



ANCHOR CATALOG

Oklahoma Design Technologies

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June, 2024

OKLAHOMA DESIGN TECHNOLOGIES OBTAINS RUS APPROVAL FOR SAF-T-ANCHORS



United States Department of Agriculture

Rural Development

May 14, 2019

Rural Utilities Service

Oklahoma Design Technologies, LLC
PO Box 166
Lawton, OK 73502
Email: poolaw@oklahomadesigntech.com

Technical Standards Committee "A" (ELECTRIC)

Technical Standards Committee "A" (Electric) has granted Conditional Acceptance to your products contained in Application 2018-25.

1400 Independence
Ave SW,
Room 1248-S
STOP 1569
Washington, DC
20250-1569

This acceptance does not relieve the manufacturer of any responsibility for the satisfactory performance of the item and its conformity to guarantees, specifications, or other provisions of contracts covering its sale. This acceptance is made with the further understanding that no changes in design or workmanship affecting the quality, strength, or electrical characteristics of the item will be made without the knowledge of the Technical Standards Committees. You are also asked to notify the Technical Standards Committees of any change in manufacturing plant location or locations.

Sincerely,

Voice 202.720.1979
Fax 202.720.7491

NORRIS
NICHOLSON

Digitally signed by
NORRIS NICHOLSON
Date: 2019.05.14
10:35:27 -04'00'

NORRIS W. NICHOLSON
Chair, Technical Standards
Committee "A"
Electric Staff Division
Rural Utilities Service

Oklahoma Design Technologies Statement of Purpose

Cost savings is not a catchphrase and damage prevention has not ended. These serious issues are especially important to utility companies when faced with the prospect of serving their customer's needs. Most utility companies understand the risks involved in day-to-day activities along with the associated costs, but solutions are not always easy to obtain.

The challenge faced by utility companies is: How to control costs while remaining both proficient and productive? How to do the best job with the least amount of overhead and provide the safest environment possible for employees?

What makes our Research & Development (R&D) Company **unique** is our ability to provide innovative products to meet the needs of our clients. We are all about safety, saving money, making our client's job easier, more profitable, proficient and productive. ODT has been providing these products to utility companies since 2001 and we are continually developing new products.

Please let us know if there is anything that we can help you with. Thank you for your interest in our products.

Billy and Sherri Poolaw

You Tube Videos of the VER-T-POL & SAF-T-ANCHORS

https://youtu.be/XYZfLIFGh3o	Live pole change out	https://youtu.be/1KlIdvkZPb0	Installation and pull tests
https://youtu.be/UwKM62aObWY	VER-T-POL installation	https://youtu.be/-TpHxAZ1dkw	STAD4432N-3/4" installation
https://youtu.be/owcUyUpn3XE	VER-T-POL test	https://youtu.be/oFMUyjbLqY0	Truck SAF-T-ANCHOR
https://youtu.be/933dGz_575k	VER-T-POL test	https://youtu.be/WcMzPKI9-zl	STAD4432N-3/4" Class 2 Soil
https://youtu.be/h_vdteEiz0g	VER-T-POL test	https://youtu.be/LYpsVexAcpo	STAD55432-3/4" Class 5 Soil
https://youtu.be/mP9MqDsbQn0	VER-T-POL test		

For all our other product videos, please visit our website at: www.oklahomadesigntech.com

Email address: Poolaw@oklahomadesigntech.com

SAF-T-ANCHOR DESCRIPTION

NO SINGLE ANCHOR IS PERFECT FOR EVERY SITUATION, as soil classifications can vary greatly even within a small area. Oklahoma Design Technologies aims to provide the ideal anchor for each unique scenario by offering a diverse range of anchors and installation methods.

The customer is responsible for determining which anchor works best for their soil conditions.

SAF-T-ANCHORS ARE NOT GALVANIZED because galvanized anchors can be damaged during installation, exposing the metal to circulating currents that cause deterioration within approximately 5 to 7 years. In contrast, Saf-T-Anchors are made from Cor-Ten material with nickel, designed to rust just enough to insulate the metal without succumbing to circulating currents, thus outlasting any other anchor on the market.

ALL SAF-T-ANCHORS ARE INSTALLED LEFT-HANDED using a battery-operated impact tool, which has four times more torque for removal than installation. The 3/4" rods are installed with an impact and the 1" rods are installed using ODT's Kelly Bar Adaptor. The anchors' graduated flights, smaller at the bottom and larger towards the top, allow the anchor to pull itself into the soil like a screw. This design means the boom operator doesn't need to push the anchor in, preventing the creation of a void and resulting in increased holding strength due to the compact soil above the anchor and the creation of a compressed ball pushing out into the walls of the disturbed soil.

The Saf-T-Achor excels in four key areas:

1. Ease of Installation - Requires less torque, reducing strain on personnel and equipment, and shortens installation time. A single employee can replace compromised anchors efficiently, saving both time and money.
2. Superior Holding Strength - Made from Cor-Ten material, which possesses double the breaking strength of other metals. The permanent Saf-T-Anchors feature a compactor beneath the flights that compresses soil while being screwed into the ground, creating a compacted soil ball for instant holding power at reduced depths.
3. Longevity - Cor-Ten material resists deterioration from circulating currents, lasting significantly longer and cutting overhead costs by eliminating the need to replace anchors every 5 to 7 years.
4. Cost Savings - When comparing the total cost of installing helix anchors versus Saf-T-Anchors, the latter is less expensive to install, has a longer lifespan, and is safer for personnel.

With the progression towards electric vehicles, the increase in underground circulating currents will accelerate the degradation of galvanized anchors, potentially compromising the electrical grid.

INTRODUCING THE NEW SAF-T-ANCHOR

PATENT PENDING

What makes this such an effective anchor? It's the patented method of compressing dirt between the top two flites! As the bottom two flites pull the anchor into the ground, the top flite is compressing the dirt by a compacting mechanism as it gets pulled into the ground thus creating instant compaction and immediate holding power.

The patented locking action prevents the anchor from unscrewing or pulling out when tension is applied. To extend the longevity of the anchor, enhanced materials are used to induce rusting, which will only rust 10 mils thick causing an isolation barrier to protect the rest of the anchor. This prevents circulating currents from migrating on to the rod.

The STAD55432 with either the 3/4" or 1" rod is the most commonly used anchor by the electrical industry in Class 5 and better soils. See ODT's chart for proper anchor installation in specific soil classifications. Replaces other helix anchors up to an 8' rod with a 10" helix and/or multiple helixes.

Anchors with 3/4" rods are installed by hand using the T-Handle or a battery-operated impact wrench.

Anchors with 1" rods are designed to be installed with a truck using our lightweight aluminum Kelly Bar Anchor Adaptor but can also be installed by hand using a T-Handle.

**All SAF-T-ANCHORS are
INSTALLED COUNTERCLOCKWISE**

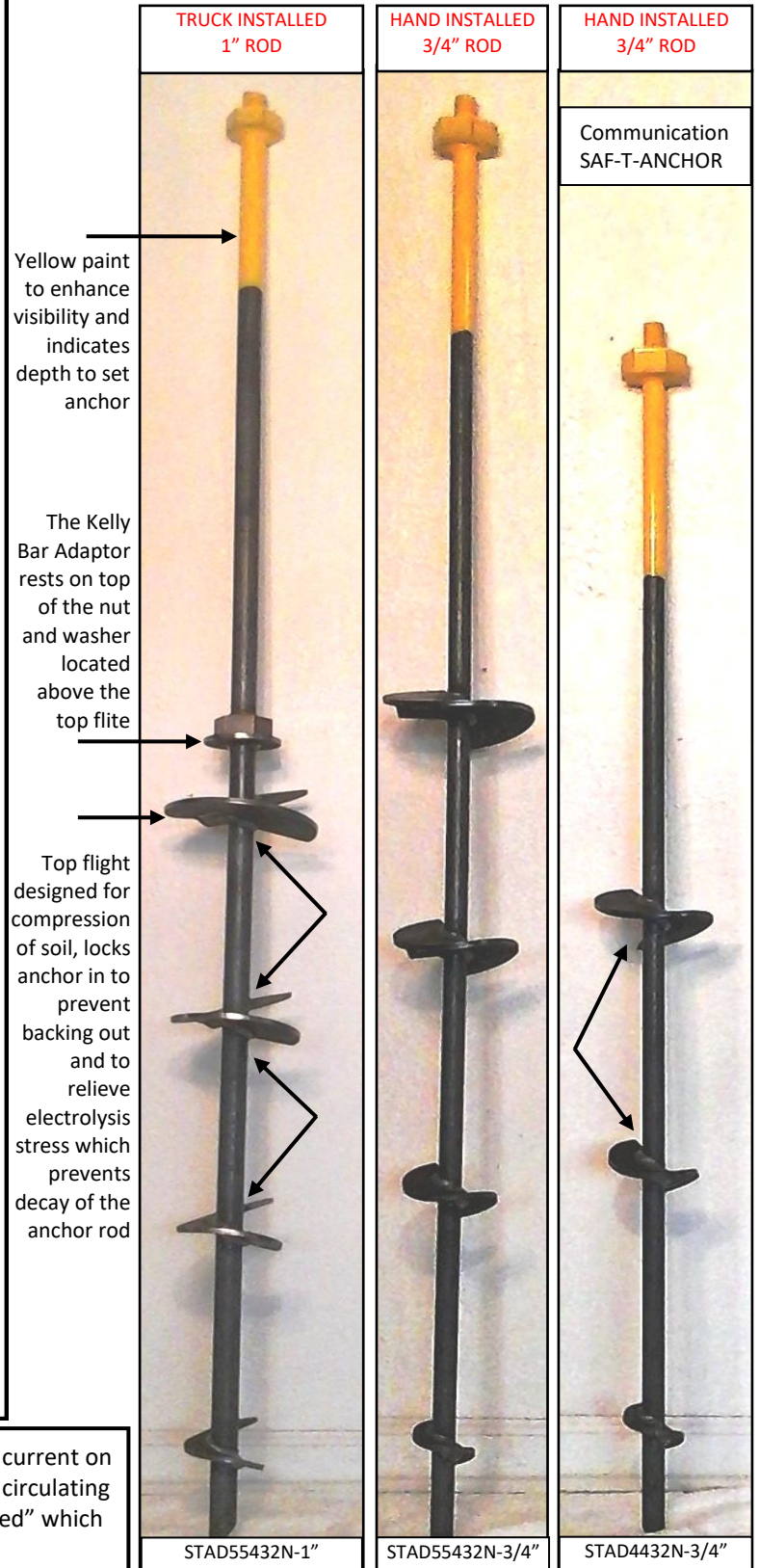
See Page 9 for the SAF-T-ANCHOR descriptions and pull-out chart and Page 10 for a comparison chart.

Anchors 5' in length or more with a compactor are used by the electrical industry and are designed to be permanent.

Anchors 4' in length with a compactor are used by the communication industry and are designed to be permanent.

Anchors with no compactor are used for temporary installations only.

The picture of a helix anchor below shows the effects of circulating current on metal. The process of galvanization cannot protect the metal from circulating current. The anchor is attacked at mid length and becomes "penciled" which causes the anchor to fail.



Compare the SAF-T-ANCHOR and other helix anchors:

Compare the differences between a drill bit (helix anchor) and a screw (SAF-T-ANCHOR). The helix anchor (drill bit) creates a hole which leaves disturbed soil sitting on top and only the weight of the disturbed soil is keeping the helix anchor in the ground.

ODT's compacting anchor mechanism and angled flites perform similarly to a screw, which locks the anchor into the soil while the compactor creates a compressed ball between the flites providing instant holding power.

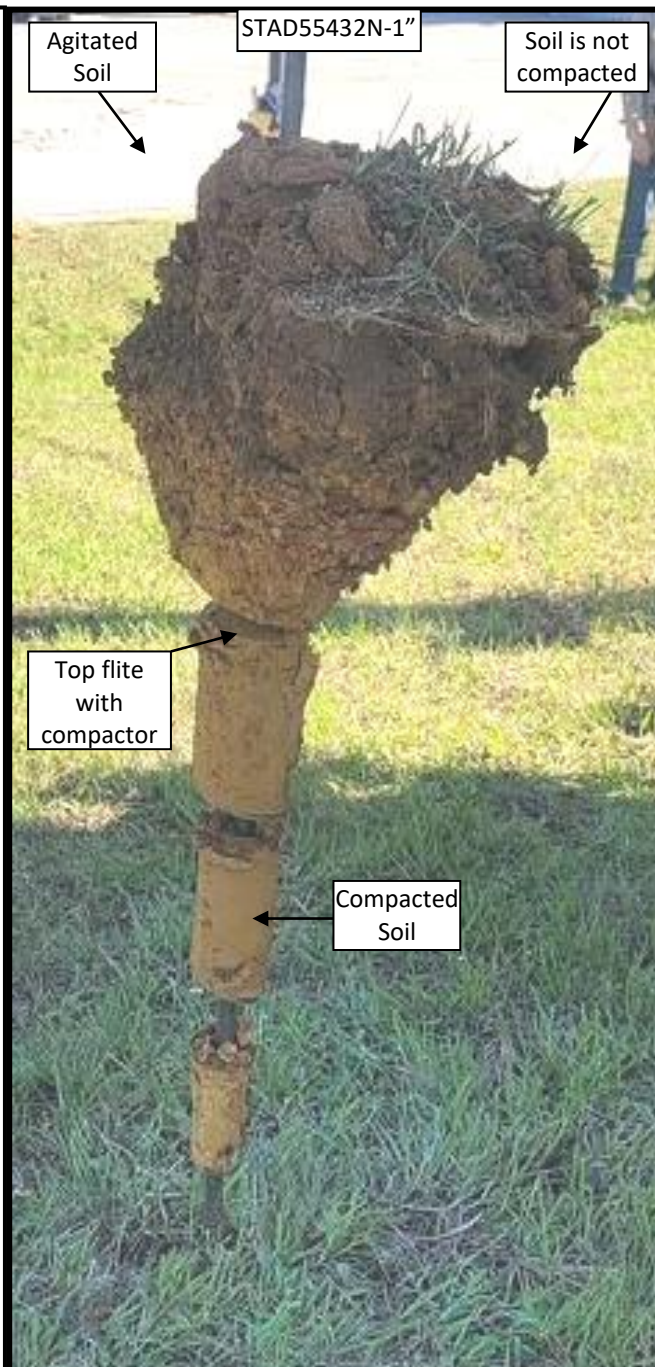
As the anchor is being pulled into the dirt by the smaller bottom flites, the top flite is pushing the dirt back down towards the bottom flites which compresses the soil.

The picture to the right shows how the top flite compacts the dirt while being installed.

The long-term creep coefficients are generally less than the short-term creep coefficients, this indicates that the short-term tests give an adequate indication of long-term anchor performance.

NOTE: Once the anchor is completely installed, be sure to spin the anchor a few more times (without down pressure) this will cause the dirt to become even more tightly compacted.

The yellow paint on the top of the anchor is for safety and is also an indicator for the depth to set the anchor.



Shown in the picture above, a large ball of compacted dirt locks the anchor into the ground which in essence creates a 4th flite for increased holding power.

The STAD4432 is referred to as the 'Communication' anchor. If a utility pole needs to be supported, the STAD442N-3/4" can be installed with the impact wrench or T-Handle to support the damaged pole until crews can return to replace it.

Anchors with no compactor can be easily removed and used again.



The picture of the helix anchor on the left shows how the one large flite at the bottom of the anchor creates a tube in the soil which minimizes the holding strength. The picture of the SAF-T-ANCHOR on the right shows the graduated flites screw in, compacting the soil which maximizes the holding strength.



ADVANTAGES

- Enhanced with new metal processing for 30% longer anchor life, does not require galvanization
- More holding power at less depth
 - Once the ball is created, the SAF-T-ANCHOR will not creep
- Less time to install depending on soil conditions, on average 5 minutes to install by hand
- 70% less torque to install than a 10" helix anchor with an 8' - 3/4" rod, less stress on the derrick truck boom
- Guy wire tensioning by screwing anchor into the ground
- The 4432 and 55432 anchors can be used for every day anchoring as a permanent or temporary anchor
- Can go back into the existing hole the old anchor was in – no locates needed
- More economical per installation, one person installation, less personal injuries
- Anchor designed to penetrate the frost line, asphalt and small rock deposits

INTRODUCING THE NEW DISTRIBUTION TRUCK SAF-T-ANCHOR

<http://www.oklahomadesigntech.com/saftanchor.html>

PATENT PENDING

COBBLESTONE ANCHORS

The flites on the Cobblestone Anchor are smaller to allow the anchor to maneuver between cobblestones and still provide excellent holding power. There are no compactors on the Cobblestone Anchors (See Page 5).

The Cobblestone Anchor has 4 flites as described below:

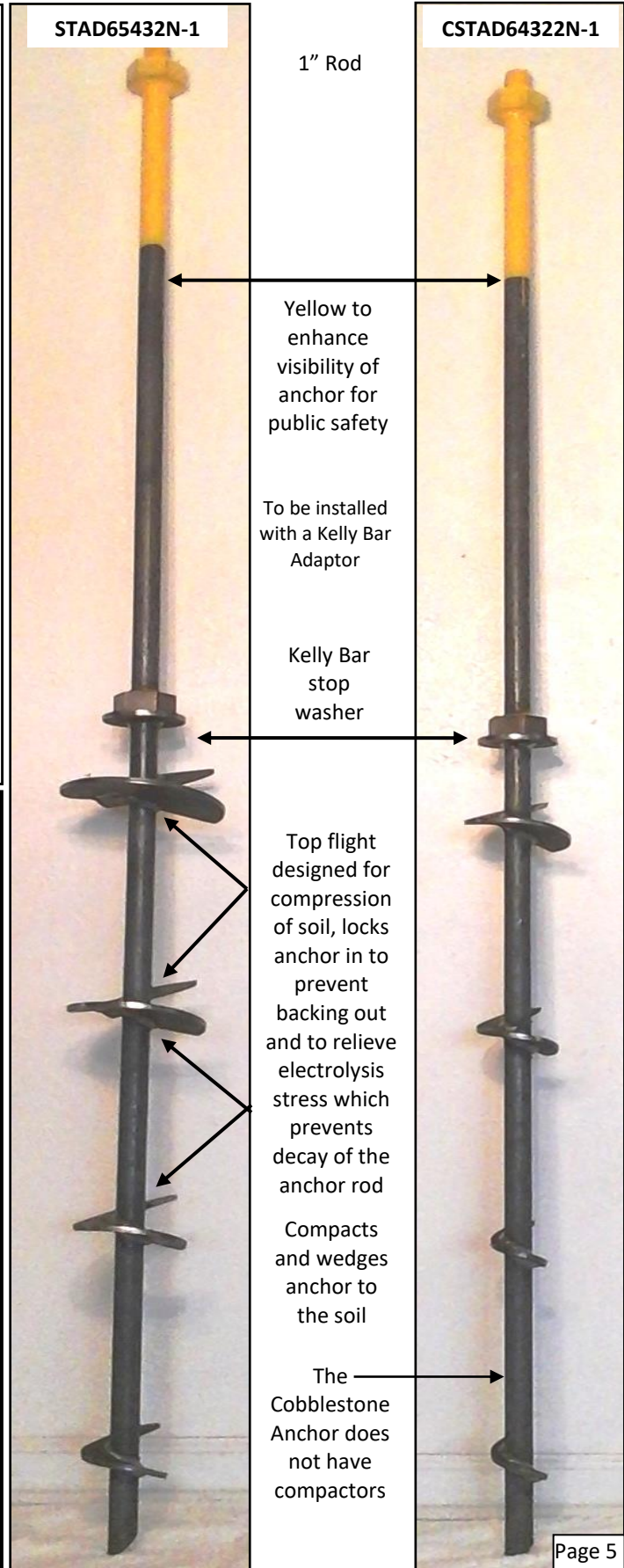
- 1" x 5' rod - flites of 4", 3", 2", 2" - CSTAD54322N-1
- 1" x 6' rod - flites of 4", 3", 2", 2" - CSTAD64322N-1

TRUCK ANCHORS

The Truck Anchors have 2 welded nuts, with a bottom nut and welded Kelly Bar stop washer. The 5' anchor can also be installed by hand.

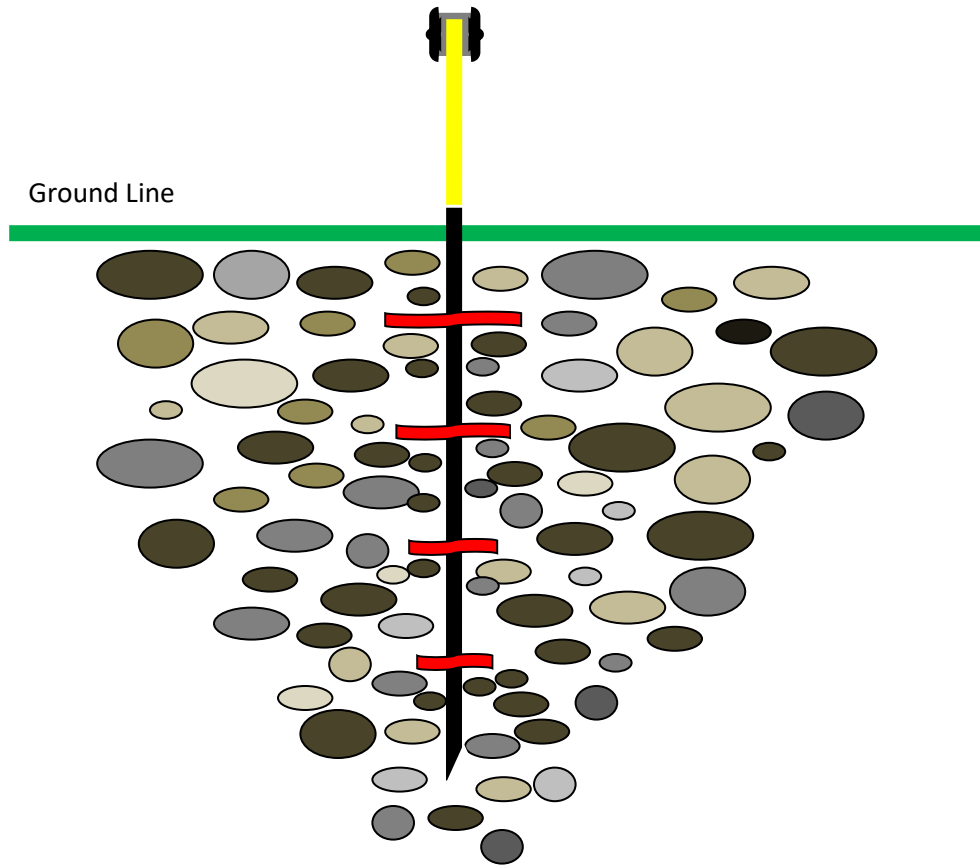
- 1" x 5' rod - flites of 5", 4", 3", 2" STAD55432N-TR-1
- 1" x 6' rod - flites of 6", 5", 4", 3" STAD66543N-TR-1
- 1" x 8' rod - flites of 8", 6", 4", 2" STAD88642N-TR-1
- 1" x 9' rod - flites of 9", 8", 6", 4", 2" STAD98642N-TR-1

The lightweight aluminum **Kelly Bar Anchor Adaptor** is used for the installation of the TRUCK SAF-T-ANCHOR by a line truck or by an easement dolly as seen in the pictures below. The STAD55432N-TR-1 was installed in approximately 1.5 minutes in Class 5 soil. The gauge on the easement dolly indicated it used 525 ft. lbs. of torque.

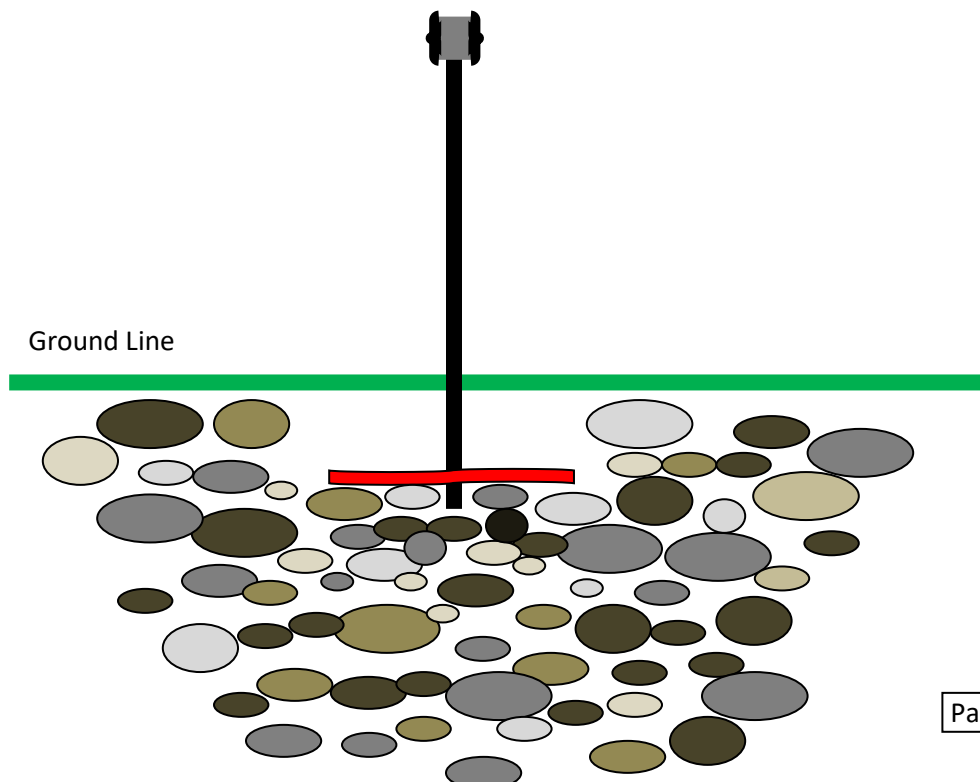


COMPARISON: **Cobblestone Anchor** vs **Helix Anchor** in loose rocks

The Cobblestone anchor maneuvers between the loose rocks beneath the ground and actually uses the rocks to lock itself into the ground for better holding power.



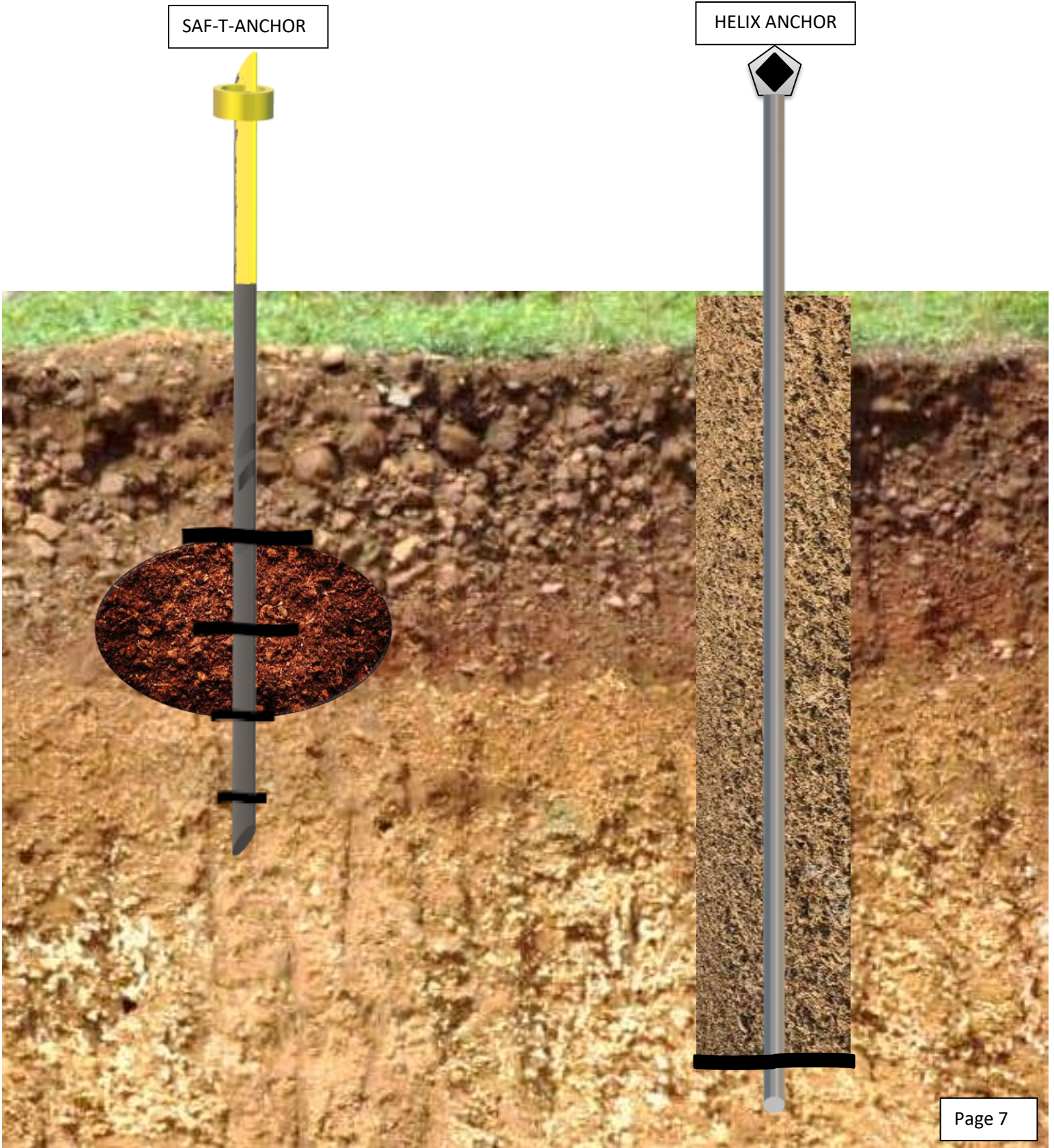
The helix anchor compresses the loose rocks beneath the ground preventing the anchor from being installed.



Below is an example of the difference between the SAF-T-ANCHOR and a helix anchor.

The graduated flite sizes on the SAF-T-ANCHOR slice thru the soil leaving it undisturbed. The compactors force the soil down while the anchor is screwed into the ground creating a ball of compressed soil that is squeezing out, forcing the surrounding soil to become compacted. This is what gives the SAF-T-ANCHOR instant holding strength.

The larger single flite on the helix anchor is pushed down creating a tube of loose dirt sitting on top of the flite. Due to the lack of compressed dirt to hold the anchor securely in the ground, the helix anchor will continue to creep and be lifted out of the ground when tension is applied.



ANCHORING FOR COMMUNICATION COMPANIES

The STAD4432N-3/4" Saf-T-Anchor is used for the Communication Industry. When replacing bad anchors, this anchor can be installed in the same location at lesser depth with more holding power.

The anchor shown in these pictures had deteriorated and was pulled out of the ground by hand! The Saf-T-Anchor was installed using an impact and a T-Handle in just a few minutes. Communication Companies will now be able to replace all the bad anchors or install new anchors in a fraction of the time compared to installing helical anchors by hand or anchor setting machine.

The STAD4432N-3/4" anchor can be ordered without a thimble eye nut or with a single thimble eye nut (STAD4432N-3/4-STEN).



This helix anchor was pulled out by hand



ODT Communication Anchor

Electric utility's helix anchors



STAD4432N-3/4-STEN

HAND INSTALLED SAF-T-ANCHORS						CATALOG NUMBER	
3/4" x 2' rod with flites of 2", 2" and 2" with 4" stop plate for VTP base plates						STAD24222VN- 3/4	
3/4" x 2' rod with flites of 3" and 2" (Used for tie back anchor)						STAD232N - 3/4	
3/4" x 4' rod with flites of 4" and 2" (Temporary Anchor)						STAD442N - 3/4	
3/4" x 4' rod with flites of 4" and 2" with hooks (Provided with the VER-T-POL)						STAD442N-H - 3/4	
3/4" x 4' rod with flites of 4", 3" and 2"						STAD4432N - 3/4	
3/4" x 5' rod with flites of 5", 4", 3" and 2"						STAD55432N - 3/4	
3/4" x 6' rod with flites of 5", 4", 3" and 2"						STAD65432N - 3/4	
3/4" x 6' rod with flites of 8", 7", 6", 5", 4", 3" and 2" (Swamp Anchor)						STAD8765432N-3/4	
1" x 5' rod with flites of 5", 4", 3" and 2"						STAD55432N - 1	
1" x 6' rod with flites of 6", 5", 4" and 3"						STAD66543N - 1	
Distribution Wing Anchor - 8" Plate, 4 each 4" wings - Wings extend 8" plate to 12"						Wing Anchor-D-8/12-3/4"	
TRUCK INSTALLED SAF-T-ANCHORS						CATALOG NUMBER	
1" x 5' rod with flites of 5", 4", 3" and 2"						STAD55432N - TR - 1	
1" x 6' rod with flites of 6", 5", 4" and 3"						STAD66543N - TR - 1	
1" x 8' rod with flites of 8", 6", 4" and 2"						STAD88642N - TR - 1	
1" x 9' rod with flites of 8", 6", 4" and 2"						STAD98642N - TR - 1	
1" x 5' rod with flites of 4", 3", 2" and 2" (Cobblestone anchor)						CSTAD54322N - TR - 1	
1" x 6' rod with flites of 4", 3", 2" and 2" (Cobblestone anchor)						CSTAD64322N - TR - 1	
Transmission Wing Anchor - 12" Plate, 9 ea 4" wings-Wings extend 17" plate to 21"						Wing Anchor-T-17/21-1"	
SAF-T-ANCHOR PULL-OUT CHART							
Anchor Size	Class 2	Class 3	Class 4	Class 5	Class 6	Class 7	Class 8
Impact Driven: 2', 4', 5'	Dense sand, hard silts, course gravel	Dense clays, sands & gravel; hard silts & clays	Medium dense sandy gravel; very stiff to hard silts & clays	Medium dense coarse sand & sandy gravels; stiff silts & clays	Loose to medium dense fine to coarse sand; firm stiff clays & silts	Loose fine sand; soft-firm clays; varied clays; & fill	Peat, organic silts; inundated silts, & fly ash
High Torque Power Driven: 6', 7', 8', 9', 10'							
STAD232N- 3/4"	1,368	1,248	1,128	975	715	552	162
STAD442N- 3/4"	5,330	4,550	3,770	3,055	2,177	1,202	406
STAD4432N- 3/4"	17,321	14,646	11,970	9,295	6,760	3,380	1,267
STAD55432N- 3/4"	30,898	27,078	23,257	19,438	15,818	10,432	6,813
STAD65432N- 3/4"	33,218	29,374	24,786	21,022	18,348	11,011	7,085
SWAMP ANCHOR	29,476	27,293	25,272	23,400	21,326	19,253	14,703
STAD55432N- 1"	30,898	27,078	23,257	19,438	15,818	10,432	6,813
STAD66543N- 1"	35,538	31,671	26,313	22,502	20,479	11,011	7,085
STAD88642N- 1"	35,890	32,196	28,503	23,959	22,190	15,684	6,942
STAD98642N- 1"	39,079	36,217	33,355	28,829	23,901	21,288	7,274
CSTAD54322N- 1"	27,589	24,989	19,837	17,285	13,634	6,490	2,434
CSTAD64322N- 1"	34,746	30,846	29,587	23,135	19,484	10,059	3,671
STAT1086543N- 1"	44,128	41,242	38,544	35,690	33,501	31,156	28,976
Wing Anchor-D-8/12-3/4"	27,370	24,766	16,966	14,381	12,415	9,815	7,215
Wing Anchor-T-17/21-1"	39,975	35,425	30,875	26,325	21,775	17,225	12,675

SAF-T-ANCHOR COMPARISON CHART

COMPETITOR'S ANCHOR DESCRIPTION	ADVERTISED HOLDING STRENGTH IN CLASS 5 SOIL	OKLAHOMA DESIGN TECHNOLOGIES ANCHOR PART NUMBER WITH DESCRIPTION <i>It is the User's responsibility to choose the correct anchor for the soil conditions to be installed in.</i> Anchors installed with an impact	ADVERTISED HOLDING STRENGTH IN CLASS 5 SOIL
4" Helix - 4.5' Rod Single Helix	4,500	STAD4432N - ¾" x 4' rod with flites of 4", 3" and 2"	9,295
6" Helix - 5.5' Rod Single Helix	6,500	STAD55432N - ¾" x 5' rod with flites of 5", 4", 3" and 2"	19,438
8" Helix - 8' Rod Single Helix	12,000	STAD65432N - ¾" x 6' rod with flites of 5", 4", 3" and 2"	22,502
10" Helix - 8' Rod Single Helix	17,500	STAD65432N - ¾" x 6' rod with flites of 5", 4", 3" and 2"	22,502
10" Helix - 8' Rod Single Helix	17,500	STAD65432N - ¾" x 6' rod with flites of 5", 4", 3" and 2"	22,502
12" Helix - 8' Rod Single Helix	23,000	STAD66543N - 1" x 6' rod with flites of 6", 5", 4" and 3"	22,502
14" Helix - 8' Rod Single Helix	28,000	STAD88642N - 1" x 8' rod with flites of 8", 6", 4" and 2"	23,959
MULTI HELIX		OKLAHOMA DESIGN TECHNOLOGIES Anchors installed with a Truck	
4", 4"	11,250	Wing Anchor - T-17/21-1"	26,325
8", 8"	22,500	Wing Anchor - T-17/21-1"	26,325
10", 10"	27,500	Wing Anchor - T-17/21-1"	26,325
8", 10"	28,250	Wing Anchor - T-17/21-1"	26,325
4", 8", 10"	29,000	Wing Anchor - T-17/21-1"	26,325
6", 8", 10"	30,000	Wing Anchor - T-17/21-1"	26,325
8", 10", 12"	36,000	Wing Anchor - T-17/21-1"	26,325
10", 12", 14"	42,000	Wing Anchor - T-17/21-1"	26,325
8", 10", 12", 14"	46,000	Wing Anchor - T-17/21-1"	26,325
14", 14", 14"	51,000	Wing Anchor - T-17/21-1"	26,325
BUST EXPANDING ANCHOR		OKLAHOMA DESIGN TECHNOLOGIES	
6"	11,000	Wing Anchor - T-17/21-1"	26,325
8"	18,000	Wing Anchor - T-17/21-1"	26,325
8"	18,000	Wing Anchor - T-17/21-1"	26,325
10"	21,000	Wing Anchor - T-17/21-1"	26,325
12"	26,500	Wing Anchor - T-17/21-1"	26,325
DISC ANCHOR		OKLAHOMA DESIGN TECHNOLOGIES	
16"	21,000	Wing Anchor - T-17/21-1"	26,325
16"	21,000	Wing Anchor - T-17/21-1"	26,325
20"	26,000	Wing Anchor - T-17/21-1"	26,325
24"	33,500	Wing Anchor - T-17/21-1"	26,325
CROSS-PLATE ANCHOR		OKLAHOMA DESIGN TECHNOLOGIES	
16"	18,500	Wing Anchor - T-17/21-1"	26,325
20"	24,000	Wing Anchor - T-17/21-1"	26,325
24"	30,000	Wing Anchor - T-17/21-1"	26,325

ANCHOR PULL TEST INFORMATION
Using ODT's Anchor Certifier (AC)
Oklahoma Design Technologies

Date	Area	Date	Area
12/3/2010	Cincinnati Ohio	12/1/2010	Lansing Michigan
Customer Anchor Type	ODT Anchor	Customer Anchor Type	ODT Anchor
10" Helix - 8' Rod	STAD 4432	10" Helix - 8' Rod	STAD 4432
Class 5 Soil	Class 5 Soil	Class 5 Soil	Class 5 Soil
Pull out - 4,200	Pull out - 15,000	Pull out - 4,200	Pull out - 16,500
Advertised pull out is 17,500	Advertised pull out is 9,295	Advertised pull out is 17,500	Advertised pull out is 9,295
12/10/2010	Denton Texas	12/2/2010	Evansville Indiana
Customer Anchor Type	ODT Anchor	Customer Anchor Type	ODT Anchor
10" Helix - 8' Rod	STAD 4432	8" Helix - 8' Rod	STAD 4432
Class 4 Soil	Class 4 Soil	Class 5 Soil	Class 5 Soil
Pull out - 12,000	Pull out - 19,500	Pull out - 3,500	Pull out - 17,500
Advertised pull out is 22,500	Advertised pull out is 12,000	Advertised pull out is 12,000	Advertised pull out is 9,295
5/4/2011	Grand Junction Colorado	Double 10" Helix - 8' Rod	
Customer Anchor Type	ODT Anchor	Class 5 Soil	
10" Helix - 8' Rod	STAD 4432	Pull out - 7,500	
Class 5 Soil	Class 5 Soil	Advertised pull out - 27,500	
Pull out - 3,800	Pull out - 17,500	8/21/2012	Lawton, Oklahoma
Advertised pull out is 17,500	Advertised pull out is 9,295	Customer Anchor Type	ODT Anchor
5/12/2012	Lincoln Nebraska	10" Helix - 8' Rod	STAD 4432
Customer Anchor Type	ODT Anchor	Class 5 Soil	Class 5 Soil
10" Helix - 8' Rod	STAD 4432	Pull out - 4,200	Pull out - 17,000
Class 6 Soil	Class 6 Soil	Advertised pull out is 17,500	Advertised pull out is 9,295
Pull out - 1,700	Pull out - 15,500	8/26/2010	Monroe Louisiana
Advertised pull out - 14,500	Advertised pull out is 6,760	Customer Anchor Type	ODT Anchor
10" Double Helix - 8' Rod		10" Helix - 8' Rod	STAD 4432
Class 6 Soil		Class 5 Soil	Class 5 Soil
Pull out - 3,000		Pull out - 3,600	Pull out - 16,300
Advertised pull out - 23,000		Advertised pull out is 17,500	Advertised pull out is 9,295
6/13/2012	Denver Colorado	6/17/2012	Ocala Florida
Customer Anchor Type	ODT Anchor	Customer Anchor Type	ODT Anchor
10" Helix - 8' Rod	STAD 4432	Triple 14" Helix - 12' Rod	STAD 4432
Class 3 Soil	Class 3 Soil	Class 6 Soil	Class 6 Soil
Pull out - 4,100	Pull out - 24,000	Pull out - 12,000	Pull out - 12,000
Advertised pull out is 27,000	Advertised pull out is 14,646	Advertised pull out - 42,000	Advertised pull out is 6,760
11/30/2010	Indianapolis Indiana	12/20/2013	Rochester, New York
Customer Anchor Type	ODT Anchor	Customer Anchor Type	ODT Anchor
8" Helix - 8' Rod	STAD 4432	10" Helix - 8' Rod	STAD 4432
Class 6 Soil	Class 6 Soil	Class 5 Soil	Class 5 Soil
Pull out - 3,000	Pull out - 15,500	Pull out - 3,600	Pull out - 18,500
Advertised pull out is 9,000	Advertised pull out is 6,760	Advertised pull out is 17,500	Advertised pull out is 9,295
12" Helix - 8' Rod			STAD 5542
Class 6 Soil			Class 5 Soil
Pull out - 7,000			Pull out - 24,000
Advertised pull out - 18,000			Advertised pull out is 11,154
11/15/2013	Kyle, Texas	10/23/2014	Truckee/Donner, California
Customer Anchor Type	ODT Anchor	Customer Anchor Type	ODT Anchor
8" Bust Anchor - 8' Rod	STAD 4432	Note: Anchor could only be installed 4' deep due to Class 2 soil	
Class 5 Soil - Buried 2 years	Class 5 Soil	4" x 4" Rock Anchor - 7' Rod	STAD 4432
Pull out - 6,000	Pull out - 17,000	Class 2 Soil	Class 2 Soil
Advertised pull out is 18,000	Advertised pull out is 9,295	Pull out - 20,000	Pull out - 17,000
8" Bust Anchor - 8' Rod	STAD 5542	Advertised pull out is 36,220	Advertised pull out is 16,500
Class 5 Soil	Class 5 Soil		
Pull out - 10,000	Pull out - 22,000		
Advertised pull out is 18,000	Advertised pull out is 11,154		

8" Bust Anchor - 8' Rod	
Class 5 Soil	
Pull out - 9,000	
Advertised pull out is 18,000	
10" Bust Anchor - 8' Rod	
Class 5 Soil	
Pull out - 6,000	
Advertised pull out is 21,000	
12/19/2013	Johnson City, New York
Customer Anchor Type	ODT Anchor
Note: Anchor could only be installed 4' deep due to frost line.	
8" Helix - 8' Rod	STAD 5542
Class 1 Soil	Class 1 Soil
Pull out - 6,200	Pull out - 32,000
Advertised pull out is 36,000	Advertised pull out is 22,880
3/5/2014	Muenster, Texas
Customer Anchor Type	ODT Anchor
8" Helix - 7' Rod	STAD 4432
Class 5 Soil	Class 5 Soil
Pull out - 11,000	Pull out - 18,500
Advertised pull out is 12,000	Advertised pull out is 9,295
8" Bust Anchor - 8' Rod	STAD 5542
Class 5 Soil	Class 5 Soil
Pull out - 16,000	Pull out - 18,000
Advertised pull out is 18,000	Advertised pull out is 11,154
10/15/2014	York, Nebraska
Customer Anchor Type	ODT Anchor
	STAD 4432
	Class 5 Soil
	Pull out - 18,000
	Advertised pull out is 9,295
10/21/2014	Sacramento, California
Customer Anchor Type	ODT Anchor
12" Helix - 8' Rod	STAD 4432
Class 3 Soil	Class 3 Soil
Pull out - 20,000	Pull out - 21,000
Advertised pull out - 33,000	Advertised pull out is 14,646
8" Helix - 8' Rod	
Class 3 Soil	
Pull out - 18,000	
Advertised pull out is 23,000	
7/27/2015	Leesburg, Florida
Customer Anchor Type	ODT Anchor
Double 10/10" Helix - 8' Rod	STAD 4432
Class 6 Soil	Class 6 Soil
Pull out - 18,000	Pull out - 12,800
Advertised pull out is 23,000	Advertised pull out is 6,760
10" Helix - 6' Rod	
Class 6 Soil	
Pull out - 6,760	
Advertised pull out is 14,500	

2/11/2015	Austin, Texas
Customer Anchor Type	ODT Anchor
Double 10" Helix - 8' Rod	STAD 6653
Class 5 Soil	Class 5 Soil
Pull out - 24,000	Pull out - 20,000
Advertised pull out - 22,500	Advertised pull out is 13,385
8" Helix - 8' Rod	STAD 4432
Class 6 Soil	Class 6 Soil
Pull out - 16,000	Pull out - 10,000
Advertised pull out is 17,500	Advertised pull out is 6,760
2/13/2015	Colcord, Oklahoma
Customer Anchor Type	ODT Anchor
10" Helix - 8' Rod	STAD 5542
Class 5 Soil	Class 5 Soil
Pull out - 1,200	Pull out - 18,000
Advertised pull out is 17,500	Advertised pull out is 11,154
7/26/2015	Tallahassee, Florida
Customer Anchor Type	ODT Anchor
8" Helix - 8' Rod	STAD 4432
Class 5 Soil	Class 5 Soil
Pull out - 7,200	Pull out - 19,000
Advertised pull out is 12,000	Advertised pull out is 9,295
7/26/2015	Live Oak, Florida
Customer Anchor Type	ODT Anchor
Double 8/10" Helix - 12' Rod	STAD 4432
Class 6 Soil	Class 6 Soil
Pull out - 6,000	Pull out - 16,000
Advertised pull out is 16,000	Advertised pull out is 6,760
7/27/2015	Keystone Heights, Florida
Customer Anchor Type	ODT Anchor
10" Helix - 8' Rod	STAD 4432
Class 6 Soil	Class 6 Soil
Pull out - 9,000	Pull out - 10,000
Advertised pull out is 14,500	Advertised pull out is 6,760
	STAD 55432
	Class 6 Soil
	Pull out - 17,500
	Advertised pull out is 15,816
7/27/2015	Gainesville, Florida
Customer Anchor Type	ODT Anchor
10" Helix - 8' Rod	STAD 4432
Class 5 Soil	Class 5 Soil
Pull out - 6,000	Pull out - 18,200
Advertised pull out is 17,500	Advertised pull out is 9,295
9/11/2018	Great Falls, Montana
Customer Anchor Type	ODT Anchor
This pull test was at the MECA show. The anchor was installed in the parking lot then pulled with the AC. There was no other anchor installed to pull against.	STAD 55432
	Class 7 Soil
	Pulled to 22,000 lbs - max pull,
	Advertised pull out is 10,433

7/29/2015	Tampa, Florida
Customer Anchor Type	ODT Anchor
10" Helix - 8' Rod	STAD 4432
Class 6 Soil	Class 6 Soil
Pull out - 14,800	Pull out - 11,200
Advertised pull out is 14,500	Advertised pull out is 6,760
	STAD 55432
	Class 6 Soil
	Pull out - 18,300
	Advertised pull out is 11,357
5/7/2018	Delta, Colorado
Customer Anchor Type	ODT Anchor
Double 8" Helix - 8' Rod	STAD 55432
Class 7 Soil	Class 7 Soil
Pull out - 4,000	Pull out - 14,000
Advertised pull out is 14,000	Advertised pull out is 10,433
8/14/2018	York, Nebraska
Customer Anchor Type	ODT Anchor
10" Helix - 8' Rod	STAD 55432
Class 5 Soil	Class 5 Soil
Pull out - 1,000	Pulled to 28,000 lbs - max pull
Advertised pull out is 17,500	Advertised pull out is 19,438
8/15/2018	Fort Morgan, Colorado
Customer Anchor Type	ODT Anchor
10" Triple Helix - 8' Rod	STAD 4432
Class 7 Soil	Class 7 Soil
Pull out - 2,700	Pull out - 11,000
Advertised pull out is 26,000	Advertised pull out is 3,380
8/24/2018	Binger, Oklahoma
Customer Anchor Type	ODT Anchor
8" Helix - 8' Rod	STAD 55432
Class 6 Soil	Class 6 Soil
Pull out - 3,800	Pulled to 28,000 lbs - max pull
Advertised pull out is 9,000	Advertised pull out is 15,816
11/6/2018	Forth Worth, Texas
Customer Anchor Type	ODT Anchor
8" Bust Anchor	STAD 55432
Class 6 Soil	Class 6 Soil
Pull out - 800	Pulled to 28,000 lbs - max pull
Advertised pull out is 15,000	Advertised pull out is 15,816
11/8/2018	Edmond, Oklahoma
Customer Anchor Type	ODT Anchor
12" Bust Anchor	STAD 55432
Class 4 Soil	Class 4 Soil
Pull out - 16,500	Pulled to 28,000 lbs - max pull
Advertised pull out is 34,000	Advertised pull out is 23,257

9/18/2018	Duncan, Oklahoma
Customer Anchor Type	ODT Anchor
10" Helix - 8' Rod	STAD 55432
Class 7 Soil	Class 7 Soil
Pull out - 2,700	Pull out - 15,000
Advertised pull out is 10,000	Advertised pull out is 10,433
9/18/2018	Duncan, Oklahoma
Customer Anchor Type	ODT Anchor
	STAD 4432
	Class 7 Soil
	Pulled to 22,000 lbs - max pull,
	Advertised pull out is 6,000
9/20/2018	Stillwater, Oklahoma
Customer Anchor Type	ODT Anchor
10" Helix - 8' Rod	This pull test was at a lineman's rodeo on an existing anchor. An ODT anchor was not installed due to no current locates.
Class 3 Soil	
Pull out - 10,000	
Advertised pull out is 34,000	
10/4/2018	Stillwater, Oklahoma
Customer Anchor Type	ODT Anchor
8" Bust Anchor	STAD 55432
Class 5 Soil	Class 5 Soil
Pull out - 3,800	Pulled to 28,000 lbs - max pull
Advertised pull out is 18,000	Advertised pull out is 19,438
10/10/2018	Littleton, Massachusetts
Customer Anchor Type	ODT Anchor
14" Helix - 8' Rod	STAD 55432
Class 5 Soil	Class 5 Soil
Pull out - 3,800 - This anchor was in a training yard for 5 years.	Pulled to 28,000 lbs - max pull
Advertised pull out is 28,000	Advertised pull out is 19,438
10/11/2018	Syracuse, New York
Customer Anchor Type	ODT Anchor
14" Helix - 8' Rod	STAD 55432
Class 2 Soil	Class 2 Soil
Pull out - 2,000	Pulled to 22,000 lbs - max pull on machine and the anchor did not move. Anchor installed in a compacted gravel training yard.
Advertised pull out is 45,000	Advertised pull out is 30,899
5/9/2019	Lubbock, Texas
Customer Anchor Type	ODT Anchor
8" Bust Anchor/8' Rod	STAD 55432
Class 8 Soil	Class 8 Soil
Pull out - 200	Pull out - 2,700
Advertised pull out is 10,000	Advertised pull out is 6,613
	STAD 66543-1" rod
	Class 8 Soil
	Pull out - 16,000
	Advertised pull out is 7,085

4/2/2019		Lamar, Colorado	
Customer Anchor Type	ODT Anchor		
12" Power Screw/7' Rod	STAD 55432		
Class 7 Soil	Class 7 Soil		
Pull out - 4,000	Pull out - 4,700		
Advertised pull out is 14,000	Advertised pull out is 6,813		
4/5/2019		Stigler, Oklahoma	
Customer Anchor Type	ODT Anchor		
10" Power Screw/7' Rod	STAD 55432		
Class 5 Soil	Class 5 Soil		
Pull out - 9,000	Pulled to 28,000 lbs - max pull		
Advertised pull out is 17,500	Advertised pull out is 19,438		
4/10/2019		Greenville, Texas	
Customer Anchor Type	ODT Anchor		
8" Bust Anchor	STAD 55432		
Class 5 Soil	Class 5 Soil		
Pull out - 3,800	Pulled to 28,000 lbs - max pull		
Advertised pull out is 18,000	Advertised pull out is 19,438		
5/2/2019		Altas, Oklahoma	
Customer Anchor Type	ODT Anchor		
8" Bust Anchor/8' Rod	STAD 55432		
Class 6 Soil	Class 6 Soil		
Pull out - 1,400	Pulled to 28,000 lbs - max pull		
Advertised pull out is 21,500	Advertised pull out is 15,816		
5/2/2019		Sayer, Oklahoma	
Customer Anchor Type	ODT Anchor		
10" Helix/8' Rod	STAD 55432		
Class 8 Soil	Class 8 Soil		
Pull out - 400	Pull out - 2,400		
Advertised pull out is 10,000	Advertised pull out is 6,813		
	STAD 66543-1" rod		
	Class 8 Soil		
	Pull out - 3,800		
	Advertised pull out is 7,085		
6/14/2021		Bentonville, AR	
Customer Anchor Type	ODT Anchor		
10" Power Screw/8' Rod	STAD 55432		
Class 6 Soil	Class 6 Soil		
Pull out - 2,100	Pulled to 19,000 lbs		
Advertised pull out is 14,500	Advertised pull out is 15,816		
6/15/2021		Jonesboro, AR	
Customer Anchor Type	ODT Anchor		
10" Power Screw/8' Rod	STAD 55432		
Class 6 Soil	Class 6 Soil		
Pull out - 12,000	Pulled to 12,000 lbs		
Advertised pull out is 14,500	Advertised pull out is 15,816		
7/27/2021		Greenwood, MS	
Customer Anchor Type	ODT Anchor		
8" Power Screw/8' Rod	STAD 55432		
Class 6 Soil	Class 6 Soil		
Pull out - 2,000	Pull out - 8,000		
Advertised pull out is 9,000	Advertised pull out is 15,816		

6/21/2019		Ponca City, Oklahoma	
Customer Anchor Type	ODT Anchor		
12" Bust Anchor/8' Rod	STAD 55432		
Class 7 Soil	Class 7 Soil		
Pull out - 2,800	Pull out - 14,725		
Advertised pull out is 14,000	Advertised pull out is 10,433		
	STAD 66543-1" rod		
	Class 7 Soil		
	Pulled to 28,000 lbs - max pull		
	Advertised pull out is 11,011		
8/23/2019		Mesquite, Texas	
Customer Anchor Type	ODT Anchor		
8" Helix - 8' Rod	STAD 55432		
Class 3 Soil	Class 3 Soil		
Pull out - 3,000	Pull out - 3,000		
Advertised pull out is 23,000	Advertised pull out is 27,000		
8" Bust Anchor/8' Rod			
Class 3 Soil			
Pull out - 4,800			
Advertised pull out is 26,500			
3/3/2020		Hodge, Louisiana	
Customer Anchor Type	ODT Anchor		
8" Helix - 8' Rod	STAD 55432		
Class 7 Soil	Class 7 Soil		
Pull out - 2,000	Pull out - 6,000		
Advertised pull out is 14,000	Advertised pull out is 10,433		
	STAD 4432, Class 7 Soil		
	Pull out - 3,500		
	Advertised pull out is 3,380		
8/18/2020		Cushing, Oklahoma	
Customer Anchor Type	ODT Anchor		
8" Bust Anchor/8' Rod	STAD 665432-TR-1		
Class 6 Soil	Class 6 Soil		
Pull out - 400	Pull out - 4,200		
Advertised pull out is 21,500	Advertised pull out is 20,479		
6/14/2021		Ozark, AR	
Customer Anchor Type	ODT Anchor		
8" Power Screw/8' Rod	STAD 55432		
Class 6 Soil	Class 6 Soil		
Pull out - 1,400	Pull out - 1,700		
Advertised pull out is 9,000	Advertised pull out is 15,816		
6/16/2021		Jacksonville, AR	
Customer Anchor Type	ODT Anchor		
10" Power Screw/8' Rod	STAD 55432		
Class 6 Soil	Class 6 Soil		
Pull out - 13,000	Pulled to 21,000 lbs		
Advertised pull out is 14,500	Advertised pull out is 15,816		
7/29/2021		Ripley, MS	
Customer Anchor Type	ODT Anchor		
8" Power Screw/8' Rod	STAD 55432		
Class 6 Soil	Class 6 Soil		
Pull out - 2,000	Pull out - 17,000		
Advertised pull out is 9,000	Advertised pull out is 15,816		

2/22/2022	
Customer Anchor Type	Itasca, Texas ODT Anchor
12" Bust Anchor/8' Rod	STAD 55432
Class 7 Soil	Class 7 Soil
Pull out - 2,800	Pull out - 4,000
Advertised pull out is 14,000	Advertised pull out is 10,433

	Itasca, Texas
	ODT Anchor
	STAD 665432N-3/4
	Class 7 Soil
	Pull out - 19,000
	Advertised pull out is 11,011

4/18/2024	
Customer Anchor Type	Watford City, ND ODT Anchor
8" Power Screw/8' Rod	STAD 55432
Class 8 Soil	Class 8 Soil
Anchor Broke at 1,800 lbs	Pull out - 5,000
Advertised pull out is 14,000	Advertised pull out is 6,813

5/29/2024	
ODT Anchor	ODT Anchor
STAD 55432	STAD 65432
Class 8 Soil	Class 8 Soil
Pull out - 4,000	Pull out - 5,000
Advertised pull out is 6,813	Advertised pull out is 6,813

5/29/2024	
ODT Anchor	ODT Anchor
STAD 55432	STAD 65432
Class 6 Soil	Class 6 Soil
Pull out - 6,000	Pull out - 10,000
Advertised pull out is 15,818	Advertised pull out is 7,085

6/6/2022	
Customer Anchor Type	Greenwell Springs, LA ODT Anchor
8" Power Screw/8' Rod	STAD 55432
Class 6 Soil	Class 6 Soil
Pull out - 2,000	Pull out - 17,000
Advertised pull out is 9,000	Advertised pull out is 15,816

6/30/2022	
Customer Anchor Type	Glendale, Washington ODT Anchor
8" Power Screw/8' Rod	STAD 55432
Class 6 Soil	Class 6 Soil
Pull out - 2,000	Pull out - 17,000
Advertised pull out is 9,000	Advertised pull out is 15,816

	Glendale, Washington
	ODT Anchor
	STAD 665432-TR-1
	Class 6 Soil
	Pull out - 4,200
	Advertised pull out is 15,730

5/29/2024	
ODT Anchor	Anchor Test Lawton, Oklahoma
Swamp Anchor	
Class 8 Soil	ODT Anchor Pull Test
Pull out - 25,000	5/259/24
Advertised pull out is 23,400	

5/29/2024	
ODT Anchor	Anchor Test Lawton, Oklahoma
Swamp Anchor	
Class 6 Soil	ODT Anchor Pull Test
Pull out - 26,000	5/259/24
Advertised pull out is 27,293	

SWAMP ANCHOR PATENT PENDING

There has never been one "perfect" anchor that can work for every situation. Soil classifications vary from one location to the next and fill dirt material or rock can change the classification within a very small area.

Oklahoma Design Technologies strives to provide the "ideal" anchor for each specific situation by offering a variety of anchors and methods of installation. The SWAMP anchor is designed specifically to penetrate the sub-soil which is on average 70 inches below the surface in swampy, sandy or mucky areas where unstable soil is present.

The SWAMP anchor description	Catalog #
3/4" x 6' rod - flites of 8", 7", 6", 5", 4", 3", 2"	SWAMP68765432-N-3/4

Compactors are installed on the 8", 7", 6" & 5" flites which compress the soil between each flite to create instant holding power.

All SAF-T-ANCHORS are made with enhanced materials to induce rusting, which will only rust 10 mils thick causing an isolation barrier to protect the anchor extending the life of the anchor.

The SWAMP anchor is installed by hand with the T-handle or with a battery operated impact wrench.

Can be ordered with or without a 3/4" single or double thimble eye nut.



SAF-T-ANCHOR ROD EXTENSION PATENT PENDING

The Saf-T-Anchor can be installed to a greater depth by using the Saf-T-Anchor Rod Extension when soil conditions are not ideal to provide the required holding strength.

The Saf-T-Anchor Rod Extension consists of a 4' rod with a welded 2" nut at the top and at the bottom. The bottom of the rod is threaded to accept the coupler which connects the rod and the anchor together. Once the rod and anchor are connected, the extension cover is slid down over the bottom 2" nut of the extension and the top 2" nut of the Saf-T-Anchor to encapsulate the connection. This makes the connection stronger and protects the coupler.

The Saf-T-Anchor Rod Extensions are available in two sizes to fit both the 3/4" Saf-T-Anchor rods and the 1" Saf-T-Anchor rods.

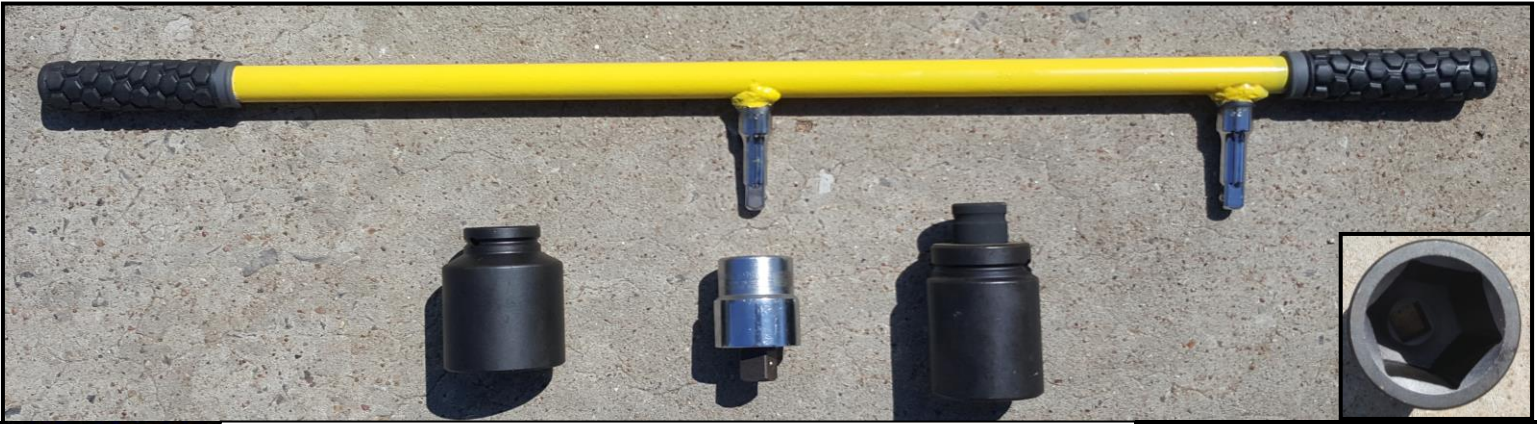
Part Numbers:

Anchor Rod Ext – 3/4" & Anchor Rod Ext – 1"



T-HANDLE

PATENT PENDING



- T-Handle** - 24" Length – 3/4" Drive THDL-24
- T-Handle** - 36" Length – 3/4" Drive THDL-36
- T-Handle** - 48" Length – 3/4" Drive THDL-48
- Socket** - 3/4" Drive - 2" - 6 point impact socket SPT-6
- Ratchet** - 3/4" Drive THDL-RCT

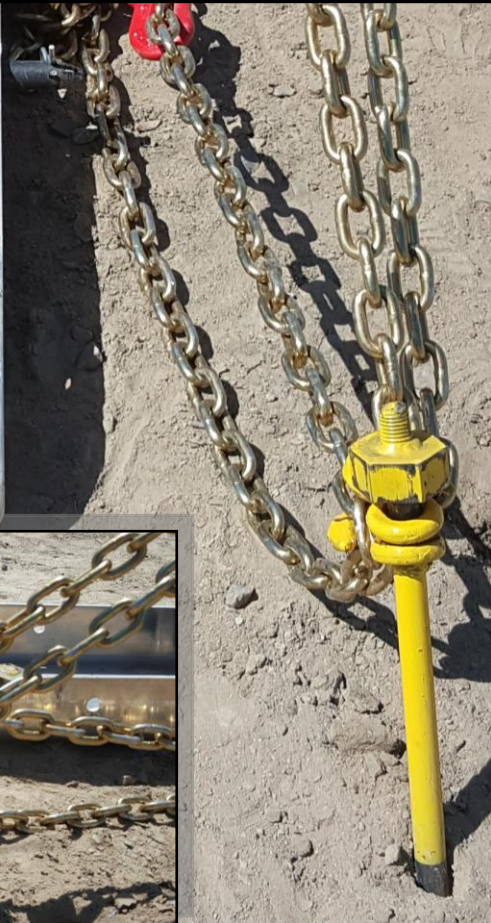


VER-T-POL ANCHORS

PATENT PENDING

The STAD24222-VN-3/4" is used to secure the base of the Ver-T-Pol when the ground is not level or when it is used on a solid surface, like concrete or asphalt. Can be used as a temporary anchor.

The STAD442N-H-3/4" is used to anchor the Ver-T-Pol. The two hooks easily connect to the chains. This is a re-usable anchor and can be used as a temporary or tie back anchor.



INTRODUCING THE NEW ROCK ANCHOR

PATENT PENDING

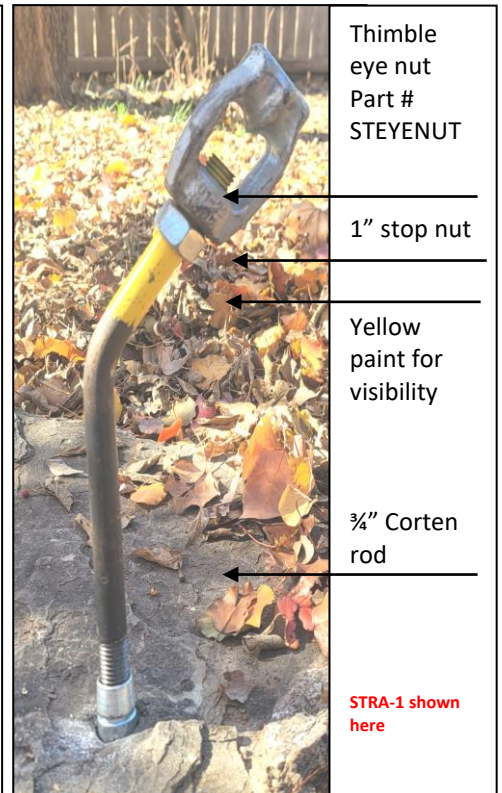
The new anchor designed for solid rock mechanically wedges into the rock and can be loaded immediately.

It is installed by drilling a 1" diameter hole to the proper depth using a Bosch carbide rock bit and a cordless hammer drill. Always install the anchor vertically into the rock. Once the hole is drilled and the debris is removed, place **the tapered plug** into the tip of the anchor and insert the anchor into the hole. Thread the anchor setting tool into the rock anchor, drive the anchor into the hole with a sledge hammer to enable the tapered plug to expand the tip of the anchor wedging it into the rock; this might take a few hits to fully expand the tip (always use the setting tool for safety). This anchor uses material displacement and fixed expansion to obtain optimal holding power.

Attach the proper length anchor rod and thimble eye to the rock anchor. Place the anchor rod to be perpendicular to the angle of the guy wire. Attach the guy wire to the rock anchor assembly.

This process can be completed within 5 minutes depending on the rock classification and the depth of the hole.

Most loads are a combination of tensile and shear. Installation at deeper depths will increase tensile strength and the bent rod perpendicular to the angle of the guy wire will increase the shear strength. **DEEPER IS BETTER!**



ADVANTAGES

1. Anchor rating – 58,000 pounds. Anchor rod breaking strength is 62,000 pounds
2. Installation time – Approximately 5 minutes depending on rock classification and desired depth
3. Ability to install anchor for guying in solid rock
4. Less total installation cost
5. Safety: No heavy equipment needed to drill rock
6. Rock anchor is threaded for ease of installation and removal of the rod
7. Anchor rods available in 1 foot increments up to 5' in length
8. Yellow paint on rod for high visibility
9. Can be used in shallow holes or at deeper depths and can be loaded immediately
10. Tools needed for installation: *Battery operated hammer drill * 1" Bosch tungsten tip bit *Rock Anchor Setting Tool

Step 1
Drill 1" hole in solid rock 3" deep



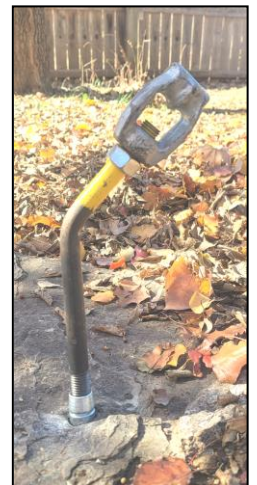
Step 2
Place plug inside anchor head & place the setting tool in the hole



Step 3
Hit Setting tool to expand the anchor head to set the anchor



Step 4
Remove setting tool install anchor rod



LIGHT WEIGHT ALUMINUM KELLY BAR/ANCHOR ADAPTOR

The aluminum Kelly Bar Adaptor (KBA) is used for the installation of the Saf-T-Anchor with a truck

Advantages:

- 1) The new 2 piece design of the Kelly Bar Adaptor will enclose the upper half of the Saf-T-Anchor. When installed with a line truck, the force of the truck will not bend the anchor rod.
- 2) Light weight – weighs only 22 pounds, therefore is ergonomically correct and easy to use. Constructed of tooled aluminum.
- 3) Removes shock torque from Kelly bar, actuator, boom, and bull gear which extends the life of the equipment. The design of the adaptor allows for quick installation.
- 4) Economical – costs less than other adaptors.

The Kelly Bar/Anchor Adaptor can be used to install all of ODT's Saf-T-Anchors.

Description	Part Number
Top Section of 2 Piece Kelly Bar Adaptor	
2 Hex	KBAH-2
2 ½ Hex	KBAH-2.5
2 ⅝ Hex	KBAH-2.6
2 ¼ Square	KBAS-2.25
2 ½ Square	KBAS-2.5
Bottom Section of 2 Piece Kelly Bar Adaptor – 36"	
Anchor Adaptor Assembly	AA-2H36

The top section connects to the Kelly bar on the truck.

The bottom bolts to the top section and fits over the 2" hex nut located above the top flite.



CORDLESS IMPACT WRENCH

Our 3/4" SAF-T-ANCHORS are hand installed with an impact wrench and we've tested multiple impact wrenches on the market. It is Oklahoma Design Technologies' opinion that the Makita 18V LXT Lithium-Ion Brushless Cordless High Torque 3/4" Cordless Impact Wrench is the most powerful 3/4" cordless impact tool available to install ODT's 3/4" SAF-T-ANCHORS.

Portable, compact size and light weight impact wrench with rechargeable batteries for long life, makes using the Makita impact wrench the most effective method of installing our 3/4" SAF-T-ANCHOR.


Makita 18V LXT® Lithium-Ion Brushless Cordless High Torque 3/4" Impact

- BL™ Motor delivers 780 ft. lbs. of fastening torque and **1,250 ft. lbs. of breakaway torque**
- 3-speed power selection switch
- 3/4" anvil with friction ring and thru hole retention system for maximum productivity
- Efficient BL™ Brushless motor is electronically controlled to optimize battery energy use
- Compact and ergonomic design at only 9" long, weighs only 8.1 lbs. with battery
- Built-in dual L.E.D. lights with preglow and afterglow illuminates the work area
- The BL™ Brushless Motor eliminates carbon brushes, runs cooler and more efficiently for longer life

Makita 18V LXT Lithium-Ion Brushless Cordless High Torque 3/4" Impact Kit

MAK-LXT-3/4-IMPKT

THE LXT ADVANTAGE



- UP TO **50%** MORE RUN TIME
LXT® LITHIUM-ION BATTERY
- UP TO **3X** FASTER CHARGING*
LXT® RAPID OPTIMUM CHARGER
- UP TO **50%** LONGER MOTOR LIFE*
PURPOSE-BUILT MOTORS
- EFFICIENT POWER MANAGEMENT
STAR PROTECTION CONTROLS™



ANCHOR CERTIFIER (AC)

The Portable Hydraulic Anchor Certifier (AC) is a hydraulically operated device that is used to test existing anchors to a calibrated tension for quality assurance provisions. ODT also uses this device to test the pull out strength of all types of anchors. It is designed to pull up to 20,000 lbs. and consists of a hand operated hydraulic power supply that is used to activate a hydraulic cylinder, which in turn provides tension to the anchor. A calibrated pressure gauge provides a real time indication of pull-out tension at any angle. Watch a YouTube.com video of the SAF-T-ANCHOR <https://youtu.be/1KlldvkZPb0>

Anchor Certifier (AC) - includes the gauge, ram, and hydraulic pump

AC-38

Anchor Certifier Storage Box - houses the ram, hydraulic pump, hoses and gauge

AC-PRB-32

LET US TEST YOUR ANCHORS





501 W. Michigan Chickasha, OK 73018
 Phone: 405-222-7199 Fax: 405-222-7186
 Debra Hamilton: 918-640-0542

☆ ORIGINAL Certificate of Test ☆



DATE 02/08/2016
 CUSTOMER NAME OKLAHOMA DESIGN TECHNOLOGIES, LLC
 PO NUMBER 2816-01
 MODEL NUMBERS WLC-B WIRELESS INDICATOR TRANSCEIVER
 WLC-A RECEIVER
 FCC ID NUMBERS FCC ID: X54-TS-WLC-B TRANSCEIVER
 FCC ID: X54-TS-WLC-A RECEIVER
 DESCRIPTION OF ITEM VERIFY ANCHOR CERTIFIER - (PULL TEST)
 ACPT ORDER # 3282
 TEST ID # 02/08/2016/3282

TEST LOAD (TONS & MINUTES HELD) GAUGE REFERENCE POINTS CERTIFIED
 2 X 1000 CERTIFIED TO 1700 LBS.
 4 X 1000 CERTIFIED TO 3230 LBS.
 6 X 1000 CERTIFIED TO 4630 LBS.
 8 X 1000 CERTIFIED TO 6170 LBS.

PERFORMED BY (PRINT & SIGN NAME) (Print) Josh Powell
 JOSH POWELL – TECH/(LEVEL II CERTIFIED)
 (Signature) [Signature]

WITNESSED BY (PRINT & SIGN NAME) (Print) Buddy S. Linton
 BUD LINTON – WITNESS
 (X) In-House () 3rd Party
 3rd Party Company Name: (Signature) [Signature]

This is to confirm and certify that the parts and/or assemblies listed above were tested and inspected in accordance with all applicable manufacturer specifications and procedures, A.P.I. RP-8B and/or customer specifications.

All dimensional inspections, Proof Load, Functional Test, NDE inspections and process surveillances were performed by ACPT in accordance with established manufacturer and ACPT quality procedures.

This certifies the above described item(s) meet the above specifications. Items which do not meet certification criteria have been tested according to specifications noted with the reason noted for non-certification. Load measuring instrument is accurate +/- 1% of reading as specified by ASTM E-4. Upon conclusion of testing no obvious defects were noted.

DISCLAIMER: As the use of these items are beyond the control of American Certification and Pull Testing, LLC, the purchaser and/or end user is solely responsible for the usability and suitability of these items.

INTRODUCING THE NEW POLE ANTI-JACK ASSEMBLY

PATENT PENDING

The Pole Anti-Jack Assembly was developed to stop pole structures from walking or jacking out of the ground due to wind loading and harmonic vibrations of the overhead conductors.

This new patented process is designed to hold 31,000 pounds of up lift torsion per assembly.

The assembly consists of 1-Pole Eye Plate, 1-Yoke Assembly and ODT's new patented anchor (STAD55432N-3/4"). It is recommended to install the assembly on the inside of each H structure pole.

The installation takes approximately 10 minutes per assembly. A cordless impact wrench is used to install the anchor and to bore the hole for the through bolt.

Specifications:

The STAD55432N-3/4" holding strength is Class 5 soil is 29,904 lbs.

The Pole Eye Plate working load limit for 1 bolt (20,000 lbs) for 2 bolts (42,000 lbs)

The Y-Yoke working load limit is 31,000 lbs

Installation Instructions:

- ◇ Install the SAF-T-ANCHOR using a battery operated cordless impact wrench on the inside of each H structure pole.
- ◇ Screw the Y-Yoke onto the SAF-T-ANCHOR.
- ◇ Attach the Pole Eye Plate to the Y-Yoke and secure with the pin.
- ◇ Secure the Pole Eye Plate to the pole.
- ◇ The cordless impact wrench is used to install the anchor and to bore the hole for the through bolt.

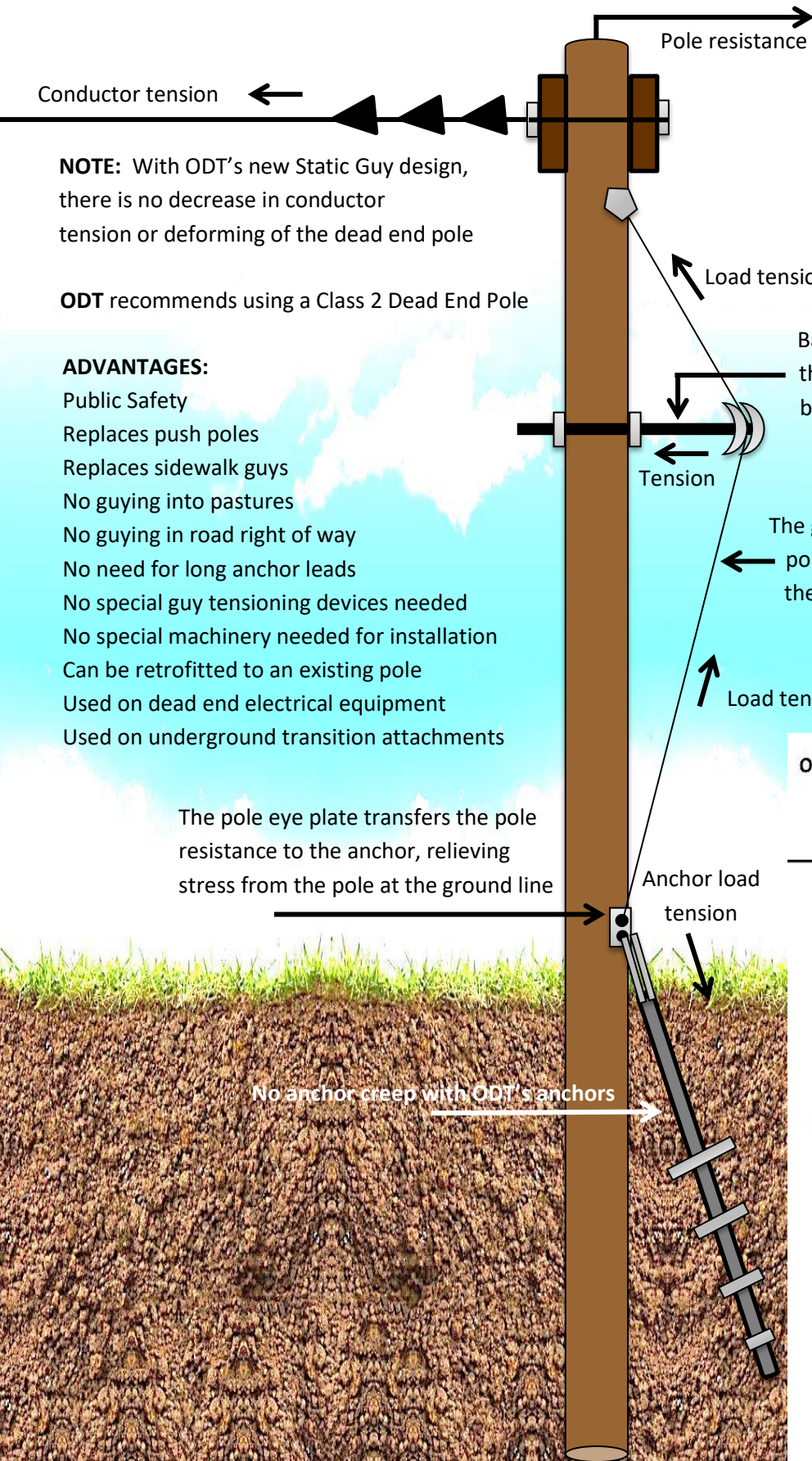
Y-Yoke End	PAJA-YOKE
Y-Yoke End Pin	PAJA-YOKE PIN
Pole Eye Plate	PAJA-PEYEP
3/4" x 5' rod - flites of 5", 4", 3", 2" w/welded 2" nut	STAD55432N - 3/4"



Oklahoma Design Technologies

Static Guying

Patent Pending



Conductor tension ←

Pole resistance →

NOTE: With ODT's new Static Guy design, there is no decrease in conductor tension or deforming of the dead end pole

ODT recommends using a Class 2 Dead End Pole

ADVANTAGES:

- Public Safety
- Replaces push poles
- Replaces sidewalk guys
- No guying into pastures
- No guying in road right of way
- No need for long anchor leads
- No special guy tensioning devices needed
- Can be retrofitted to an existing pole
- Used on dead end electrical equipment
- Used on underground transition attachments

The pole eye plate transfers the pole resistance to the anchor, relieving stress from the pole at the ground line

No anchor creep with ODT's anchors

Load tension ↑

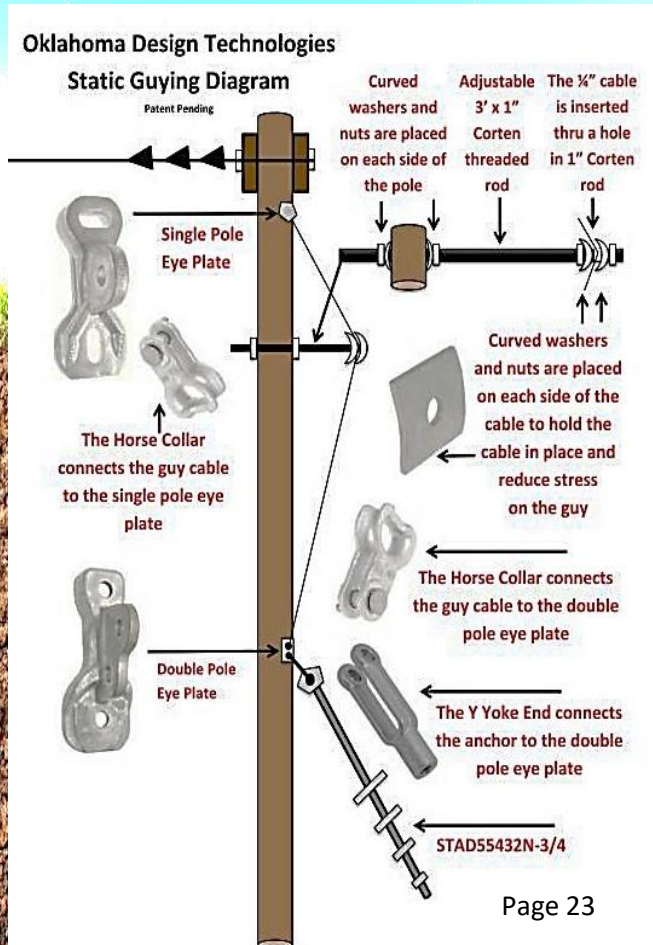
Balances tension of the load at top and bottom of the pole

Tension ←

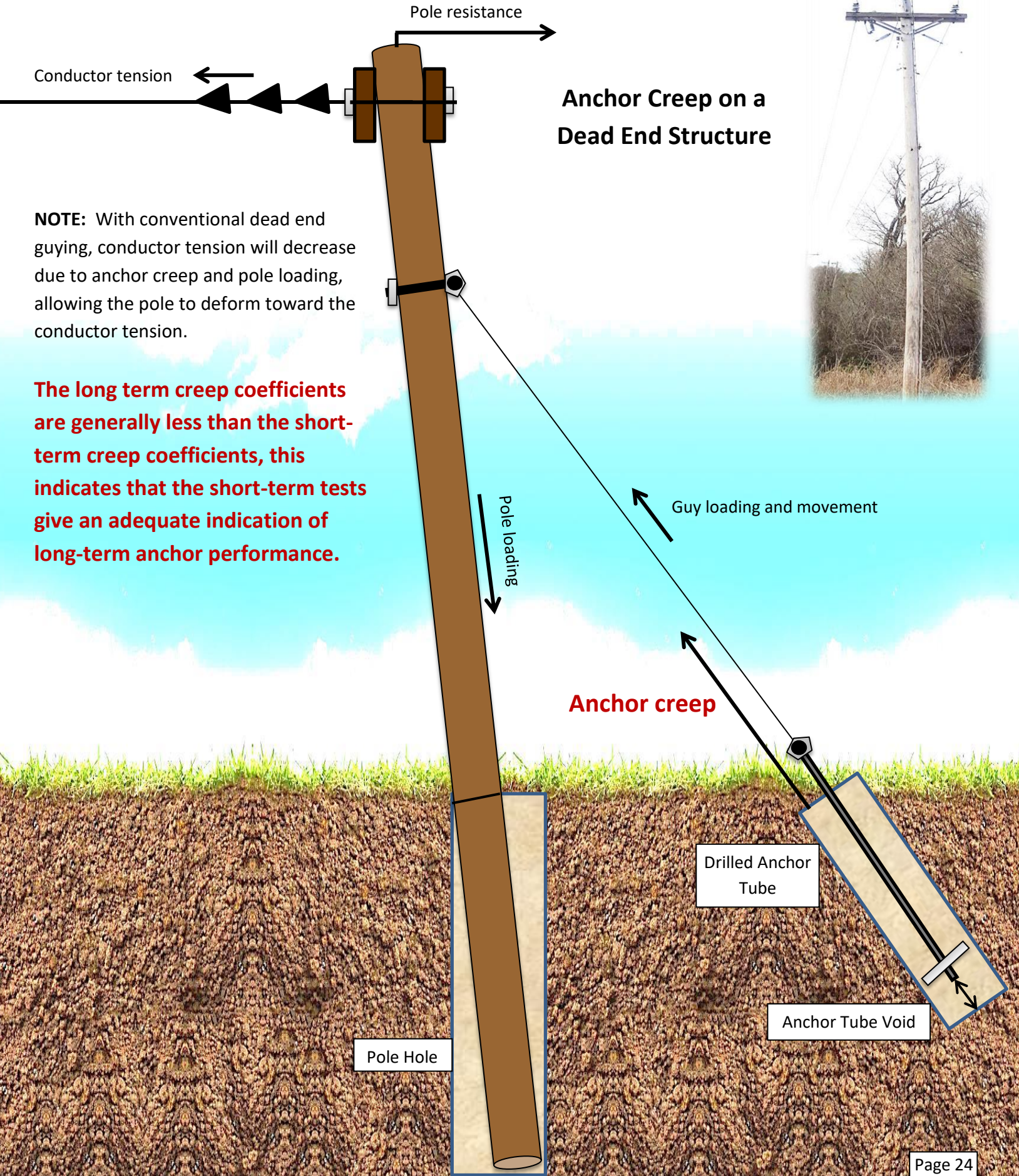
The guy transfers the pole resistance to the pole eye plate

Load tension ↑

Anchor load tension ↓



Conventional Dead End Guying



INTRODUCING THE NEW NO CREEP DISTRIBUTION WING ANCHOR

Patent Pending

The Distribution Wing Anchor (rod, plate & wings) is made of Cor-Ten material. Cor-Ten is designed to rust 10 mills thick; the rust insulates the metal relieving electrolysis stress preventing decay of the material which increases the life of the anchor. Cor-Ten is also much stronger than regular steel alloy material.

The reason the new Distribution Wing Anchor has tremendous holding power is because the wings are forced into soil that has not been disturbed. The wings penetrate the undisturbed soil, creating instant holding power and eliminating creep.

The Distribution Wing Anchor is **installed counterclockwise** and is available in an 8" plate that extends to 12" when the wings are fully extended. The 3/4" rod is available in 5', 6', 7' and 8' lengths. Yellow paint on the top of the anchor rod is for safety and indicates anchor installation depth.

The Anchor Certifier (AC) was used to pull the Wing Anchor-D-8/12-3/4". The Distribution Wing Anchor had a 5' 3/4" rod with the anchor plate set at the depth of 4' in Class 5 soil. The AC pulled the anchor to the machine's maximum pull at 22,000 pounds and the anchor did not creep or pull out at all. **This anchor is rated at 22,125 in Class 5 soil.**

When installing a new pole, the line truck operator can dig the hole and drop in the Wing Anchor, then use a battery-operated impact to turn the anchor forcing the wings into the undisturbed soil...no reason to tamp the soil.

Advantages:

- One Wing Anchor will replace four 10" helix anchors.
- No need for long rods. Example: A 5' rod with an 8" Wing Anchor set 4' deep is comparable to an 8' rod with a 12" power screw anchor.



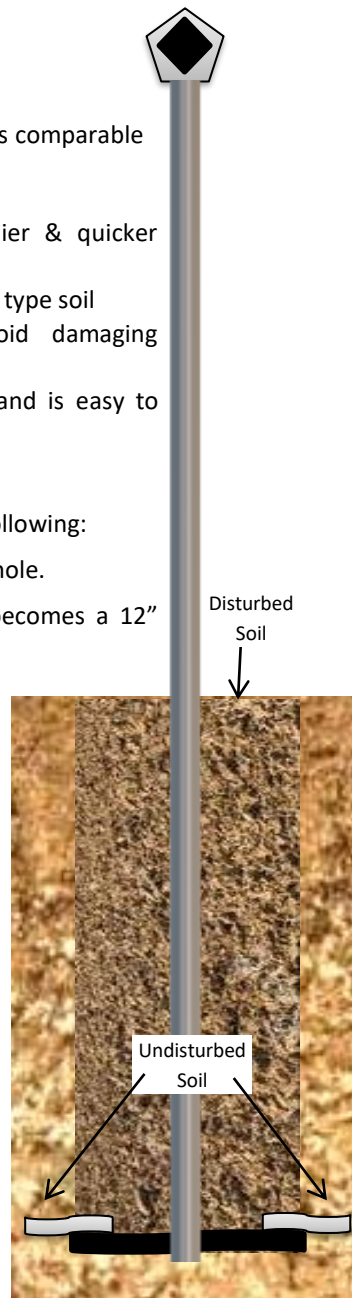
- No need to tamp the soil in the hole for easier & quicker installation
- Less time and cost to install and can be used in any type soil
- Can be used in metropolitan areas to avoid damaging underground utilities
- The anchor assembly is 2-piece (rod and plate) and is easy to store and transport

An 8" auger is used for **Wing Anchor-D-8/12-3/4"**.

Part number **Wing Anchor-D-8/12-3/4"** indicates the following:

The plate diameter is 7 1/2" for easy installation in an 8" hole.

When the wings are fully extended, the 8" anchor becomes a 12" anchor and the rod size is 3/4".



INTRODUCING THE NEW NO CREEP DISTRIBUTION / TRANSMISSION WING ANCHOR

Patent Pending

The Distribution/Transmission Wing Anchor (rod, plate & wings) is made of Cor-Ten material. Cor-Ten is designed to rust 10 mills thick, the rust insulates the metal relieving electrolysis stress preventing decay of the material which increases the life of the anchor. Cor-Ten is also much stronger than regular steel alloy material.

The reason the new Wing Anchor has tremendous holding power is because the wings are forced into soil that has not been disturbed. The wings penetrate the undisturbed soil, creating instant holding power and eliminating creep.

The Distribution/Transmission Wing Anchor plate diameter is 17" and extends to 21" when the wings are fully engaged. The 1" rod is available in 7' and 8' lengths. An 18" auger is used for **Wing Anchor-T-17/21-1"**. The Distribution/Transmission Wing Anchor is **installed counterclockwise**. **A battery-operated impact is used to spin the plate to fulling expand the wings**. Yellow paint on the top of the anchor rod is for safety and indicates anchor installation depth. **This anchor is rated at 40,500 pounds in Class 5 soil.**

When installing a new pole, the line truck operator can dig the hole and drop in the Wing Anchor, then use a battery-operated impact to turn the anchor forcing the wings into the undisturbed soil...no reason to tamp the soil.

Advantages:

- One Wing Anchor will replace 4 10" Helix Anchors.
- Easy to store and transport the 2-piece anchor
- Increase the depth of the anchor using extensions
- No need for a highway digger, can be installed with a line truck
- No need to tamp the hole
- Less time and cost to install

The Anchor Certifier (AC) was used to pull the Wing Anchor-T-17/21-1".

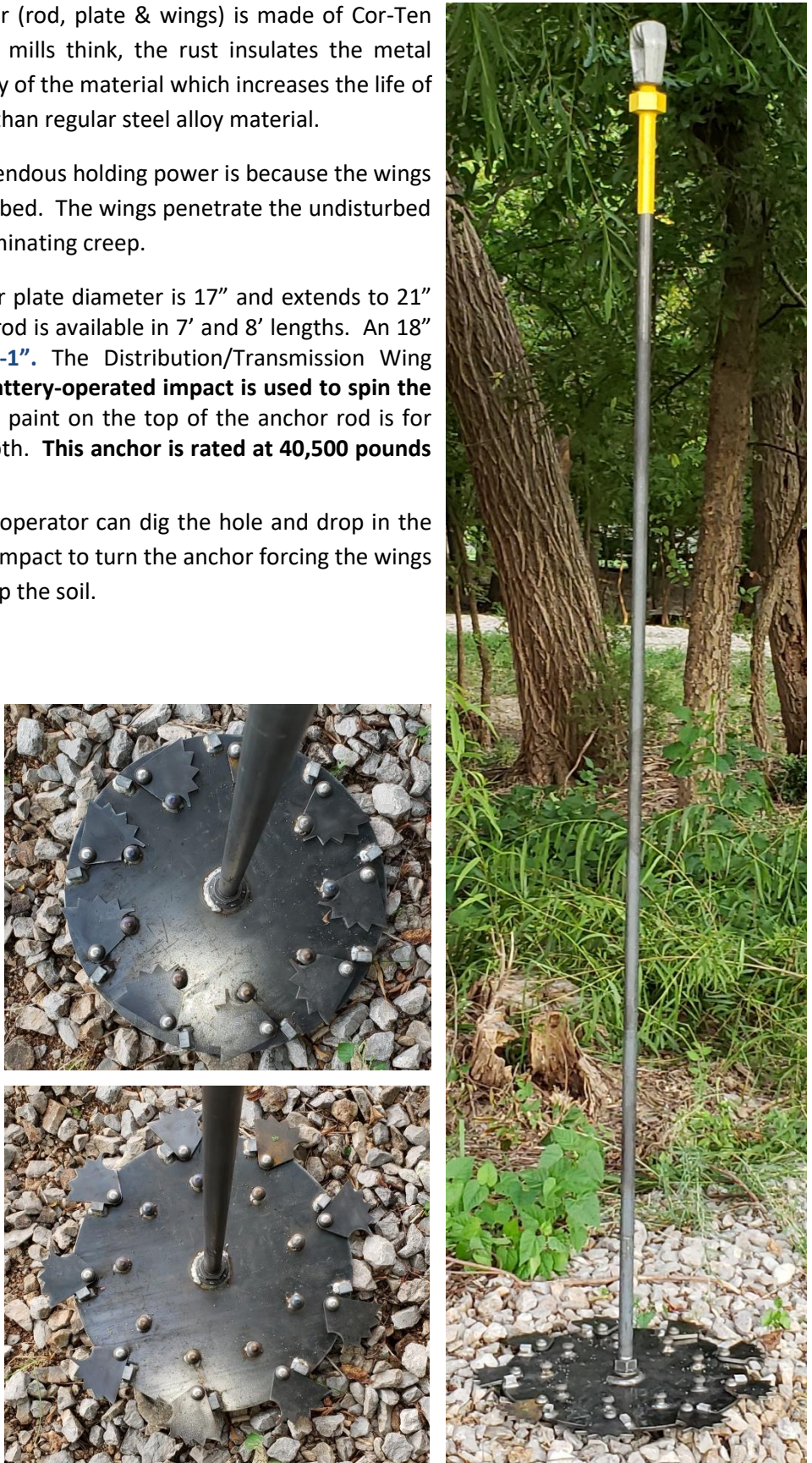
The anchor had a 7' 1" rod with the anchor plate set at a depth of 6' in Class 5 soil. The AC pulled the anchor to the machine's maximum pull at 22,000 pounds and the anchor did not creep or pull out at all.

Part Number:

Wing Anchor-T-17/21-1" indicates the following:

The plate diameter is 17" and when the wings are fully extended, the 17" anchor becomes a 21" anchor.

The rod size is 1".



ANCHOR CREEP

The most common problem with anchoring is soil type and “creep”. When tension is applied to newly installed anchors, the anchor will continue to creep because the soil has been disturbed. It takes an average of 10 years for soil to return to full compaction. Some soil types will not compact, such as caliche and loose sand.

Below are excerpts from articles discussing Anchor Creep:

LONG TERM SOIL-ANCHOR CREEP (Permanent Ground Anchors, Nicholson Design Criteria, US Dept of Transportation – dot 34955 DS1.pdf)

In time-dependent soils, large creep displacements under constant load can take place before failure load is reached. Therefore, for the design of permanent anchors, it is essential to know the load creep displacement relationship as a function of time. There is generally a relationship between displacement and time which is an exponential mathematical function, i.e., a straight line is obtained when results are plotted to a semi-log scale. The slope of this line can be considered as a creep coefficient and the slope increases with each increase in load. When the ultimate load is reached, the displacements do not decrease with time, but movement is continuous for a given constant load. This gives a definition of anchor failure (a failure to accept more load) and the basis for assessing anchor working loads.

GUY ANCHORS (https://www.w8ji.com/screw_in_guy_anchors.htm)

Guy anchors mostly get their pull-out resistance from dirt they have to displace rather than anchor weight. When anchor holes are drilled or bored all the old well-settled and compacted dirt is removed in a line towards the guy line pull direction. Backfilled dirt is never as resistant to pulling something up through it as the original dirt. Remember the load on the soil has to spread out to include undisturbed dirt. The last thing you want is a solid walled uniform diameter plug like concrete filling the hole in the direction of pull. Filling the anchor hole with rock or concrete is a major problem. If you bore a hole (such as for a bust-open anchor), don't backfill the hole with rock or concrete. This actually makes it easy to pull the plug out of the earth. Backfill with dirt and pack the dirt tight every few inches of fill.

GROUND ANCHOR CREEP IN GLACIALLY CONSOLIDATED CLAY (Hart-Crowser & Associates, Inc. Seattle, Washington)

The long term creep coefficients are generally less than the short-term creep coefficients. This indicates that the short-term tests give an adequate indication of long-term anchor performance. Continued monitoring is necessary to evaluate the long-term anchor creep coefficients.

Creep [krēp]

A slow change in a characteristic with time or usage. (engineering)

A time-dependent strain of solids caused by stress. (mining engineering)

The time-dependent strain occurring when solids are subjected to an applied stress.