

# Soil Classification Chart

Ground anchors are designed for different soil classifications: longer models for loose soils, shorter models for harder soils. Prior to installing any ground anchor model, the soil must be tested (with a Soil Test Probe) in order to match approved ground anchor model with site soil class.

**WARNING:** Before ground anchor installation, determine that the anchor locations around home will not be close to any underground electrical cables, water lines or sewer piping. Failure to determine the location of electrical cables may result in serious personal injury.

## Soil Test Probe

The Soil Test Probe is used to determine the soil conditions below the surface near the anchor's helix. Using the Soil Test Probe will ensure maximum anchor holding strength by indicating the proper anchor model for each soil condition.

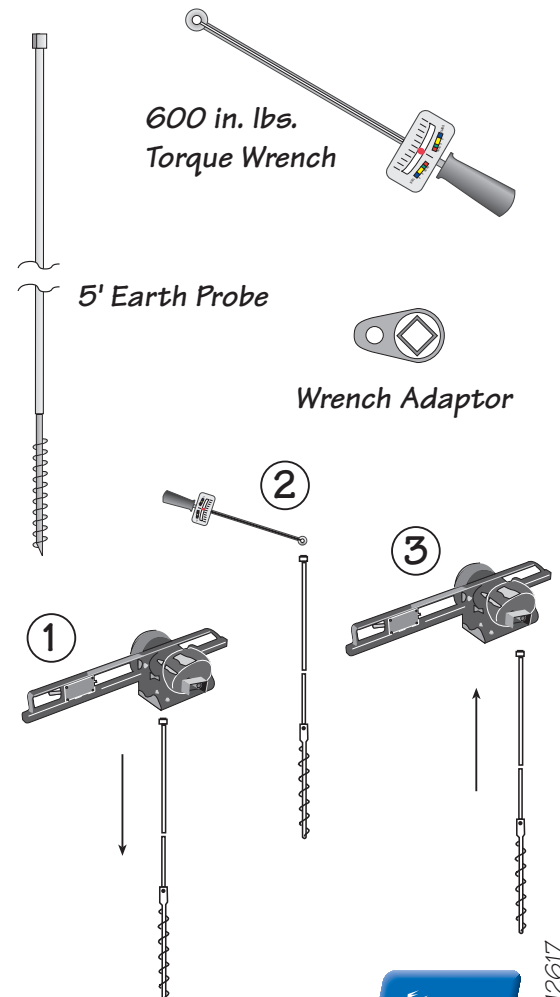
Using the chart provided, a probe reading can be converted to the recommended anchor for every soil condition.

## Instructions

- Place probe tip into ground where you intend to place the anchor. Using a 15/16" hex socket with a ratchet or breaker bar, rotate the probe in a clockwise direction. (An electric drive machine with an adaptor head may also be used)
- Drive (rotate) the torque probe into the soil until reaching a depth equal to the length of the anchor being installed.
- To determine the soil classification:
  - Place wrench adaptor onto torque wrench.
  - Insert hex portion of wrench adaptor onto the earth probe.
  - Support probe shaft with one hand, while rotating probe steadily with the wrench. (Do not exceed 600 in. lbs.)
  - Read the torque wrench while rotating probe clockwise.
  - Use the soil classification chart to cross reference probe readings. Color codes match those printed on Tie Down's torque probe.
- If probe reading does not match the anchor for that depth, rotate probe to next anchor depth and check reading. Continue until reading on probe matches anchor length for depth of reading.
- To remove probe, use wrench or electric drive machine in reverse (counter clockwise).

| Soil Class | Test Value (in. lbs.) | Soil Description                                                                            |
|------------|-----------------------|---------------------------------------------------------------------------------------------|
| <b>1</b>   | N/A                   | Sound hard rock.                                                                            |
| <b>2</b>   | 551 +                 | Very dense and/or cemented sands, coarse gravel, cobbles, preloaded silts, clays and coral. |
| <b>3</b>   | 351 to 550            | Medium dense coarse sands sandy gravels very stiff silts and clays.                         |
| <b>4a</b>  | 276 to 350            | Loose to medium dense sands, firm to stiff clays and silts, alluvial fill.                  |
| <b>4b</b>  | 175* to 275           | Loose sands, firm clays and silts, alluvial fill.                                           |

\* Below 175 in. lbs., a professional engineer should be consulted



**NOTE: Each State, County or Municipality may require a specific anchor from the groups shown for each soil classification. Check local and State regulations first.**

# Anchor Chart

| Soil Class & Test Values (in. lbs.)                                                                                                                                                                                                                        | Recommended Anchor / Stabilizers                                                   | TDE Part Number Black/Galvanized |        |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|----------------------------------|--------|
| <div style="border: 1px solid black; padding: 5px; display: inline-block; width: 30px; height: 30px; text-align: center; line-height: 30px;">1</div> <div style="margin-left: 10px;">N/A</div>                                                             | 30" Cross Drive Rock Anchor                                                        | 59110                            | 59110G |
|                                                                                                                                                                                                                                                            | 48" Cross Drive Rock Anchor                                                        | 59111                            | 59111G |
| <div style="background-color: blue; color: white; padding: 5px; display: inline-block; width: 30px; height: 30px; text-align: center; line-height: 30px;">2</div> <div style="margin-left: 5px; font-size: small;">Blue</div><br><b>551 lbs +</b>          | 30" X 5/8" rod / 2 - 4" helix                                                      | 59090                            | 59078  |
|                                                                                                                                                                                                                                                            | 30" X 3/4" rod / 2 - 4" helix                                                      | 59095                            | 59079  |
|                                                                                                                                                                                                                                                            | 60" X 3/4" rod / 2 - 4" helix                                                      | 59097                            | 59097G |
|                                                                                                                                                                                                                                                            | All anchors above should use one of the following when subjected to lateral loads: |                                  |        |
|                                                                                                                                                                                                                                                            | 12" Stabilizer Plate                                                               | 59292                            | 59292G |
| Quik-Set Stabilization Plate                                                                                                                                                                                                                               | 59291                                                                              | 59291G                           |        |
| X-Plate Anchor with 2-23/32" Rods                                                                                                                                                                                                                          | 59118                                                                              | 59119                            |        |
| <div style="background-color: yellow; padding: 5px; display: inline-block; width: 30px; height: 30px; text-align: center; line-height: 30px;">3</div> <div style="margin-left: 5px; font-size: small;">Yellow</div><br><b>351 to 550 lbs.</b>              | 48" X 5/8" rod / 1 - 6" helix                                                      | 59080                            | 59081  |
|                                                                                                                                                                                                                                                            | 48" X 3/4" rod / 1 - 6" helix                                                      | 59085                            | 59094  |
|                                                                                                                                                                                                                                                            | 36" X 3/4" rod / 1 - 6" helix & 1 - 4" helix                                       | 59250                            | 59250G |
|                                                                                                                                                                                                                                                            | All anchors above should use one of the following when subjected to lateral loads: |                                  |        |
|                                                                                                                                                                                                                                                            | 12" Stabilizer Plate                                                               | 59292                            | 59292G |
| Quik-Set Stabilization Plate                                                                                                                                                                                                                               | 59291                                                                              | 59291G                           |        |
| Deepset Anchor 30" X 3/4" rod / 2 - 4" helix                                                                                                                                                                                                               | 59091                                                                              | 59091G                           |        |
| <div style="background-color: green; color: white; padding: 5px; display: inline-block; width: 30px; height: 30px; text-align: center; line-height: 30px;">4a</div> <div style="margin-left: 5px; font-size: small;">Green</div><br><b>276 to 350 lbs.</b> | 48" X 5/8" rod / 1 - 6" helix                                                      | 59080                            | 59081  |
|                                                                                                                                                                                                                                                            | 48" X 3/4" rod / 1 - 6" helix                                                      | 59085                            | 59094  |
|                                                                                                                                                                                                                                                            | 36" X 3/4" rod / 1 - 6" helix & 1 - 4" helix                                       | 59250                            | 59250G |
|                                                                                                                                                                                                                                                            | 3/4" rod, 42" long, 2- 4" helix, Class 4A                                          | 59128                            | 59128G |
|                                                                                                                                                                                                                                                            | 3/4" rod, 48" long, 2-4" helix, Class 4A                                           | 59086                            | 59086G |
|                                                                                                                                                                                                                                                            | All anchors above should use one of the following when subjected to lateral loads: |                                  |        |
|                                                                                                                                                                                                                                                            | 12" Stabilizer Plate                                                               | 59292                            | 59292G |
|                                                                                                                                                                                                                                                            | 17 -1/2" Stabilizer Plate (Florida Only)                                           | NA                               | 59286  |
| Quik-Set Stabilization Plate                                                                                                                                                                                                                               | 59291                                                                              | 59291G                           |        |
| ABS Stabilization Plate (Florida Only)                                                                                                                                                                                                                     | 59293                                                                              | NA                               |        |
| Deepset Anchor 36" X 3/4" rod / 4" & 6" helix                                                                                                                                                                                                              | 59092                                                                              | 59092G                           |        |
| <div style="background-color: red; color: white; padding: 5px; display: inline-block; width: 30px; height: 30px; text-align: center; line-height: 30px;">4b</div> <div style="margin-left: 5px; font-size: small;">Red</div><br><b>175 to 275 lbs.</b>     | 60" X 3/4" rod / 1 - 7" helix                                                      | NA                               | 59099  |
|                                                                                                                                                                                                                                                            | All anchors above should use one of the following when subjected to lateral loads: |                                  |        |
|                                                                                                                                                                                                                                                            | 17 -1/2" Stabilizer Plate                                                          | NA                               | 59286  |
| ABS Stabilization Plate                                                                                                                                                                                                                                    | 59293                                                                              | NA                               |        |

**NOTE: Each State, County or Municipality may require a specific anchor from the groups shown for each soil classification. Check local and State regulations first.**