Large Diameter Tapcon (LDT) Anchors

**Finished head, Removable Anchor**

**DESCRIPTION/SUGGESTED SPECIFICATIONS**

**Self-threading Anchors—**

**SPECIFIED FOR ANCHORAGE INTO CONCRETE**

The LDT anchor is a high performance anchor that cuts its own threads into concrete.

Anchor bodies are made of hardened carbon steel and zinc plated, **Grade 5**.

The anchors shall have a finished hex washer head with anti-rotation serrations to prevent anchor back-out. The head of the anchor is stamped with a length identification code for easy inspection.

The anchor shall be installed with carbide tipped hammer drill bits made in accordance to ANSI B212.15-1994.

**ADVANTAGES**

**SAVE TIME**

**EASILY INSTALLED**

- Installs in less than half the time of wedge anchors or adhesive anchors
- Simply drill a pilot hole and drive the LDT anchor by hand or impact

**EASILY REMOVED**

- No torching or grinding required to remove anchors

**SAVE MONEY**

**LOWER DRILL BIT COSTS**

- Use standard ANSI bits instead of proprietary bits
- Single piece design, no nut and washer to assemble

**USE STANDARD ANSI BITS**

- No special proprietary bits to purchase or lose
- Reduce chances for anchor failure due to incorrect bit usage

**Sawtooth Threads™ diameters available on 5/8” and 3/4”**

**IMPROVED PERFORMANCE IN LARGE DIAMETER HOLES**

- Superior performance to wedge anchor
- Higher loads in shallow embedments
- Closer edge/spacing distance than mechanical anchors
- More threads for better thread engagement and higher pullout resistance
- Durable induction-hardened tip

**EASY INSTALLATION**

- Easy 2-step installation, simply drill a pilot hole and drive
- Installs in less than half the time of a wedge anchor
- Efficient thread cutting
- Use standard drill bit sizes
- Single piece design—no nut and washer assembly
- Easily removed

**Patented Sawtooth™ thread design drives easily into concrete to optimize pullout performance and installation speed**

**Uses standard drill bits—no special drill bits to purchase or lose!**
LDT Anchors

APPLICATIONS
Racking, shelving and conveyors are just a few high volume applications ideal for Large Diameter Tapcon (LDT™). The ease and speed of installation of the LDT can reduce installation time to less than half the time of typical systems used today.

For installation speed, high performance and easy removability, LDT is the anchor of choice.

The LDT’s finished head and lack of exposed threads virtually eliminates tire damage on forklift trucks.

FEATURES
- Easy Installation: Installs into concrete by hand or impact wrench
- Anti-rotation Serrated Washer: Prevents anchor back-out
- Extra Large Hex Washer Head: With increased bearing surface
- Length Identification Head Stamp: For embedment inspection after installation
- Hi-Lo Threads: Cuts its own threads into concrete for greater pull-out resistance

LDT 3/8" and 1/2” are available with EnvireX coating
1,000 hours salt spray ASTM B117. Approved for use in ACQ and MCQ lumber*

*Excessive content of copper in the ACQ and MCQ lumber may affect the anchor finish.

INSTALLATION STEPS

Installation Steps for Concrete, Lightweight Concrete and Metal Deck

1. Using the proper size carbide bit (see chart) drill “a pilot hole at least 1” deeper than anchor embedment. “

2. Using an electric impact wrench, or socket wrench (hand install) insert anchor into hole and tighten anchor until fully seated. (see chart for socket size) (do not over tighten).

Installation Steps for Hollow or Grout-Filled CMU
(3/8” and 1/2” diameter)

1. Using a 5/16” (for 3/8” LDT) or 7/16” (for 1/2” LDT) carbide tipped bit, drill a pilot hole at least 1” deeper than anchor embedment. “

2. Using a socket wrench insert anchor into hole and hand tighten anchor until fully seated. (9/16” socket for 3/8” and 3/4” socket for 1/2”) (do not over tighten).

LDT’s can be installed by hand or with an impact wrench
Installation by hand—is easy, simply using a socket wrench
Installation by impact wrench—is recommended for faster installations or for high volume projects. Installation with impact wrench—is not recommended for hollow block.

Selection Chart

<table>
<thead>
<tr>
<th>LDT Size</th>
<th>ANSI Standard Drill Bit Diameter</th>
<th>Anchor Head (Socket Size) Diameter</th>
<th>Washer Diameter</th>
<th>Minimum Embedment</th>
<th>Hole Depth</th>
<th>USE IN</th>
</tr>
</thead>
<tbody>
<tr>
<td>LDT 3/8”</td>
<td>5/16”</td>
<td>9/16”</td>
<td>13/16”</td>
<td>1-1/2”</td>
<td>2-1/2”</td>
<td>YES</td>
</tr>
<tr>
<td>LDT 1/2”</td>
<td>7/16”</td>
<td>3/4”</td>
<td>1”</td>
<td>2-1/2”</td>
<td>3-1/2”</td>
<td>YES</td>
</tr>
<tr>
<td>LDT 5/8”</td>
<td>1”</td>
<td>13/16”</td>
<td>1-3/16”</td>
<td>2-3/4”</td>
<td>3-3/4”</td>
<td>YES</td>
</tr>
<tr>
<td>LDT 3/4”</td>
<td>5/8”</td>
<td>15/16”</td>
<td>1-5/16”</td>
<td>3-1/4”</td>
<td>4-1/4”</td>
<td>YES</td>
</tr>
</tbody>
</table>

See page 75 for effective lengths and length indication code.
**SELECTION CHART**

### Carbon Steel with Zinc Plating:
- Meets ASTM B695 and B633 specifications for zinc plating of 0.002" thickness. This coating is well suited for non-corrosive interior environments.

### Carbon Steel with EnvireX Coating:
- Provides additional corrosion protection for outdoor applications.

---

<table>
<thead>
<tr>
<th>LDT</th>
<th>Carbon and Stainless Steel</th>
</tr>
</thead>
</table>

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### DESIGN GUIDE

For proper selection of anchor diameters based upon predrilled holes in base plates and fixtures.

#### Carbon Steel with Zinc Plating:
- Provides additional corrosion protection for outdoor applications.

#### Carbon Steel with EnvireX Coating:
- Denotes 'c = 3000 PSI (20.7 MPa)

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### LENGTH INDICATION CODE

- **CODE**
  - A: 1-1/2 < 2
  - B: 2 < 2-1/2
  - C: 2-1/2 < 3
  - D: 3 < 3-1/2
  - E: 3-1/2 < 4
  - F: 4 < 4-1/2
  - G: 4-1/2 < 5
  - H: 5 < 5-1/2
  - J: 6 < 6-1/2

#### LENGTH INDICATION CODE

- **LENGTH OF ANCHOR**
  - In. (mm)
  - Lbs. (kN)

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### PERFORMANCE TABLE

**LDT Anchors**
- Ultimate Tension and Shear Values (Lbs/kn) in Concrete

#### ANCHOR DIA. IN. (mm) | EMBEDMENT DEPTH IN. (mm) | TENSION LBS. (kN) | SHEAR LBS. (kN) | TENSION LBS. (kN) | SHEAR LBS. (kN) | TENSION LBS. (kN) | SHEAR LBS. (kN)
---|---|---|---|---|---|---|---
3/8 (9.5) | 1-1/2 (38.1) | 1,336 (5.9) | 2,108 (9.4) | 1,652 (7.3) | 2,764 (12.3) | 1,968 (8.8) | 3,416 (15.2)
2 (50.8) | 1,492 (6.6) | 3,036 (13.5) | 2,024 (9.0) | 3,228 (14.4) | 2,552 (11.4) | 3,420 (15.2)
2-1/2 (63.5) | 3,132 (16.4) | 3,312 (14.7) | 3,748 (16.7) | 3,364 (15.0) | 3,760 (16.7) | 3,424 (15.2)
3-1/2 (88.9) | 5,396 (24.0) | 3,312 (14.7) | 6,634 (29.5) | 3,368 (15.8) | 7,852 (34.9) | 3,428 (15.2)
1/2 (12.7) | 2 (50.8) | 3,580 (15.9) | 5,644 (25.1) | 3,908 (17.4) | 6,512 (29.0) | 4,236 (18.6) | 7,380 (32.8)
3-1/2 (88.9) | 7,252 (32.3) | 4,636 (20.8) | 8,044 (35.8) | 7,288 (32.4) | 8,836 (39.3) | 8,140 (36.2)
4-1/2 (114.3) | 10,176 (42.8) | 5,464 (25.1) | 10,322 (46.0) | 7,768 (35.4) | 10,488 (46.7) | 8,552 (38.0)
5/8 (15.9) | 2-3/4 (69.9) | 5,276 (23.5) | 8,656 (38.5) | 5,650 (26.9) | 11,064 (49.2) | 7,844 (34.8) | 13,767 (60.3)
3-1/2 (88.9) | 7,972 (35.5) | 10,224 (45.5) | 9,848 (43.8) | 12,144 (52.4) | 11,724 (52.2) | 14,060 (62.5)
4-1/2 (114.3) | 11,568 (51.5) | 12,116 (54.3) | 13,432 (59.2) | 13,580 (60.4) | 16,892 (75.1) | 14,840 (66.0)
3/4 (19.1) | 3-1/4 (62.6) | 6,678 (30.6) | 7,140 (31.8) | 9,756 (43.4) | 10,728 (47.7) | 12,636 (56.2) | 14,316 (63.6)
4-1/2 (114.3) | 10,304 (45.8) | 13,120 (58.4) | 14,424 (64.2) | 16,868 (75.0) | 18,540 (82.5) | 20,612 (91.7)
5-1/2 (139.7) | 13,048 (58.0) | 17,908 (79.7) | 18,156 (80.8) | 21,718 (96.9) | 23,268 (103.5) | 25,652 (114.1)

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### PERFORMANCE TABLE

#### LDT Anchors

**Allowable Tension and Shear Values* (Lbs/kN) in Concrete Carbon and Stainless Steel**

<table>
<thead>
<tr>
<th>ANCHOR DIA. In. (mm)</th>
<th>EMBEDMENT DEPTH In. (mm)</th>
<th>TENSION Lbs. (kN)</th>
<th>SHEAR Lbs. (kN)</th>
<th>TENSION Lbs. (kN)</th>
<th>SHEAR Lbs. (kN)</th>
<th>TENSION Lbs. (kN)</th>
<th>SHEAR Lbs. (kN)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/8 (9.5)</td>
<td>1-1/2 (38.1)</td>
<td>334 (1.5)</td>
<td>527 (2.3)</td>
<td>413 (1.8)</td>
<td>691 (3.1)</td>
<td>402 (1.8)</td>
<td>854 (3.8)</td>
</tr>
<tr>
<td></td>
<td>2 (50.8)</td>
<td>373 (1.7)</td>
<td>759 (3.4)</td>
<td>506 (2.2)</td>
<td>807 (3.6)</td>
<td>638 (2.8)</td>
<td>855 (3.8)</td>
</tr>
<tr>
<td></td>
<td>2-1/2 (63.5)</td>
<td>933 (4.2)</td>
<td>828 (3.7)</td>
<td>937 (4.2)</td>
<td>841 (3.7)</td>
<td>940 (4.2)</td>
<td>856 (3.8)</td>
</tr>
<tr>
<td></td>
<td>3-1/2 (88.9)</td>
<td>1,349 (6.0)</td>
<td>828 (3.7)</td>
<td>1,656 (7.4)</td>
<td>842 (3.7)</td>
<td>1,963 (8.7)</td>
<td>857 (3.8)</td>
</tr>
<tr>
<td>1/2 (12.7)</td>
<td>2 (50.8)</td>
<td>895 (4.0)</td>
<td>1,411 (6.3)</td>
<td>977 (4.3)</td>
<td>1,628 (7.2)</td>
<td>1,059 (4.7)</td>
<td>1,845 (8.2)</td>
</tr>
<tr>
<td></td>
<td>3-1/2 (88.9)</td>
<td>1,813 (8.0)</td>
<td>1,609 (7.2)</td>
<td>2,011 (8.9)</td>
<td>1,822 (8.1)</td>
<td>2,209 (9.8)</td>
<td>2,035 (9.0)</td>
</tr>
<tr>
<td></td>
<td>4-1/2 (114.3)</td>
<td>2,544 (11.3)</td>
<td>1,846 (8.2)</td>
<td>2,583 (11.5)</td>
<td>1,992 (8.9)</td>
<td>2,622 (11.7)</td>
<td>2,138 (9.5)</td>
</tr>
<tr>
<td>5/8 (15.9)</td>
<td>2-3/4 (69.9)</td>
<td>1,319 (5.9)</td>
<td>2,164 (9.7)</td>
<td>1,640 (7.3)</td>
<td>2,766 (12.3)</td>
<td>1,961 (8.7)</td>
<td>3,369 (15.0)</td>
</tr>
<tr>
<td></td>
<td>3-1/2 (88.9)</td>
<td>1,993 (8.9)</td>
<td>2,556 (11.4)</td>
<td>2,462 (10.9)</td>
<td>3,056 (13.5)</td>
<td>2,931 (13.0)</td>
<td>3,515 (15.6)</td>
</tr>
<tr>
<td></td>
<td>4-1/2 (114.3)</td>
<td>2,892 (12.9)</td>
<td>3,079 (13.7)</td>
<td>3,358 (14.9)</td>
<td>3,395 (15.1)</td>
<td>4,223 (18.8)</td>
<td>3,710 (16.5)</td>
</tr>
<tr>
<td>3/4 (19.1)</td>
<td>3-1/4 (82.6)</td>
<td>1,719 (7.6)</td>
<td>1,785 (7.9)</td>
<td>2,439 (10.8)</td>
<td>2,682 (11.9)</td>
<td>3,159 (14.0)</td>
<td>3,579 (15.9)</td>
</tr>
<tr>
<td></td>
<td>4-1/2 (114.3)</td>
<td>2,576 (11.5)</td>
<td>3,280 (14.6)</td>
<td>3,606 (16.0)</td>
<td>4,217 (18.7)</td>
<td>4,635 (20.6)</td>
<td>5,153 (22.9)</td>
</tr>
<tr>
<td></td>
<td>5-1/2 (139.7)</td>
<td>3,262 (14.5)</td>
<td>4,477 (19.9)</td>
<td>4,539 (20.2)</td>
<td>5,445 (24.2)</td>
<td>5,817 (25.9)</td>
<td>6,413 (28.5)</td>
</tr>
</tbody>
</table>

* Allowable values are based upon a 4 to 1 safety factor. (Ultimate/4)

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**PERFORMANCE TABLE**

#### LDT Anchors

**Recommended Edge & Spacing Requirements for Tension Loads* Carbon and Stainless Steel**

<table>
<thead>
<tr>
<th>ANCHOR DIA. In. (mm)</th>
<th>EMBEDMENT DEPTH In. (mm)</th>
<th>TENSION FACTOR APPLIED SPACING DISTANCE</th>
<th>LOAD FACTOR APPLIED SPACING DISTANCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/8 (9.5)</td>
<td>1-1/2 (38.1)</td>
<td>70%</td>
<td>1-3/4 Inches (44mm)</td>
</tr>
<tr>
<td></td>
<td>2 (50.8)</td>
<td>70%</td>
<td>6 (152.4)</td>
</tr>
<tr>
<td></td>
<td>2-1/2 (63.5)</td>
<td>70%</td>
<td>6 (152.4)</td>
</tr>
<tr>
<td></td>
<td>3-1/2 (88.9)</td>
<td>70%</td>
<td>6 (152.4)</td>
</tr>
<tr>
<td>1/2 (12.7)</td>
<td>2 (50.8)</td>
<td>70%</td>
<td>203.2</td>
</tr>
<tr>
<td></td>
<td>3-1/2 (88.9)</td>
<td>70%</td>
<td>203.2</td>
</tr>
<tr>
<td></td>
<td>4-1/2 (114.3)</td>
<td>70%</td>
<td>203.2</td>
</tr>
</tbody>
</table>

* Edge and spacing distances shall be divided by .75 when anchors are placed in structural lightweight concrete. Linear interpolation may be used for intermediate spacing and edge distances.

---

**PERFORMANCE TABLE**

#### LDT Anchors

**Recommended Edge & Spacing Requirements for Shear Loads* Carbon and Stainless Steel**

<table>
<thead>
<tr>
<th>ANCHOR DIA. In. (mm)</th>
<th>EMBEDMENT DEPTH In. (mm)</th>
<th>TENSION FACTOR APPLIED SPACING DISTANCE</th>
<th>LOAD FACTOR APPLIED SPACING DISTANCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/8 (9.5)</td>
<td>1-1/2 (38.1)</td>
<td>25%</td>
<td>1-3/4 Inches (44mm)</td>
</tr>
<tr>
<td></td>
<td>2 (50.8)</td>
<td>25%</td>
<td>6 (152.4)</td>
</tr>
<tr>
<td></td>
<td>2-1/2 (63.5)</td>
<td>25%</td>
<td>6 (152.4)</td>
</tr>
<tr>
<td></td>
<td>3-1/2 (88.9)</td>
<td>25%</td>
<td>6 (152.4)</td>
</tr>
<tr>
<td>1/2 (12.7)</td>
<td>2 (50.8)</td>
<td>25%</td>
<td>203.2</td>
</tr>
<tr>
<td></td>
<td>3-1/2 (88.9)</td>
<td>25%</td>
<td>203.2</td>
</tr>
<tr>
<td></td>
<td>4-1/2 (114.3)</td>
<td>25%</td>
<td>203.2</td>
</tr>
</tbody>
</table>

* Edge and spacing distances shall be divided by .75 when anchors are placed in structural lightweight concrete. Linear interpolation may be used for intermediate spacing and edge distances.
**PERFORMANCE TABLES**

**LDT Anchors**

**Ultimate Tension Load (Lbs/kN) in Concrete Block**
(anchors should be installed by hand in hollow block)

<table>
<thead>
<tr>
<th>ANCHOR DIA.</th>
<th>HOLLOW CONCRETE BLOCK</th>
<th>GROUT FILLED CONCRETE BLOCK</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>TENSION Lbs. (kN)</td>
<td>SHEAR Lbs. (kN)</td>
</tr>
<tr>
<td>3/8 (9.5)</td>
<td>1-1/2 (38.1)</td>
<td>916 (4.1)</td>
</tr>
<tr>
<td>1/2 (12.7)</td>
<td>2-1/2 (63.5)</td>
<td>N/A</td>
</tr>
</tbody>
</table>

**LDT Anchors**

**Allowable Tension and Shear* (Lbs/kN) in Concrete Block**
(anchors should be installed by hand in hollow block)

<table>
<thead>
<tr>
<th>ANCHOR DIA.</th>
<th>HOLLOW CONCRETE BLOCK</th>
<th>GROUT FILLED CONCRETE BLOCK</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>TENSION Lbs. (kN)</td>
<td>SHEAR Lbs. (kN)</td>
</tr>
<tr>
<td>3/8 (9.5)</td>
<td>1-1/2 (38.1)</td>
<td>229 (1.0)</td>
</tr>
<tr>
<td>1/2 (12.7)</td>
<td>2-1/2 (63.5)</td>
<td>N/A</td>
</tr>
</tbody>
</table>

* Allowable values are based upon a 4 to 1 safety factor. (Ultimate/4)

---

**LDT Anchors**

**Anchoring Overhead in 3000 PSI Lightweight Concrete On Metal Deck**

<table>
<thead>
<tr>
<th>ANCHOR</th>
<th>DRILL HOLE DIAMETER</th>
<th>EMBEDMENT DEPTH</th>
<th>ULTIMATE TENSION LOAD</th>
<th>ALLOWABLE WORKING LOAD</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>5/16 (7.9)</td>
<td>1-1/2 (38.1)</td>
<td>2,889 (12.9)</td>
<td>722 (3.2)</td>
</tr>
<tr>
<td>3/8” LDT</td>
<td>5/16 (7.9)</td>
<td>1-1/2 (38.1)</td>
<td>1,862 (8.3)</td>
<td>465 (2.1)</td>
</tr>
</tbody>
</table>

---

For use in concrete and concrete block:

- **1/2” LDT**
  - Installs in cuttime
  - Easily removed
  - Finished head

- **1/2” adhesive**
  - Permanent application
  - Exposed threads

- **5/8” wedge**
  - Difficult to remove

**Drill Bit Size Required**

LDT anchors specify a smaller & less expensive drill bit than those required with the 1/2” adhesive threaded rod or the 5/8” wedge.

**Hole Depth Required**

At 4-1/2” embedment the LDT anchor will give you performance (2000 PSI concrete) similar to 1/2” adhesive anchor of the same depth or 5/8” wedge anchors at 7” deep. (2000 PSI concrete)