way to measure the consistency of the sub-soil. The torque values obtained are translated into soil classifications using the copyrighted Chance Soil Classification Table (below) located on the inside flap of the carrying case.

Torque readings are taken at the depth to which an anchor is to be installed, and at least 2 feet above this depth because the average earth consistency 2 to 3 feet above the anchor determines the anchor holding capacity. The probe shaft is marked at 1-foot intervals permitting soil evaluation at every foot of depth.

The length of the Soil Test Probe (including helix) is 5 feet. Each shaft coupled to the probe provides an additional 5 feet. A durable carrying case protects the equipment when not in use.



Soil Test Probe 1800 In-lb Capacity

| Catalog Number | Description | Length ft | Weight lb |
|----------------|------------------------------|-----------|-----------|
| C3090032 | Probe with 3 5-ft Extensions | 20 | 27½ |

Accessories

| Catalog Number | Description | Weight lb |
|----------------|---------------------|-----------|
| C3090033 | 5-ft Extension Only | 3 |

Soil Classification Data

| Class | Common Soil-Type Description | Geological Soil Classification | Probe Values ft-lb (nm) | Typical Blow Count "N" per ASTM-D1586 |
|------------------|------------------------------------------------------------------------------------------|--------------------------------------------------------------|-------------------------|---------------------------------------|
| — | Sound hard rock, unweathered (bedrock) | Granite, Basalt, Massive Limestone | — | — |
| 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 hard 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 ⁽¹⁾ | Loose fine sands; Alluvium; loess; medium to stiff and varied clays; fills | Flood plain soils; lake clays; adobe; gumbo, fill | 8 - 17 (11 - 23) | 4 - 8 |
| 8 ⁽¹⁾ | 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 |

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

⁽¹⁾ 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.

Expanding & Tamping Bar

The Chance® fiberglass handle Expanding and Tamping Bar simplifies the job of expanding anchors. The curved expander and tamper 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 fiberglass handle.

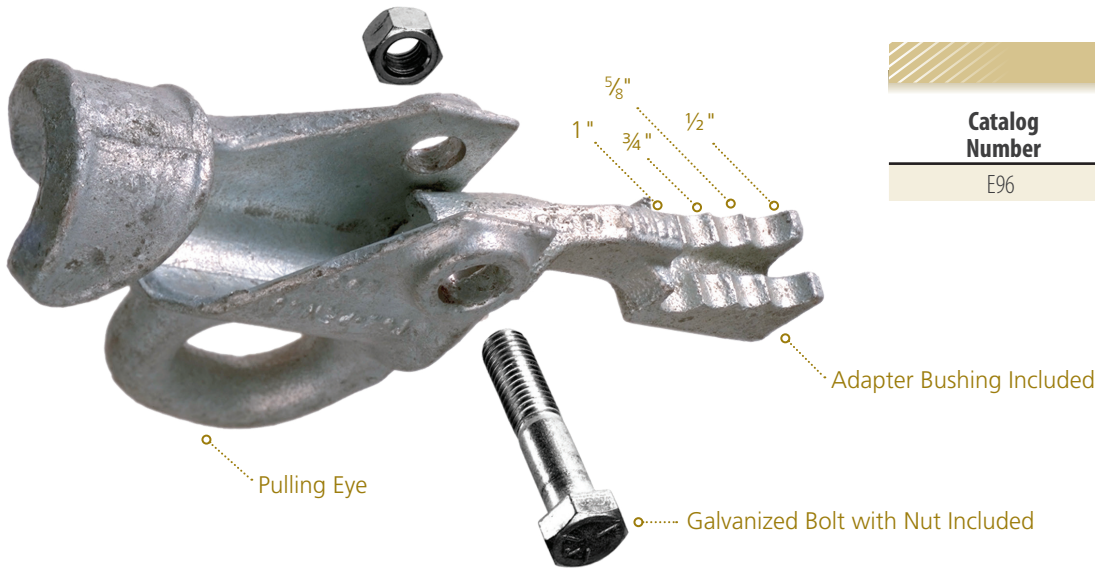
| Catalog Number | Description | Length ft | Weight lb |
|--------------------------|--------------------------|-----------|-----------|
| C3020003 | Expanding & Tamping Bar | 10 | 22 |
| C3020004 | Expanding & Tamping Bar | 12 | 24 |
| E3020001P ⁽¹⁾ | Fiberglass Handle | 10 | 7 |
| E3020006P ⁽¹⁾ | Fiberglass Handle | 12 | 8 |
| P3020002P | Expander and Tamper Head | — | 14 |

(1) Includes plug mix to reset handle.



Standard Pulling Eye

This inexpensive cost-cutter provides a large offset eye to accommodate three-ton chain hoist hooks, and leaves the anchor eye free with plenty of clearances for attaching formed wire grips. By removing the adapter bushing, the E96 Pulling Eye fits 1¼" rods. The E96 Pulling Eye is inexpensive and easy to use. One person can assemble and hook up in minutes. For working loads to approximately 6,000 pounds (ultimate strength – 18,000 pounds).



| Catalog Number | Weight lb |
|----------------|-----------|
| E96 | 5 |

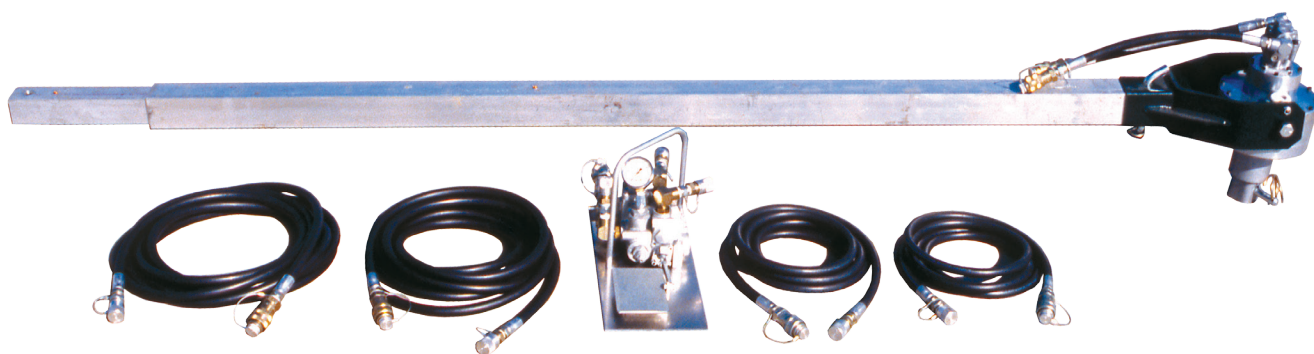
Portable Anchor Installers for Small Foundations

2,500 ft-lb Torque Capacity Hydraulic Power Drive

Economical Manual Operation and Portability for Remote Sites, Common Anchor Installations.

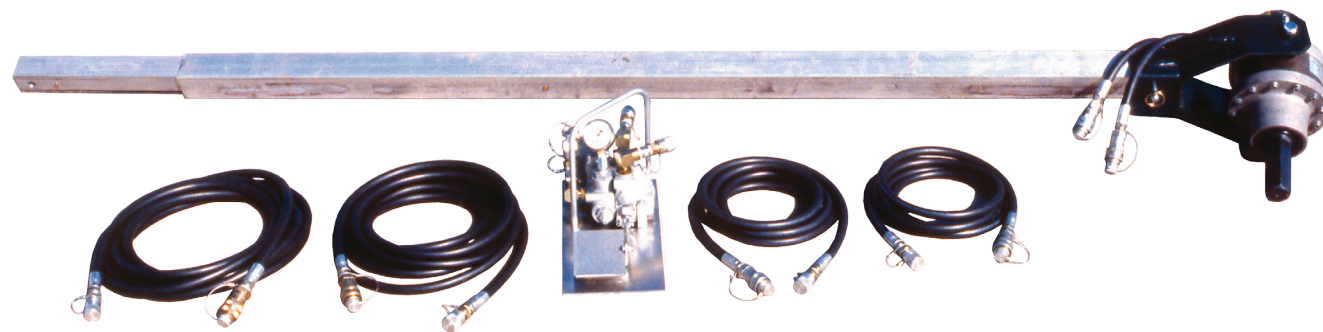
For most shaft-driven guy anchors and smaller screw foundations, these compact drivers get into areas where large equipment cannot go or is impractical. Operator does not need to resist the torque generated by anchor installation. Countertorque transmits through a torque bar from the drive head to the earth or other restraint. This frees the operator for the task of guiding the anchor path.

- Built-in bypass valve limits output to 2,500 ft-lb maximum.
- Two-way foot pedal gives operator direct control over drive and reverse directions.
- Hoses (two 12-ft and two 25-ft) come with quick couplers for all connections from power supply to foot control to drive head.
- Pivoting drive-head yoke connects with Bent Arm Pin to square-tubular torque bar which telescopes from 8 feet to 10 feet as needed.



Catalog Number C3031032

Medium-Duty Installer requires 1550 psi at 8 gpm flow rate to deliver 2,500 ft-lb maximum torque.



Catalog Number C3031244

Heavy-Duty Installer requires 1,900 psi at 8 gpm flow rate to deliver 2,500 ft-lb maximum torque.

2,500 ft-lb Portable Anchor Installers

Medium-Duty^(†) – Catalog Number C3031032

Grease-filled gear case. Single catalog number above includes all items below. Each item also may be ordered by separate number.

| | |
|-------------------------------------------|-----------------|
| Hydraulic Control Valve ⁽¹⁾ | C3031031 |
| Two 25-ft. Hydraulic Hoses | C4176121 (each) |
| Hydraulic Drive Head ⁽¹⁾ | C3031180 |
| Yoke Assembly | E3030680 |
| Two 12-ft. Hydraulic Hoses ⁽¹⁾ | E3030876 (pair) |
| Square Torque Bar Assembly | E3031041 |

NOTE: Output shaft is 1½" square socket. Requires C3031230 and flanged drive tool (order separately) to install anchors other than 1½" square 1¼" round shaft.

⁽¹⁾ Hydraulic components are not interchangeable between C3031032 and C3031244.

Heavy-Duty – Catalog Number C3031244

Sealed oil-filled gear case. Single catalog number above includes all items below. Each item also may be ordered by separate number.

| | |
|-------------------------------------------|-----------------|
| Hydraulic Control Valve ⁽¹⁾ | C3031247 |
| Two 25-ft. Hydraulic Hoses | C4176121 (each) |
| Hydraulic Drive Head ⁽¹⁾ | C3031233 |
| Yoke Assembly | E3030680 |
| Two 12-ft. Hydraulic Hoses ⁽¹⁾ | E3031253 (pair) |
| Square Torque Bar Assembly | E3031041 |

NOTE: Output shaft is 2" Hex. – Requires Kelly Bar Adapter and flanged drive tool (order separately) to install all anchors.

⁽¹⁾ Hydraulic components are not interchangeable between C3031032 and C3031244.

**Adapter Tool
Catalog Number
C3031230**



ANCHOR DRIVE TOOLS

^(†) All 5¼" bolt-circle tools may be connected directly to Heavy Duty Portable Anchor Installer Catalog Number C3031244. Adapter Tool Catalog Number C3031230 is required to connect 5¼" bolt-circle tools to Medium-Duty Portable Anchor Installer Catalog Number C3031032. If needed, order Adapter C3031230 as a separate item.

OPTIONAL HYDRAULIC POWER UNIT CATALOG NUMBER C3031201

For easy wheeling to worksite, hydraulic drive head and foot control are secured by a rubber strap. Unit includes two angle braces atop the cart frame. Hoses may ride on the handles.

Cart-mounted on 5/8" diameter axle with two 4.8" x 8" inflatable (30 psi) tires; 27¼" wide x 34½" high x 36" long; shipping weight with oil: 275 lb.

Operating instructions are included with anchor installer and hydraulic power unit.

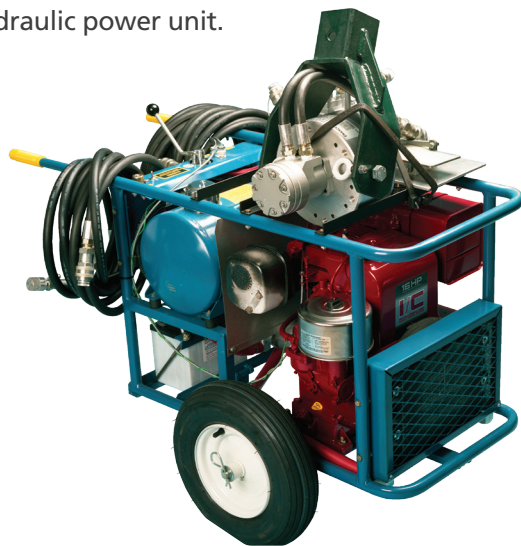
Hydraulic Pump with Fan Cooling System:

- Typical output pressure — 2500 psi
- Pump displacement — 8 gpm @ 3400 rpm
- Reservoir capacity — 5 gallons US
- Shipping cap and vented fill cap provided

Gasoline Engine System:

- 16 hp Briggs & Stratton
- Industrial/Commercial Model 326437, Type 2527
- 12-Volt push-button start, 3600 rpm (maximum)

Drive head and foot control shown in photo are not included with C3031201



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Catalog CA12002E

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