

# 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.



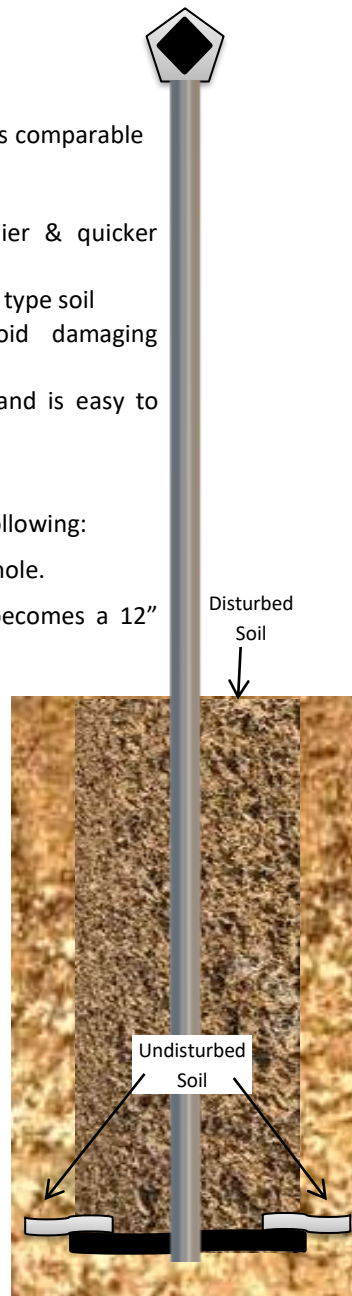
- No need to tamp the soil in the hole for easier & quicker installation
- Less time and cost to install and can be used in any type soil
- Can be used in metropolitan areas to avoid damaging underground utilities
- The anchor assembly is 2-piece (rod and plate) and is easy to store and transport

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](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.