

DESCRIPTION

UCAN TORPEDO® BOLT is an excellent anchoring solution for medium duty applications. TORPEDO® is available in both mechanically galvanized carbon steel as well as 316 Stainless Steel. For this reason, TORPEDO® is suitable for a wide variety of applications. Matched with a standard UCAN ANSI tolerance drill bit, this fastener exhibits consistently high load values. UCAN TORPEDO® BOLT installs quickly leaving the clean appearance of a finished hex washer head on the working surface.

FEATURES

- Available in both mechanically galvanized carbon steel and 316 Stainless steel
- Grade 316 stainless UTB for high corrosion resistance applications. Also for exterior anchoring in normal environmental condition
- Use with UCAN standard ANSI compliant drill
- Fast installation and reduced edge distance requirements, compared to mechanical expansion anchors.
- One piece fastener with finished hex washer head.
- Unique thread pattern facilitates ease of installation
- Anchor can be set with an impact or manual socket wrench.
- Underhead serrations.
- Removable—Ideal for temporary anchoring applications.
- Reusable— Reusing the anchor reduces the holding power; the number of reuses depends on the anchor diameter and concrete compressive strength.
- Anchor size is stamped on head for easy identification and enhanced quality control after anchor Installation.
- ICC-ES® Listing is pending

TYPICAL APPLICATIONS

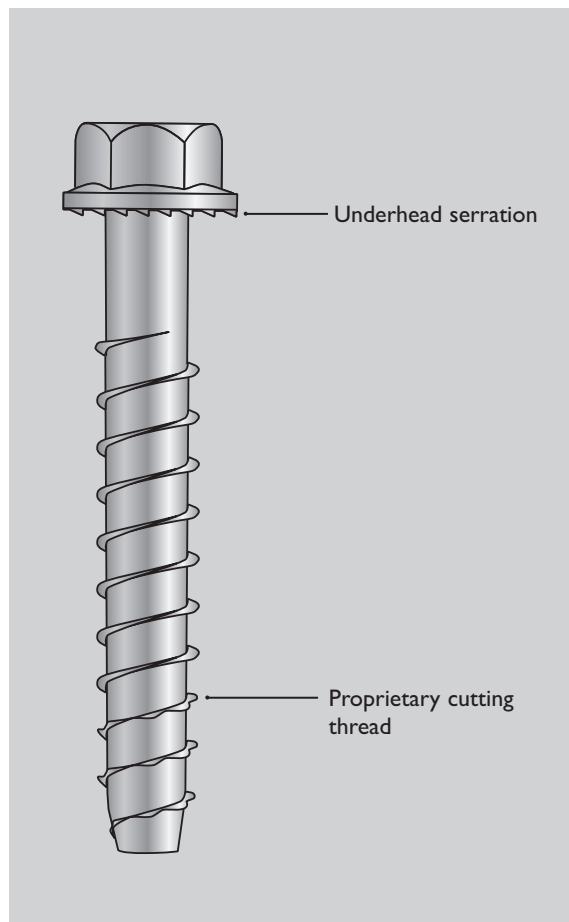
- Racking, Railing, Sill plates, Stadium seating.
- Tilt-up braces, Formwork, Anchoring equipment

LIMITATIONS

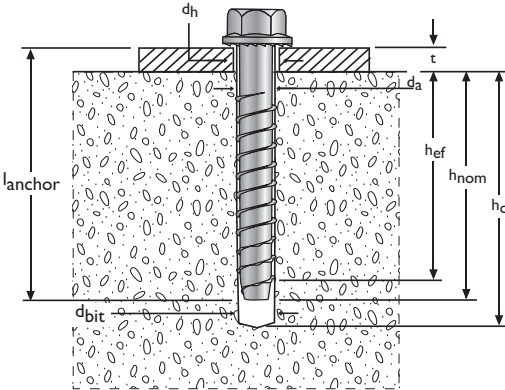
Not recommended for installation into uncured concrete (less than 7 days old). Carbon steel anchor is not recommended for permanent outdoor applications. 316 Stainless Steel TORPEDO® is suitable for outdoor applications under normal environmental conditions.

MATERIAL SPECIFICATIONS

| Properties | Carbon Steel | Stainless Steel - bimetal |
|----------------------|---|--|
| Anchor body | Heat treated carbon steel | 316 Stainless steel body with carbon steel cutting tip |
| Head style | Hex flange head with locking serrations | |
| Corrosion protection | Mechanically galvanized as per ASTM B-695, Class 65, Type I | 316 Stainless steel, passivated, with yellow zinc plating on cutting tip |



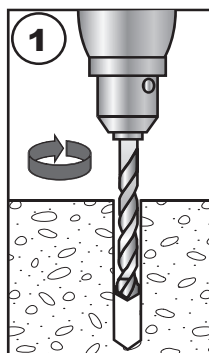
INSTALLATION DATA



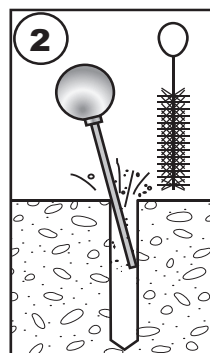
Installation Details

| Characteristic | Symbol | Unit | Nominal Anchor diameter | | | | | | | |
|-------------------------|------------|--------|-------------------------|-------|-------|--------|-------|-------|-------|-------|
| | | | 1/4 | 3/8 | 1/2 | 5/8 | 3/4 | 1 | 1 1/4 | 1 1/2 |
| Anchor diameter | d_a | in. | 1/4 | 3/8 | 1/2 | 5/8 | 3/4 | 1 | 1 1/4 | 1 1/2 |
| Drill bit diameter | d_{bit} | in. | 1/4 | 3/8 | 1/2 | 5/8 | 3/4 | 1 | 1 1/4 | 1 1/2 |
| Clearance hole diameter | d_h | in. | 3/8 | 1/2 | 5/8 | 3/4 | 7/8 | 1 | 1 1/4 | 1 1/2 |
| Installation Torque | T_{inst} | ft-lbs | 8 | 25 | 55 | 85 | 150 | | | |
| Nominal embedment | h_{nom} | in. | 1-3/4 | 2 | 3-3/4 | 2 | 3-3/4 | 2 | 3-3/4 | 3-3/4 |
| Effective embedment | h_{ef} | in. | 1-1/2 | 1-3/4 | 3-1/2 | 1-3/4 | 3-1/2 | 1-3/4 | 3-1/2 | 3-1/2 |
| Minimum hole depth | h_o | in. | 2 | 2-1/2 | 4-1/4 | 2-1/2 | 4-1/4 | 2-1/2 | 4-1/4 | 5 |
| Critical edge distance | - | in. | 2 | 3-1/2 | 5-1/2 | 3-1/2 | 5-1/2 | 3-1/2 | 5-1/2 | 5-1/2 |
| Minimum edge distance | - | in. | 1-3/4 | 1-3/4 | 1-3/4 | 1-3/4 | 1-3/4 | 1-3/4 | 1-3/4 | 1-3/4 |
| Critical anchor spacing | - | in. | 3 | 4-1/2 | 6 | 7-1/2 | 9 | | | |
| Minimum anchor spacing | - | in. | 1 | 1-1/2 | 2 | 2-1/2 | 3 | | | |
| Head height | - | in. | 1/4 | 3/8 | 31/64 | 19/32 | 45/64 | | | |
| Washer OD | - | in. | 1/2 | 3/4 | 1 | 1-5/32 | 1-3/8 | | | |
| Wrench socket size | - | in. | 7/16 | 9/16 | 3/4 | 15/16 | 1-1/8 | | | |

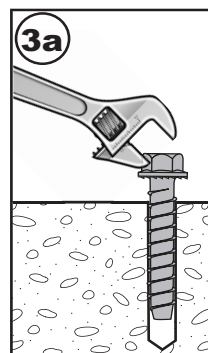
INSTALLATION INSTRUCTIONS



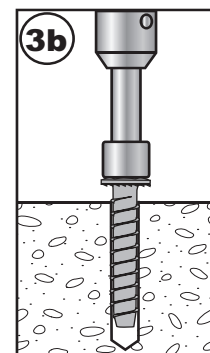
1 Drill hole to the specified diameter and depth



2 Blow out dust from the hole



3a Place anchor in drilled hole



3b Apply installation torque to set anchor

DESIGN DATA

Ultimate and Allowable Load Data

| Anchor diameter | Drill bit diameter | Nominal embedment | Units | Allowable Load Data | | | | Ultimate Load Data | | | |
|-----------------|--------------------|-------------------|-------|---------------------|-------|-------------------|-------|--------------------|-------|-------------------|-------|
| | | | | 3000 psi concrete | | 6000 psi concrete | | 3000 psi concrete | | 6000 psi concrete | |
| in. | in. | in. | | Tension | Shear | Tension | Shear | Tension | Shear | Tension | Shear |
| 1/4 | 1/4 | 1-1/2 | lbs | 181 | 430 | 256 | 670 | 725 | 1719 | 1025 | 2680 |
| | | | kN | 0.81 | 1.91 | 1.14 | 2.98 | 3.22 | 7.65 | 4.56 | 11.92 |
| 1/4 | 1/4 | 2-1/2 | lbs | 610 | 430 | 863 | 670 | 2440 | 1719 | 3450 | 2680 |
| | | | kN | 2.71 | 1.91 | 3.84 | 2.98 | 10.85 | 7.65 | 15.35 | 11.92 |
| 3/8 | 3/8 | 2 | lbs | 916 | 892 | 1295 | 1742 | 3664 | 3567 | 5182 | 6967 |
| | | | kN | 4.07 | 3.97 | 5.76 | 7.75 | 16.30 | 15.87 | 23.05 | 30.99 |
| 3/8 | 3/8 | 3-1/2 | lbs | 2080 | 2050 | 2941 | 3007 | 8319 | 8199 | 11764 | 12030 |
| | | | kN | 9.25 | 9.12 | 13.08 | 13.38 | 37.00 | 36.47 | 52.33 | 53.51 |
| 1/2 | 1/2 | 2 | lbs | 853 | 1088 | 1206 | 1686 | 3411 | 4350 | 4824 | 6744 |
| | | | kN | 3.79 | 4.84 | 5.37 | 7.50 | 15.17 | 19.35 | 21.46 | 30 |
| 1/2 | 1/2 | 3-1/2 | lbs | 2190 | 2235 | 3097 | 3068 | 8759 | 8938 | 12387 | 12272 |
| | | | kN | 9.74 | 9.94 | 13.78 | 13.65 | 38.96 | 39.76 | 55.1 | 54.59 |
| 5/8 | 5/8 | 2 | lbs | 864 | 1164 | 1221 | 1643 | 3454 | 4657 | 4885 | 6573 |
| | | | kN | 3.84 | 5.18 | 5.43 | 7.31 | 15.37 | 20.72 | 21.73 | 29.24 |
| 5/8 | 5/8 | 3-1/2 | lbs | 2324 | 2389 | 3287 | 3168 | 9296 | 9557 | 13147 | 12670 |
| | | | kN | 10.34 | 10.63 | 14.62 | 14.09 | 41.35 | 42.51 | 58.48 | 56.36 |
| 3/4 | 3/4 | 2-1/2 | lbs | 1078 | 1569 | 1525 | 2254 | 4313 | 6276 | 6099 | 9015 |
| | | | kN | 4.80 | 6.98 | 6.78 | 10.03 | 19.18 | 27.92 | 27.13 | 40.1 |
| 3/4 | 3/4 | 4 | lbs | 2632 | 3167 | 3723 | 4729 | 10530 | 12667 | 14891 | 18918 |
| | | | kN | 11.71 | 14.09 | 16.56 | 21.04 | 46.84 | 56.35 | 66.24 | 84.15 |

Note: The data presented in this table is based on independent laboratory testing at critical anchor spacing and edge distance.

PRODUCT ORDERING INFORMATION

| Part number | Head style | Anchor size | Drill bit diameter | Wrench socket size | Minimum embedment | Box qty | Casse qty |
|-------------|------------|-------------|--------------------|--------------------|-------------------|---------|-----------|
| UTB 14214 | hex | 1/4 x 2-1/4 | 1/4 | 7/16 | 1-1/4 | 100 | 800 |
| UTB 143 | hex | 1/4 x 3 | 1/4 | 7/16 | 2-1/4 | 100 | 800 |
| UTB 38134 | hex | 3/8 x 1-3/4 | 3/8 | 9/16 | 3/4 | 50 | 400 |
| UTB 38212 | hex | 3/8 x 2-1/2 | 3/8 | 9/16 | 1-1/2 | 50 | 400 |
| UTB 383 | hex | 3/8 x 3 | 3/8 | 9/16 | 2 | 50 | 400 |
| UTB 384 | hex | 3/8 x 4 | 3/8 | 9/16 | 3-1/2 | 50 | 400 |
| UTB 385 | hex | 3/8 x 5 | 3/8 | 9/16 | 3-1/2 | 25 | 75 |
| UTB 123 | hex | 1/2 x 3 | 1/2 | 3/4 | 2 | 50 | 150 |
| UTB 12212 | hex | 1/2 x 2-1/2 | 1/2 | 3/4 | 2 | 50 | 400 |
| UTB 124 | hex | 1/2 x 4 | 1/2 | 3/4 | 3-1/2 | 40 | 120 |
| UTB 125 | hex | 1/2 x 5 | 1/2 | 3/4 | 3-1/2 | 30 | 90 |
| UTB 583 | hex | 5/8 x 3 | 5/8 | 15/16 | 2 | 25 | 75 |
| UTB 584 | hex | 5/8 x 4 | 5/8 | 15/16 | 3-1/2 | 25 | 75 |
| UTB 585 | hex | 5/8 x 5 | 5/8 | 15/16 | 3-1/2 | 20 | 60 |
| UTB 586 | hex | 5/8 x 6 | 5/8 | 15/16 | 3-1/2 | 20 | 60 |
| UTB 344 | hex | 3/4 x 4 | 3/4 | 1-1/8 | 2 | 15 | 45 |
| UTB 345 | hex | 3/4 x 5 | 3/4 | 1-1/8 | 3-1/2 | 15 | 45 |
| UTB 346 | hex | 3/4 x 6 | 3/4 | 1-1/8 | 3-1/2 | 15 | 45 |
| UTB 347 | hex | 3/4 x 7 | 3/4 | 1-1/8 | 3-1/2 | 15 | 45 |

LOAD ADJUSTMENT FACTORS (ALLOWABLE STRESS DESIGN)

Anchor Spacing

| Diameter | Critical spacing | | Minimum Spacing | | Reduction Factor | |
|----------|------------------|--------|-----------------|--------|------------------|-------|
| | Tension | Shear | Tension | Shear | Tension | Shear |
| 1/4 | 3" | 3" | 1" | 1" | 0.5 | 0.7 |
| 3/8 | 4-1/2" | 4-1/2" | 1-1/2" | 1-1/2" | | |
| 1/2 | 6" | 6" | 2" | 2" | | |
| 5/8 | 7-1/2" | 7-1/2" | 2-1/2" | 2-1/2" | | |
| 3/4 | 9" | 9" | 3" | 3" | | |

Edge Distance

| Diameter | Critical Edge Distance | | Minimum Edge Distance | | Reduction Factor | |
|----------|------------------------|-------|-----------------------|--------|------------------|-------|
| | Tension | Shear | Tension | Shear | Tension | Shear |
| 1/4 | 1.5 x h _{ef} | | 0.8 x h _{ef} | 1-3/4" | 0.75 | 0.25 |
| 3/8 | | | | | | |
| 1/2 | | | | | | |
| 5/8 | | | | | | |
| 3/4 | | | | | | |

Note: Reduction factor at critical distances equals 1.0 for edge and spacing distances between critical and minimum distances, use linear interpolation. Reduction factors are cumulative.