



REQUEST FOR APPROVAL

TO: _____

NAME: _____ TITLE: _____

COMPANY: _____ PHONE: _____

FAX: _____ E-MAIL: _____

ADDRESS: _____

FASTENER SUBSTITUTION	FASTENER RECOMMENDATION	ALTERNATIVE FASTENER
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Please review the attached technical data and approve the
(Part No. _____) for the following application(S) below:

PROJECT:	NAME: _____
ADDRESS: _____	SPECIFIED FASTENER: _____
FASTENING APPLICATION: _____	LOCATION: _____ DWG NO.: _____
SPECIFICATION REF: _____	SECTION: _____ PAGE: _____ PARAGRAPH: _____

SUBMITTED BY:
NAME: _____
COMPANY: _____
ADDRESS: _____
PHONE: _____
FAX: _____
E-MAIL: _____
DATE: _____

FOR USE BY THE ENGINEER OR/AND ARCHITECT
APPROVED
APPROVED AS NOTED
ADDITIONAL INFORMATION REQUIRED
REJECTED, REASON FOR REJECTION:
<div style="background-color: #cccccc; width: 100%; height: 20px;"></div>
BY: _____
DATE: _____

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

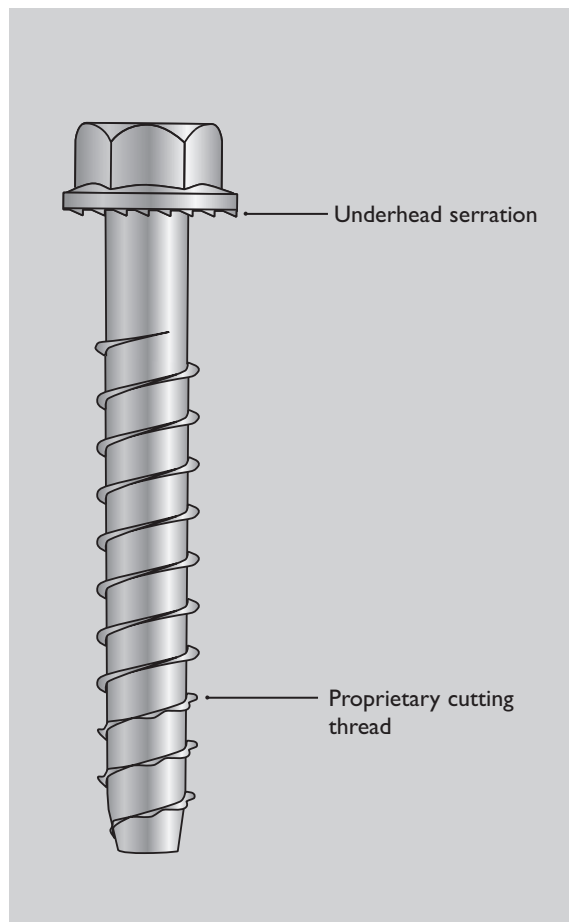
- Racking, Railing, Sill plates, Stadium seating.
- Tilt-up braces, Formwork, Anchoring equipment

LIMITATIONS

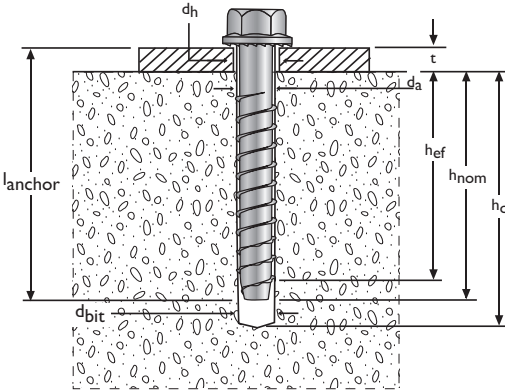
Not recommended for installation into uncured concrete (less than 7 days old). Carbon steel anchor is not recommended for permanent outdoor applications. 316 Stainless Steel TORPEDO® is suitable for outdoor applications under normal environmental conditions.

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



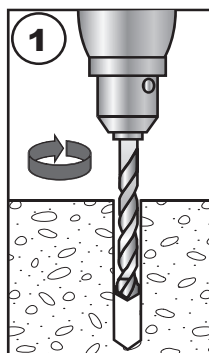
INSTALLATION DATA



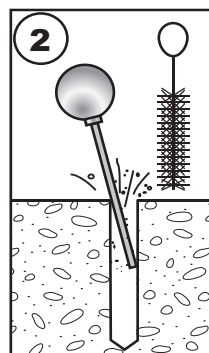
Installation Details

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			

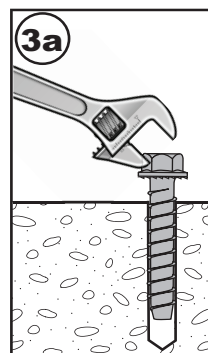
INSTALLATION INSTRUCTIONS



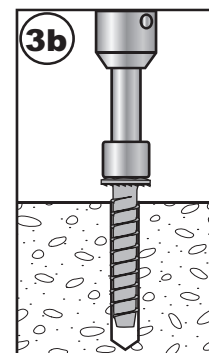
1 Drill hole to the specified diameter and depth



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.