

Product Submittal/Substitution Request

TO: _____

PROJECT: _____

PROJECT LOCATION: _____

SPECIFIED ITEM: _____

Section

Page

Paragraph

Description

PRODUCT SUBMIT TAL / SUBSTITUTION REQUESTED:

The attached submittal package includes the product description, specifications, drawings, and performance data for use in the evaluation of the request.

SUBMITTED BY:

Name: _____

Signature: _____

Company: _____

Address: _____

Date: _____

Telephone: _____

Fax: _____

FOR USE BY THE ARCHITECT AND/OR ENGINEER☐ **Approved**☐ **Approved as Noted**☐ **Not Approved**

(If not approved, please briefly explain why the product was not accepted.)

By: _____

Date: _____

Remarks: _____

DEWALT® UltraCon®+ Submittal Section:**Product Pages:**

- General Information
- Installation Instructions
- Design Tables
- Ordering Information



Offline version available for download at www.dewaltdesignassist.com.

DEWALT developed the DEWALT Design Assist (DDA) anchor software to enable users to input technical data into a dynamic model environment-to visualize, consider, and specify anchors in today's changing engineering climate.

For a demonstration of the latest version of PDA, contact us at anchors@DEWALT.com

GENERAL INFORMATION

ULTRACON® +

Concrete Screw Anchor

PRODUCT DESCRIPTION

The UltraCon+ fastening system is a complete family of screw anchors for light to medium duty applications in concrete, masonry block, brick, and wood base materials. The UltraCon+ is fast and easy to install and provides a neat, finished appearance. The UltraCon+ screw anchor is engineered with matched tolerance drill bits and installation tools designed to meet the needs of the user and also provide optimum performance. The UltraCon+ features a gimlet point for self-drilling into wood base materials without pre-drilling.

The UltraCon+ screw anchor is available in carbon steel with a Stalgard coating in several colors. Head styles include a slotted hex washer head, Phillips flat head, Phillips Trimfit flat head and Hex flange head.

GENERAL APPLICATIONS AND USES

- Window and door frames
- Shutters and guards
- Lighting fixtures
- Thresholds
- Joint flashing
- Screened enclosures

FEATURES AND BENEFITS

- + Available in several head styles
- + Several colors and finishes to match application
- + Removable (reusable in wood)
- + Gimlet point for self drilling into wood
- + Does not exert expansion forces
- + No hole spotting required
- + Good corrosion protection with Stalgard coating
- + High-low thread design for greater stability and grip

APPROVALS AND LISTINGS

- International Code Council, Evaluation Service (ICC-ES), ESR-3068 for uncracked concrete, ESR-3196 for masonry, ESR-3042 for wood, and ESR-3213 for chemically treated lumber
- Code compliant with the International Building Code/International Residential Code: 2021 IBC/IRC, 2018 IBC/IRC, 2015 IBC/IRC, and 2012 IBC/IRC
- Tested in accordance with ACI 308.4R-08 and ICC-ES AC108 for use in concrete, ICC-ES AC106 for use in masonry, ICC-ES AC233 for use in wood, and ICC-ES AC257 for use in pressure treated lumber
- Evaluated and qualified by an accredited independent testing laboratory for reliability against brittle failure, e.g. hydrogen embrittlement
- City of Los Angeles, LABC and LARC Supplement (within ICC-ES evaluation reports)
- Miami-Dade County Notice of Acceptance (NOA) No. 21-0113.01
- Florida Statewide Approval FL29080

GUIDE SPECIFICATIONS

CSI Divisions: 03 16 00 - Concrete Anchors, 04 05 19.16 - Masonry Anchors, 05 05 19 - Post-Installed Concrete Anchors and 06 05 23 - Wood, Plastic, and Composite Fastenings. Concrete Screw Anchors shall be UltraCon+ anchors as supplied by DEWALT, Towson, MD.

MATERIAL SPECIFICATIONS

Anchor Component	Specification
Anchor Body	Case hardened carbon steel
Coating/Plating/Finish	Stalgard® (various colors) 1000 hour rating for ASTM B117 salt spray test

SECTION CONTENTS

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ULTRACON+

HEAD STYLES

- Slotted Hex Washer Head
- Hex Flange Head
- Flat Head
- TrimFit® Flat Head

ANCHOR MATERIALS

- Carbon Steel with Stalgard Coating

ANCHOR SIZE RANGE (TYP.)

- 3/16" and 1/4" diameters in various lengths

SUITABLE BASE MATERIALS

- Normal-weight Concrete
- Lightweight Concrete
- Grouted Concrete Masonry
- Hollow Concrete Masonry (CMU)
- Solid Brick Masonry
- Wood

CODE LISTED
 ICC-ES ESR-3068
 UNCRACKED CONCRETE

CODE LISTED
 ICC-ES ESR-3196
 MASONRY

CODE LISTED
 ICC-ES ESR-3042
 WOOD-TO-WOOD

CODE LISTED
 ICC-ES ESR-3213
 CHEMICALLY TREATED LUMBER

 MIAMI-DADE COUNTY
 APPROVED

DDA
 DEWALT DESIGN ASSIST

INSTALLATION SPECIFICATIONS

UltraCon+ Carbon Steel Hex Head

Dimension	Nominal Anchor Diameter, d	
	3/16"	1/4"
UltraCon+ Drill Bit Size, d_{bit} (in.)	5/32"	3/16"
Typ. Fixture Clearance Hole, d_h (in.)	1/4"	5/16"
Head Height (in.)	7/64"	9/64"
Hex Head Wrench/Socket Size	1/4"	5/16"
Washer O.D., d_w (in.)	11/32"	13/32"
Washer Thickness, (in.)	1/32"	1/32"

UltraCon+ Carbon Steel TrimFit Flat Head

Dimension	Nominal Anchor Diameter, d	
	1/4"	
UltraCon+ Drill Bit Size, d_{bit} (in.)	3/16"	
Typ. Fixture Clearance Hole, d_h (in.)	3/8"	
Phillips TrimFit Head O.D. (in.)	13/32"	
Phillips TrimFit Head Height (in.)	3/16"	
Bit Tip Size	Phillips (No.)	T-25
	Star	T-25

UltraCon+ Carbon Steel Flat Head

Dimension	Nominal Anchor Diameter, d	
	3/16"	1/4"
UltraCon+ Drill Bit Size, d_{bit} (in.)	5/32"	3/16"
Typ. Fixture Clearance Hole, d_h (in.)	1/4"	5/16"
Phillips Head O.D., (in.)	3/8"	1/2"
Phillips Head Height, (in.)	9/64"	3/16"
Bit Tip Size	Phillips (No.)	2
	Star	T-25

UltraCon+ Carbon Steel Hex Flange Head

Dimension	Nominal Anchor Diameter, d	
	1/4"	
UltraCon+ Drill Bit Size, d_{bit} (in.)	3/16"	
Typ. Fixture Clearance Hole, d_h (in.)	5/16"	
Head Height Including Flange, (in.)	15/64"	
Hex Head Wrench/Socket Size, (in.)	5/16"	
Washer O.D., (in.)	39/64"	

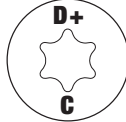
- For minimum nominal embedment depths, h_{nom} , see the performance data tables. The minimum hole depth, h_o , is 1/4-inch more than the selected nominal embedment depth.
- In light gauge steel material (0.036 / 20 gauge and thinner), the clearance hole can be the same diameter as the drill bit.
- Pre-drilling is not required for UltraCon+ screw anchors into wood base materials (but can be considered).

Head Marking

Hex Washer Head



Flat Head



TrimFit Flat Head



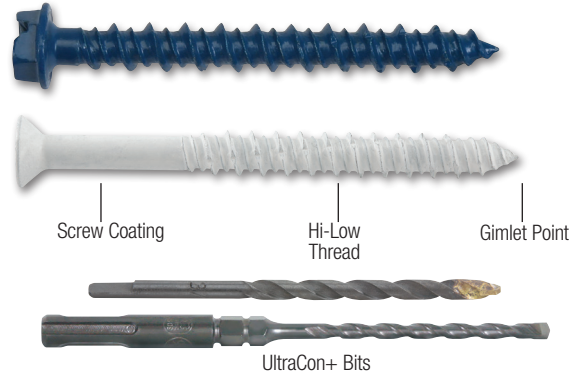
Hex Flange Head



Legend

- 'D' Marking = UltraCon+
- '+' Symbol = Strength Design Compliant Anchor
- 'C' Mark = Length Identification Mark
- '•' Mark = TrimFit Flat Head Identification

Matched Tolerance System



UltraCon+ Length Code Identification System

Length ID marking on head		□	A	B	C	D	E	F	G	H	I	J
Overall anchor length L_{anchor} (inches)	From	1"	1-1/2"	2"	2-1/2"	3"	3-1/2"	4"	4-1/2"	5"	5-1/2"	6"
	Up to but not including	1-1/2"	2"	2-1/2"	3"	3-1/2"	4"	4-1/2"	5"	5-1/2"	6"	6-1/2"

Installation Table for UltraCon+ in Concrete and Masonry^{1,2}

Anchor Property/Setting Information	Notation	Units	Nominal Anchor Size (in.)	
			3/16	1/4
Nominal anchor shank diameter	d_a	in.	0.145	0.185
Nominal drill bit diameter	d_{bit}	in.	5/32 UltraCon+ Bit	3/16 UltraCon+ Bit
UltraCon+ bit tolerance range	-	in.	0.170 to 0.176	0.202 to 0.206
Hex head socket size	-	in.	1/4	5/16
Phillips bit size (No.)	-	-	2	3
Star bit size	-	-	T-25	T-25
Maximum manual installation torque	$T_{inst,max}$	ft-lbs	3	5
Maximum powered installation torque	T_{screw}	ft-lbs	Not applicable using UltraCon+ installation socket tool	

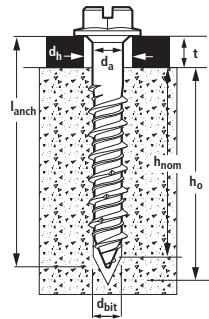
1. For minimum nominal embedment depths, h_{nom} , see the performance data tables. The minimum hole depth, h_o , is 1/4-inch more than the selected nominal embedment depth.

2. See Strength Design Information for installation specifications in strict accordance with ICC-ES ESR-3068.

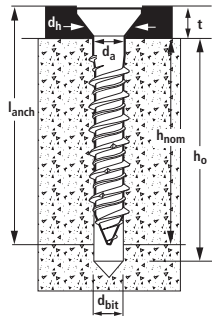
Installation Table for UltraCon+ in Wood

Anchor Property/Setting Information	Notation	Units	Nominal Anchor Size (in.)	
			3/16	1/4
Nominal anchor shank diameter	d_a	in.	0.145	0.185
Nominal drill bit diameter	d_{bit}	in.	Pre-drilling is not required for UltraCon+ into wood base materials (but can be considered)	
Hex head socket size	-	in.	1/4	5/16
Phillips bit size (No.)	-	-	2	3
Star bit size	-	-	T-25	T-25

UltraCon+ Anchor Detail



Hex Head



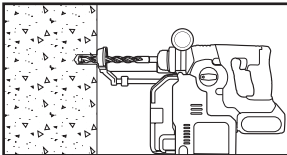
Flat Head

Nomenclature

- d_a = Diameter of anchor shank
- d_{bit} = Diameter of drill bit
- d_{ht} = Diameter of fixture clearance hole
- h_{nom} = Minimum embedment depth
- h = Base material thickness
the minimum value of h should be $1.5h_{nom}$ or 3" whichever is greater
- h_o = Minimum hole depth

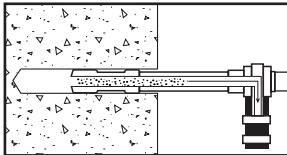
INSTALLATION INSTRUCTIONS

Installation Instruction for UltraCon+



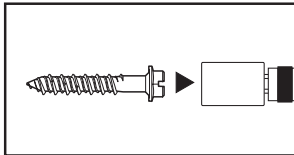
Step 1

Using the proper drill bit size, drill a hole into the base material to the required depth, h_o , which is a 1/4-inch deeper than the minimum embedment depth, h_{nom} .



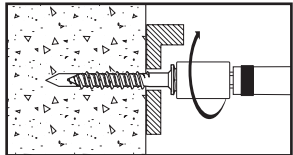
Step 2

Remove dust and debris from the hole during drilling (e.g. dust extractor) or following drilling (e.g. suction, forced air) to extract loose particles created by drilling.



Step 3

Attach a UltraCon+ installation socket tool for the selected anchor size to a percussion drill and set the drill to rotary only mode. Mount the screw anchor head into the socket. For flat head versions a bit tip must be used with the socket tool.



Step 4

Place the point of the UltraCon+ through the fixture into the pre-drilled hole and drive the anchor in one steady continuous motion until it is fully seated at the proper embedment. The driver will automatically disengage from the head of the screw anchor.

PERFORMANCE DATA (ASD)
Ultimate and Allowable Load Capacities for UltraCon+ in Normal-Weight Concrete^{1,2,3,4}


Nominal Anchor Diameter d in.	Minimum Embed. Depth h _{nom} in. (mm)	Minimum Edge Distance in. (mm)	Minimum Spacing in. (mm)	Minimum Concrete Compressive Strength											
				f' _c = 2,500 psi (17.3 Mpa)				f' _c = 3,000 psi (20.7 Mpa)				f' _c = 4,000 psi (27.6 Mpa)			
				Ultimate		Allowable		Ultimate		Allowable		Ultimate		Allowable	
				Tension lbs. (kN)	Shear lbs. (kN)	Tension lbs. (kN)	Shear lbs. (kN)	Tension lbs. (kN)	Shear lbs. (kN)	Tension lbs. (kN)	Shear lbs. (kN)	Tension lbs. (kN)	Shear lbs. (kN)	Tension lbs. (kN)	Shear lbs. (kN)
3/16	1-3/4 (44)	1 (25)	1 (25)	1,080 (4.8)	305 (1.3)	270 (1.2)	75 (0.3)	1,145 (5.0)	325 (1.4)	285 (1.3)	80 (0.4)	1,245 (5.5)	325 (1.4)	310 (1.4)	80 (0.4)
	1-3/4 (44)		1-1/8 (29)	1,190 (5.2)	305 (1.3)	295 (1.3)	75 (0.3)	1,255 (5.5)	325 (1.4)	315 (1.4)	80 (0.4)	1,370 (6.0)	325 (1.4)	340 (1.5)	80 (0.4)
	1-3/4 (44)		2-1/4 (57)	1,365 (6.0)	600 (2.6)	340 (1.5)	150 (0.7)	1,440 (6.3)	635 (2.8)	360 (1.6)	160 (0.7)	1,570 (6.9)	635 (2.8)	395 (1.7)	160 (0.7)
	1 (25)		3 (76)	580 (2.6)	435 (1.9)	145 (0.7)	110 (0.5)	615 (2.7)	460 (2.0)	155 (0.7)	115 (0.5)	670 (2.9)	460 (2.0)	170 (0.7)	115 (0.5)
	1-3/8 (35)			815 (3.6)	455 (2.0)	205 (0.9)	115 (0.5)	860 (3.8)	485 (2.1)	215 (1.0)	120 (0.5)	940 (4.1)	485 (2.1)	235 (1.0)	120 (0.5)
	1-3/4 (44)		3-3/8 (86)	1,365 (6.0)	600 (2.6)	340 (1.5)	150 (0.7)	1,440 (6.3)	635 (2.8)	360 (1.6)	160 (0.7)	1,570 (6.9)	635 (2.8)	395 (1.7)	160 (0.7)
	1-3/4 (44)	2-1/2 (64)	1-1/8 (29)	1,465 (6.4)	1,200 (5.3)	365 (1.6)	300 (1.3)	1,550 (6.8)	1,265 (5.6)	390 (1.7)	315 (1.4)	1,690 (7.4)	1,265 (5.6)	425 (1.9)	315 (1.4)
	1-3/4 (44)		2-1/4 (57)	1,465 (6.4)	1,200 (5.3)	365 (1.6)	300 (1.3)	1,550 (6.8)	1,265 (5.6)	390 (1.7)	315 (1.4)	1,690 (7.4)	1,265 (5.6)	425 (1.9)	315 (1.4)
	1 (25)		3 (76)	580 (2.6)	640 (2.8)	145 (0.7)	160 (0.7)	615 (2.7)	680 (3.0)	155 (0.7)	170 (0.8)	670 (2.9)	680 (3.0)	170 (0.7)	170 (0.8)
	1-3/8 (35)			1,220 (5.4)	735 (3.2)	305 (1.4)	185 (0.8)	1,290 (5.7)	775 (3.4)	325 (1.4)	195 (0.9)	1,405 (6.2)	775 (3.4)	350 (1.6)	195 (0.9)
	1-3/4 (44)		3-3/8 (86)	1,465 (6.4)	1,200 (5.3)	365 (1.6)	300 (1.3)	1,550 (6.8)	1,265 (5.6)	390 (1.7)	315 (1.4)	1,690 (7.4)	1,265 (5.6)	425 (1.9)	315 (1.4)
1/4	1-3/4 (44)	1 (25)	1 (25)	1,265 (5.6)	340 (1.5)	315 (1.4)	85 (0.4)	1,360 (6.0)	370 (1.6)	340 (1.5)	95 (0.4)	1,525 (6.7)	370 (1.6)	380 (1.7)	95 (0.4)
	1-3/4 (44)		1-1/2 (38)	1,265 (5.6)	385 (1.7)	315 (1.4)	95 (0.4)	1,325 (5.8)	415 (1.8)	340 (1.5)	105 (0.5)	1,525 (6.7)	415 (1.8)	380 (1.7)	105 (0.5)
	1-3/4 (44)		3 (76)	1,720 (7.6)	420 (1.8)	430 (1.9)	105 (0.5)	1,850 (8.1)	450 (2.0)	465 (2.0)	115 (0.5)	2,075 (9.1)	450 (2.0)	520 (2.3)	115 (0.5)
	1 (25)		4 (102)	770 (3.4)	495 (2.2)	195 (0.9)	125 (0.6)	830 (3.7)	530 (2.3)	210 (0.9)	135 (0.6)	930 (4.1)	530 (2.3)	235 (1.0)	135 (0.6)
	1-3/8 (35)			1,105 (4.9)	640 (2.8)	275 (1.2)	160 (0.7)	1,190 (5.2)	690 (3.0)	300 (1.3)	175 (0.8)	1,335 (5.9)	690 (3.0)	335 (1.5)	175 (0.8)
	1-3/4 (44)			1,975 (8.7)	645 (2.8)	495 (2.2)	160 (0.7)	2,120 (9.3)	690 (3.0)	530 (2.3)	175 (0.8)	2,380 (10.5)	690 (3.0)	595 (2.6)	175 (0.8)
	1-3/4 (44)	2-1/2 (64)	1-1/2 (38)	2,200 (9.7)	1,590 (7.0)	550 (2.4)	400 (1.8)	2,365 (10.4)	1,710 (7.5)	590 (2.6)	430 (1.9)	2,650 (11.7)	1,710 (7.5)	665 (2.9)	430 (1.9)
	1-3/4 (44)		3 (76)	2,200 (9.7)	1,635 (7.2)	550 (2.4)	410 (1.8)	2,365 (10.4)	1,755 (7.7)	590 (2.6)	440 (1.9)	2,650 (11.7)	1,755 (7.7)	665 (2.9)	440 (1.9)
	1 (25)		4 (102)	805 (3.5)	1,260 (5.6)	200 (0.9)	315 (1.4)	865 (3.8)	1,355 (6.0)	215 (1.0)	340 (1.5)	970 (4.3)	1,355 (6.0)	245 (1.1)	340 (1.5)
	1-3/8 (35)			1,755 (7.7)	1,635 (7.2)	440 (1.9)	410 (1.8)	1,885 (8.3)	1,755 (7.7)	470 (2.1)	440 (1.9)	2,115 (9.3)	1,755 (7.7)	530 (2.3)	440 (1.9)
	1-3/4 (45)			2,290 (10.1)	1,635 (7.2)	570 (2.5)	410 (1.8)	2,460 (10.8)	1,755 (7.7)	615 (2.7)	440 (1.9)	2,650 (11.7)	1,755 (7.7)	665 (2.9)	440 (1.9)

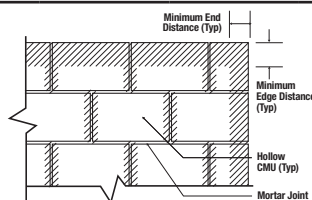
1. Tabulated Ultimate load values are for anchors installed in uncracked concrete. Concrete compressive strength must be at the specified minimum at the time of installation.
2. Allowable load capacities listed are calculated using an applied safety factor of 4.0. Consideration of safety factors of 10 or higher may be necessary depending on the application, such as life safety or overhead.
3. Linear interpolation may be used to determine allowable loads for intermediate compressive strengths.
4. For lightweight concrete multiply tabulated allowable load values by a reduction factor of 0.60.

Ultimate and Allowable Load Capacities for UltraCon+ Anchors

Installed in the Face of Hollow Concrete Masonry^{1,2,3,4}

Nominal Anchor Diameter d in.	Minimum Embed. Depth h _{nom} in. (mm)	Minimum Edge Distance in. (mm)	Minimum End Distance in. (mm)	Minimum Spacing in. (mm)	Minimum ASTM C90 Block Type	Ultimate Load		Allowable Load	
						Tension lbs. (kN)	Shear lbs. (kN)	Tension lbs. (kN)	Shear lbs. (kN)
3/16	1-1/4 (32)"	1 (25)	2 (51)	1-1/2 (38)	Normal Weight	725 (3.2)	405 (1.8)	145 (0.6)	80 (0.4)
	1-1/4 (32)			3 (76)	Normal Weight	750 (3.3)	585 (2.6)	150 (0.7)	115 (0.5)
	1 (25)	2 (51)	2 (51)	1-1/2 (38)	Lightweight	300 (1.3)	460 (2.1)	55 (0.3)	90 (0.4)
	1 (25)			3 (76)	Lightweight	340 (1.5)	460 (2.1)	65 (0.3)	90 (0.4)
	1-1/4 (32)			1-1/2 (38)	Normal Weight	740 (3.3)	700 (3.1)	150 (0.7)	140 (0.6)
	1-1/4 (32)	2-1/2 (64)	2-1/2 (64)	1-1/8 (29)	Normal Weight	775 (3.4)	935 (4.1)	155 (0.7)	185 (0.8)
	1-1/4 (32)			2-1/4 (57)	Normal Weight	775 (3.4)	935 (4.1)	155 (0.7)	185 (0.8)
	1 (25)	3 (76)	3 (76)	1-1/2 (38)	Lightweight	385 (1.8)	670 (3.0)	80 (0.4)	135 (0.6)
	1 (25)	3 (76)	3 (76)	3 (76)	Lightweight	440 (2.0)	670 (3.0)	90 (0.4)	135 (0.6)
1/4	1-1/4 (32)	1 (25)	2 (51)	1-1/2 (38)	Normal Weight	775 (3.4)	475 (2.1)	155 (0.7)	95 (0.4)
	1-1/4 (32)			3 (76)	Normal Weight	775 (3.4)	800 (3.5)	155 (0.7)	160 (0.7)
	1 (25)	2 (51)	2 (51)	2 (50)	Lightweight	435 (1.9)	530 (2.4)	90 (0.4)	105 (0.5)
	1 (25)			4 (102)	Lightweight	495 (2.2)	530 (2.4)	100 (0.4)	105 (0.5)
	1-1/4 (32)			2 (51)	Normal Weight	760 (3.4)	740 (3.3)	150 (0.6)	150 (0.7)
	1-1/4 (32)	2-1/2 (64)	2-1/2 (64)	1-1/2 (38)	Normal Weight	800 (3.5)	1,200 (5.3)	160 (0.7)	240 (1.1)
	1-1/4 (32)			3 (76)	Normal Weight	880 (3.9)	1,450 (6.4)	175 (0.8)	290 (1.3)
	1 (25)	3 (76)	3 (76)	2 (51)	Lightweight	510 (2.3)	820 (3.6)	100 (0.4)	165 (0.7)
	1 (25)			4 (102)	Lightweight	580 (2.6)	820 (3.6)	115 (0.5)	165 (0.7)

1. Tabulated load values are for anchors installed in minimum 8-inch-wide, Type II, light weight or normal weight concrete masonry units conforming to ASTM C90 that have reached the minimum designated ultimate compressive strength at the time of installation ($f'_m \geq 2,000$ psi). Mortar must be Grade N,S or M..
2. Allowable load capacities listed are calculated using an applied safety factor of 5.0. Consideration of safety factors of 10 or higher may be necessary depending on the application, such as life safety or overhead.
3. Allowable shear loads into the face shell of a masonry wall may be applied in any direction.
4. The tabulated values are applicable for anchors installed into the ends of concrete masonry units (e.g. wall opening) where minimum edge distances are maintained



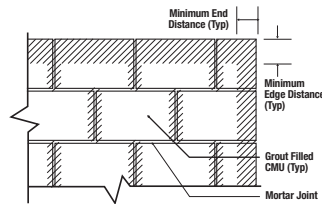
Wall Face
Permissible Anchor Locations
(Un-hatched Area)

**Ultimate and Allowable Load Capacities for UltraCon+ Anchors
Installed in the Face of Grout-Filled Concrete Masonry^{1,2,3,4}**



Nominal Anchor Diameter d	Minimum Embed. Depth h _{nom} in. (mm)	Minimum Edge Distance in. (mm)	Minimum End Distance in. (mm)	Minimum Spacing in. (mm)	Installation Location	Minimum ASTM C90 Block Type	Ultimate Load		Allowable Load	
							Tension lbs. (kN)	Shear lbs. (kN)	Tension lbs. (kN)	Shear lbs. (kN)
3/16	1-3/4 (44)	1 (25)	2 (51)	1-1/2 (38)	Face	Normal Weight	975 (4.3)	435 (1.9)	195 (0.4)	85 (0.4)
	1-3/4 (44)			3-3/8 (86)	Face	Normal Weight	1,400 (6.2)	435 (1.9)	280 (1.2)	85 (0.4)
	2-1/4 (57)			4-1/2 (114)	Face	Normal Weight	2,080 (9.1)	755 (3.3)	415 (1.8)	150 (0.7)
	1-3/4 (44)	2-1/2 (64)	2-1/2 (64)	3-3/8 (86)	Face	Normal Weight	1,400 (6.2)	1,105 (4.9)	280 (1.2)	220 (1.0)
	1-3/4 (44)			3-9/16 (91)	Face	Normal Weight	1,485 (6.5)	1,260 (5.5)	295 (1.3)	250 (1.1)
	2-1/4 (57)			4-1/2 (114)	Face	Normal Weight	2,080 (9.1)	1,260 (5.5)	415 (1.8)	250 (1.1)
	1-1/2 (38)	8 (203)	3 (76)	3 (76)	Mortar Joint	Lightweight	625 (2.8)	660 (2.9)	125 (0.6)	130 (0.6)
	1-1/2 (38)	3 (76)	3 (76)	3 (76)	Face	Lightweight	410 (1.8)	600 (2.7)	80 (0.4)	120 (0.5)
1/4	1-3/4 (44)	1 (25)	2 (51)	1-1/2 (38)	Face	Normal Weight	1,855 (8.2)	500 (2.2)	370 (1.6)	100 (0.4)
	1-3/4 (44)			4 (102)	Face	Normal Weight	1,855 (8.2)	1,025 (4.6)	370 (1.6)	205 (0.9)
	1-3/4 (44)	2-1/2 (64)	2-1/2 (64)	4 (102)	Face	Normal Weight	1,980 (8.7)	1,450 (6.4)	395 (1.7)	290 (1.3)
	2-1/4 (57)			4 (102)	Face	Normal Weight	3,135 (13.8)	1,575 (7.0)	625 (2.8)	315 (1.4)
	2-1/4 (57)			4-1/2 (114)	Face	Normal Weight	3,135 (13.8)	1,650 (7.3)	625 (2.8)	330 (1.5)
	1-1/2 (38)	8 (203)	3 (76)	4 (102)	Mortar Joint	Lightweight	730 (3.3)	1,010 (4.5)	145 (0.7)	200 (0.9)
	1-1/2 (38)	3 (76)	3 (76)	4 (102)	Face	Lightweight	650 (2.9)	1,010 (4.5)	130 (0.6)	200 (0.9)

1. Tabulated load values for anchors installed in lightweight concrete masonry units are based on minimum 6-inch-wide, Type II block conforming to ASTM C90 that have reached the minimum designated ultimate compressive strength at the time of installation ($f'_m \geq 1,500$ psi). Mortar must be Grade N, S or M.
2. Allowable load capacities listed are calculated using an applied safety factor of 5.0. Consideration of safety factors of 10 or higher may be necessary depending on the application, such as life safety or overhead.
3. Allowable shear loads into the face shell of a masonry wall may be applied in any direction
4. The tabulated values are applicable for anchors installed into the ends of concrete masonry units (e.g. wall opening) where minimum edge distances are maintained.



**Wall Face
Permissible Anchor Locations
(Un-hatched Area)**

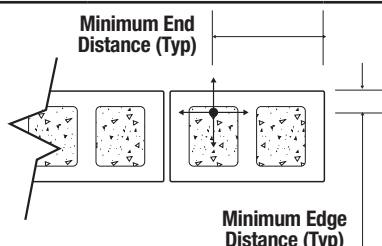
Ultimate and Allowable Load Capacities for UltraCon+ Anchors Installed into the Tops of Grout Filled Concrete Masonry Walls^{1,2,3}


Nominal Anchor Diameter d in.	Minimum Embed. h _{nom} in. (mm)	Minimum Edge Distance in. (mm)	Minimum End Distance in. (mm)	Minimum ASTM C90 Block Type	Ultimate Loads		Allowable Loads	
					Tension lbs (kN)	Shear lbs (kN)	Tension lbs (kN)	Shear lbs (kN)
3/16	1-1/2 (38)	1-1/2 (38)	3 (76)	Lightweight	450 (2.0)	510 (2.3)	90 (0.4)	100 (0.5)
1/4	1-1/2 (38)	1-1/2 (38)	3 (76)	Lightweight	825 (3.7)	780 (3.5)	165 (0.7)	155 (0.7)

1. Tabulated load values are for 3/16-inch and 1/4-inch anchors installed in minimum 6-inch-wide, Type II, light weight concrete masonry units conforming to ASTM C90 that have reached the minimum designated ultimate compressive strength at the time of installation ($f'_m \geq 1,500$ psi). Mortar must be Grade N, S or M.

2. Allowable load capacities listed are calculated using an applied safety factor of 5.0. Consideration of safety factors of 10 or higher may be necessary depending on the application, such as life safety or overhead.

3. The tabulated values are applicable to anchors installed at a critical spacing between anchors of 16 times the anchor diameter.


Allowable Load Capacities for UltraCon+ Anchors Installed in Clay Brick Masonry^{1,2,3,4,5}


Nominal Anchor Diameter d in.	Minimum Embed. h, in. (mm)	Minimum Edge Distance in. (mm)	Minimum End Distance in. (mm)	Installation Location	Tension lbs. (kN)	Shear lbs. (kN)
3/16	1-1/2 (38)	1-3/4 (45)	1-3/4 (45)	Face	380 (1.7)	165 (0.7)
		2-1/4 (57)		Mortar Joint	300 (1.3)	165 (0.8)
1/4		1-3/4 (45)		Face	605 (2.7)	270 (1.2)
2-1/4 (57)		Mortar Joint		295 (1.3)	190 (0.8)	

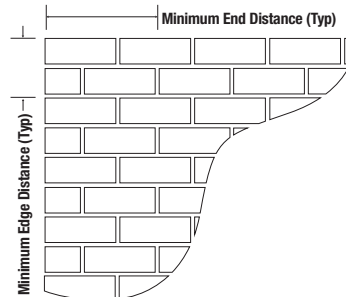
1. Tabulated load values are for anchors installed in multiple wythe, minimum Grade SW, solid clay brick masonry walls conforming to ASTM C62. Mortar must be Type N, S or M. Masonry compressive strength must be at the specified minimum at the time of installation ($f'm \geq 1,500$ psi).

2. Allowable load capacities listed are calculated using an applied safety factor of 5.0. Consideration of safety factors of 10 or higher may be necessary depending upon the application such as lifesafety or overhead.

3. Allowable shear loads into the face or mortar joint of the brick masonry wall may be applied in any direction.

4. The tabulated values are applicable for anchors installed at a critical spacing between anchors of 12 times the anchor diameter.

5. The tabulated values are applicable for anchors installed into the ends of masonry walls (e.g. wall opening) where minimum edge distances are maintained.


Average Withdrawal Capacity and Average Bending Yield Moment of UltraCon+ in Wood^{1,2}

Nominal Anchor Diameter d in.	Minimum Embed. h, in. (mm)	Minimum Edge Distance in. (mm)	Withdrawal Capacity lbs. (kN)	
			DFL	SYP
3/16	1 (25)	1-3/4 (45)	540 (2.4)	-
	1-1/2 (38)	1-3/4 (45)	820 (3.7)	-
1/4	1 (25)	1-3/4 (45)	680 (3.0)	260 (1.6)
	1-1/2 (38)	1-3/4 (45)	1,050 (4.7)	735 (3.3)

1. Ultimate load capacities are based on laboratory tests and must be reduced by a minimum safety factor of 3.0 or greater to determine allowable working load.
2. Tests in Douglas-Fir Larch (DFL) with minimum Specific Gravity of 0.42 and tests in Southern Yellow Pine (SYP) with minimum Specific Gravity of 0.55; screws oriented tangential to wood grain.

STRENGTH DESIGN INFORMATION

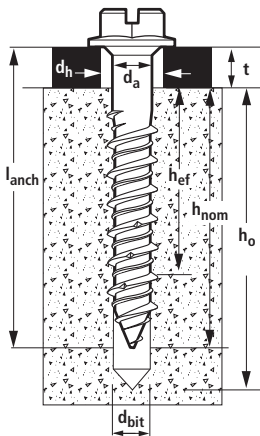
Installation Table for UltraCon+ in Concrete¹

Anchor Property/Setting Information	Notation	Units	3/16	1/4
Nominal anchor shank diameter	d_a	in. (mm)	0.145 (3.7)	0.185 (4.7)
Nominal drill bit diameter	d_{bit}	in. (mm)	5/32 UltraCon+ Bit	3/16 UltraCon+ Bit
UltraCon+ bit tolerance range	-	in.	0.170 to 0.176	0.202 to 0.206
Minimum nominal embedment depth	h_{nom}	in. (mm)	1-3/4 (44)	1-3/4 (44)
Effective embedment	h_{ef}	in. (mm)	1.23 (31)	1.23 (31)
Minimum hole depth	h_{hole}	in. (mm)	$h_{nom} + 1/4$ (6)	$h_{nom} + 1/4$ (6)
Minimum concrete member thickness	h_{min}	in. (mm)	3-1/4 (83)	3-1/4 (83)
Minimum overall anchor length ²	ℓ_{anch}	in. (mm)	2-1/4 (57)	2-1/4 (57)
Minimum edge distance	c_{min}	in. (mm)	1-3/4 (44)	1-3/4 (44)
Minimum spacing distance	s_{min}	in. (mm)	1 (25)	2 (51)
Maximum manual installation torque	$T_{inst,max}$	ft-lbs	3	5
Maximum powered installation torque	T_{screw}	ft-lbs	Not applicable using UltraCon+ installation socket tool	
Phillips bit size (No.)	-	-	2	3

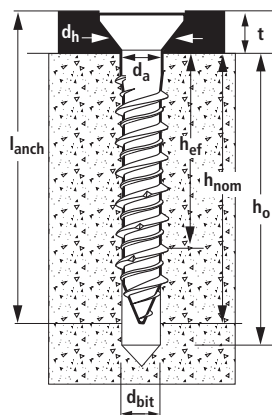
For SI: 1 inch = 25.4 mm, 1 ft-lbf = 1.356 N-m.

- The Information presented in this table is to be used in conjunction with the design criteria of ACI 318 (-19 and -14) Chapter 17 or ACI 318-11 Appendix D, as applicable.
- The minimum overall anchor length for the hex head versions can be 1.75-inch (44 mm) provided the fixture does not exceed 0.036-inch (0.91mm) in thickness.

UltraCon+ Anchor Detail



Hex Head



Flat Head

Tension Design Information for UltraCon+ Anchor in Concrete^{1,2}
CODE LISTED
 ICC-ES ESR-3068


Design Characteristic	Notation	Units	Nominal Anchor Size (Inch)	
			3/16	1/4
Anchor category	1,2 or 3	-	1	1
Nominal embedment depth	h_{nom}	in. (mm)	1-3/4 (44)	1-3/4 (44)
Effective embedment	h_{ef}	in. (mm)	1.23 (31.2)	1.23 (31.2)
STEEL STRENGTH IN TENSION (ACI 318-19 17.6.1, ACI 318-14 17.4.1 or ACI 318-11 D.5.1) ¹				
Minimum specified ultimate tensile strength (neck)	f_{uta}	psi (N/mm ²)	100,000 (689)	100,000 (689)
Effective tensile stress area (neck)	$A_{se,N}$	in ² (mm ²)	0.0162 (10.4)	0.0268 (17.3)
Steel strength in tension ³	N_{sa}	lb (kN)	1,620 (7.2)	2,680 (12.0)
Reduction factor for steel strength ³	ϕ	-	0.65	
CONCRETE BREAKOUT STRENGTH IN TENSION (ACI 318-19 17.6.2, ACI 318-14 17.4.2 or ACI 318-11 D.5.2) ¹				
Effectiveness factor for concrete breakout	k_{unscr}	-	24	24
Modification factor for cracked and uncracked concrete ⁵	$\Psi_{c,N}$	-	1.0 See note 5	1.0 See note 5
Critical edge distance (uncracked concrete only)	c_{ac}	in. (mm)	3 (76)	3 (76)
Reduction factor for concrete breakout strength ³	ϕ	-	0.65 (Condition B)	
PULLOUT STRENGTH IN TENSION (ACI 318-19 17.6.3, ACI 318-14 17.4.3 or ACI 318-11 D.5.3) ¹				
Characteristic pullout strength, uncracked concrete (2,500 psi) ⁶	$N_{p,unscr}$	lb (kN)	635 (2.8)	940 (4.2)
Reduction factor for pullout strength ³	ϕ	-	0.65 (Condition B)	

For SI: 1 inch = 25.4 mm, 1 ksi = 6.895 N/mm², 1 lbf = 0.0044 kN.

- The data in this table is intended to be used with the design provisions of ACI 318 (-19 and -14) Chapter 17 or ACI 318-11 Appendix D, as applicable.
- Installation must comply with published instructions and details.
- All values of ϕ were determined from the load combinations of IBC Section 1605.2, ACI 318 (-19 and -14) Section 5.2 or ACI 318-11 Section 9.2, as applicable. If the load combinations of ACI 318-11 Appendix C are used, the appropriate value of ϕ must be determined in accordance with ACI 318-11 D.4.4. For reinforcement that meets ACI 318 (-19 and -14) Chapter 17 or ACI 318-11 Appendix D, as applicable, requirements for Condition A, see ACI 318 (-19 and -14) 17.3.3 or ACI 318-11 D. 4.3, as applicable, for the appropriate ϕ factor.
- The UltraCon+ anchor is considered a brittle steel element as defined by ACI 318-14 2.3 or ACI 318-11 D.1, as applicable.
- For all design cases use $\Psi_{c,N} = 1.0$. The appropriate effectiveness factor for uncracked concrete (k_{unscr}) must be used.
- For all design cases use $\Psi_{c,P} = 1.0$. For the calculation of $N_{p,unscr}$, the nominal pullout strength can be adjusted by calculation according to:
 $N_{p,nfc} = N_{p,unscr} \left(\frac{f'_c}{2,500} \right)^n$ (lbs, psi), $N_{p,nfc} = N_{p,unscr} \left(\frac{f'_c}{17.2} \right)^n$ (N,MPa)
Where f'_c is the specified concrete compressive strength and whereby the exponent $n = 0.3$ for the 3/16-inch-diameter anchors, $n = 0.4$ for 1/4-inch-diameter anchors.
- Anchors are permitted to be used in lightweight concrete provided the modification factor λ_a equal to 0.8λ is applied to all values of $\sqrt{f'_c}$ affecting N_n and V_n . λ shall be determined in accordance with the corresponding version of ACI 318.
- Tabulated values for steel strength in tension must be used for design.

Shear Design Information for UltraCon+ Anchor in Concrete^{1,2}
CODE LISTED
 ICC-ES ESR-3068


Design Characteristic	Notation	Units	Nominal Anchor Diameter	
			3/16"	1/4"
Anchor category	1, 2 or 3	-	1	1
Nominal embedment depth	h_{nom}	in. (mm)	1-3/4 (44)	1-3/4 (44)
Effective embedment	h_{ef}	in. (mm)	1.23 (31.2)	1.23 (31.2)
STEEL STRENGTH IN SHEAR (ACI 318-19 17.7.1, ACI 318-14 17.5.1 or ACI 318-11 D.6.1) ¹				
Steel strength in shear ⁵	V_{sa}	lb (kN)	810 (3.6)	1,180 (5.3)
Reduction factor for steel strength ³	ϕ	-	0.60	
CONCRETE BREAKOUT STRENGTH IN SHEAR (ACI 318-19 17.7.2, ACI 318-14 17.5.2 or ACI 318-11 D.6.2) ⁶				
Load bearing length of anchor	ℓ_e	in. (mm)	1.23 (32)	1.23 (32)
Nominal anchor diameter	d_a	in. (mm)	0.145 (3.7)	0.185 (4.7)
Reduction factor for concrete breakout ³	ϕ	-	0.70 (Condition B)	
PRYOUT STRENGTH IN SHEAR (ACI 318-19 17.7.3, ACI 318-14 17.2.3.3 or ACI 318-11 D.6.3) ⁶				
Coefficient for pryout strength	k_{cp}	-	1.0	1.0
Reduction factor for pryout strength ³	ϕ	-	0.70 (Condition B)	

For SI: 1 inch = 25.4 mm, 1 lbf = 0.0044 kN.

- The data in this table is intended to be used with the design provisions of ACI 318 (-19 and -14) Chapter 17 or ACI 318-11 Appendix D, as applicable.
- Installation must comply with published instructions and details.
- All values of ϕ were determined from the load combinations of IBC Section 1605.2, ACI 318 (-19 and -14) Section 5.2 or ACI 318-11 Section 9.2, as applicable. If the load combinations of ACI 318-11 Appendix C are used, the appropriate value of ϕ must be determined in accordance with ACI 318-11 D.4.4. For reinforcement that meets ACI 318-14 Chapter 17 or ACI 318-11 Appendix D, as applicable, requirements for Condition A, see ACI 318-19 17.5.3, ACI 318-14 17.3.3 or ACI 318-11 D. 4.3, as applicable, for the appropriate ϕ factor.
- The UltraCon+ anchor is considered a brittle steel element as defined by ACI 318 (-19 and -14) 2.3 or ACI 318-11 D.1, as applicable.
- Tabulated values for steel strength in shear must be used for design.
- Anchor is permitted to be used in lightweight concrete provided the modification factor λ_a equal to 0.8λ is applied to all values of $\sqrt{f'_c}$ affecting N_n and V_n . λ shall be determined in accordance with the corresponding version of ACI 318.

DESIGN STRENGTH TABLES (SD)
Tension and Shear Design Strengths for UltraCon+ in Uncracked Concrete


Nominal Anchor Diameter (in.)	Nominal Embed. h_{nom} (in.)	Minimum Concrete Compressive Strength									
		$f'_c = 2,500$ psi		$f'_c = 3,000$ psi		$f'_c = 4,000$ psi		$f'_c = 6,000$ psi		$f'_c = 8,000$ psi	
		ϕN_n Tension (lbs.)	ϕV_n Shear (lbs.)	ϕN_n Tension (lbs.)	ϕV_n Shear (lbs.)	ϕN_n Tension (lbs.)	ϕV_n Shear (lbs.)	ϕN_n Tension (lbs.)	ϕV_n Shear (lbs.)	ϕN_n Tension (lbs.)	ϕV_n Shear (lbs.)
3/16	1-3/4	415	485	435	485	475	485	535	485	585	485
1/4	1-3/4	610	710	655	710	735	710	865	710	975	710

■ - Steel Strength Controls
 ■ - Concrete Breakout Strength Controls
 ■ - Anchor Pullout/Pryout Strength Controls

- Tabular values are provided for illustration and are applicable for single anchors installed in normal-weight concrete with minimum slab thickness, $h_a = h_{min}$, and with the following conditions:
 - C_{a1} is greater than or equal to the critical edge distance, C_{ac} (table values based on $C_{a1} = C_{ac}$).
 - C_{a2} is greater than or equal to 1.5 times C_{a1} .
- Calculations were performed according to ACI 318 (-19 and -14), Chapter 17. The load level corresponding to the controlling failure mode is listed. (e.g. For tension: steel, concrete breakout and pullout; For shear: steel, concrete breakout and pryout). Furthermore, the capacities for concrete breakout strength in tension and pryout strength in shear are calculated using the effective embedment values, h_{ef} , for the selected anchors as noted in the design information tables. Please also reference the installation specifications for more information.
- Strength reduction factors (ϕ) were based on ACI 318 (-19 and -14), Section 5.3 for load combinations. Condition B is assumed.
- Tabular values are permitted for static loads only, seismic loading is not considered with these tables.
- For designs that include combined tension and shear, the interaction of tension and shear loads must be calculated in accordance with ACI 318 (-19 and -14), Chapter 17.
- Interpolation is not permitted to be used with the tabular values. For intermediate base material compressive strengths please see ACI 318 (-19 and -14), Chapter 17. For other design conditions including seismic considerations please see ACI 318 (-19 and -14), Chapter 17.

ORDERING INFORMATION

Blue UltraCon+ Standard Pack

Cat. No.			Screw Size	Approximate Thread Length	Pack Qty.	Carton Qty.
HWH	PFH	SFH				
DFM12700	DFM12740	DFM12740S	3/16" x 1-1/4"	1" **	100	500
DFM12702 *	DFM12742	DFM12742S	3/16" x 1-3/4"	1-1/2" **	100	500
DFM12704	DFM12744	DFM12744S	3/16" x 2-1/4"	1-7/8"	100	500
DFM12706	DFM12746	DFM12746S	3/16" x 2-3/4"	1-7/8"	100	500
DFM12708	DFM12748	DFM12748S	3/16" x 3-1/4"	1-7/8"	100	500
DFM12710	DFM12750	DFM12750S	3/16" x 3-3/4"	1-7/8"	100	500
DFM12712	DFM12752	DFM12752S	3/16" x 4"	1-7/8"	100	500
DFM12715	-	-	1/4" x 1"	7/8"	100	500
DFM12720	DFM12760	DFM12760S	1/4" x 1-1/4"	1" **	100	500
DFM12722 *	DFM12762	DFM12762S	1/4" x 1-3/4"	1-1/2"	100	500
DFM12724	DFM12764	DFM12764S	1/4" x 2-1/4"	1-7/8"	100	500
DFM12726	DFM12766	DFM12766S	1/4" x 2-3/4"	1-7/8"	100	500
DFM12728	DFM12768	DFM12768S	1/4" x 3-1/4"	1-7/8"	100	500
DFM12730	DFM12770	DFM12770S	1/4" x 3-3/4"	1-7/8"	100	500
DFM12732	DFM12772	DFM12772S	1/4" x 4"	1-7/8"	100	500
DFM12734	DFM12774	DFM12774S	1/4" x 5"	1-7/8"	100	500
DFM12735	DFM12776	DFM12776S	1/4" x 6"	1-7/8"	100	500

HWH = Hex Washer Head (slotted); PFH = Phillips Flat Head; SFH = Star Flat Head

- Shaded grey catalog numbers denote sizes which are less than the standard anchor length for strength design.

* Catalog numbers with an asterisk denote sizes that meet the minimum anchor length requirement for strength design provided the fixture attachment does not exceed 0.036-inch (0.91mm) in thickness.

** For HWH and PFH anchors, the approximate thread length is 1/8" longer than the tabulated thread length

- Hex Washer Head and Hex Flange Head UltraCon+ anchors are measured from below the washer. Phillips Flat Head and TrimFit Flat Head UltraCon+ anchors are measured end to end.

- To select the proper minimum anchor length, determine the nominal embedment depth (e.g. required to obtain desired load capacity). Then add the thickness of the fixture, including any spacers or shims, to the embedment depth.



Blue UltraCon+ Master Pack

Cat. No.			Screw Size	Approximate Thread Length	Pack Qty.
HWH	PFH	SFH			
DFM12700B	DFM12740B	DFM12740SB	3/16" x 1-1/4"	1" **	5000
DFM12702B *	DFM12742B	DFM12742SB	3/16" x 1-3/4"	1-1/2" **	3000
-	DFM12744B	DFM12744SB	3/16" x 2-1/4"	1-7/8"	2500
DFM12704B	-	-			2000
DFM12706B	DFM12746B	DFM12746SB	3/16" x 2-3/4"	1-7/8"	1500
DFM12708B	DFM12748B	DFM12748SB	3/16" x 3-1/4"	1-7/8"	1000
DFM12710B	DFM12750B	DFM12750SB	3/16" x 3-3/4"	1-7/8"	1000
DFM12712B	DFM12752B	DFM12752SB	3/16" x 4"	1-7/8"	1000
DFM12720B	-	-	1/4" x 1-1/4"	1" **	2000
-	DFM12760B	DFM12760SB			2500
DFM12722B *	-	-	1/4" x 1-3/4"	1-1/2" **	2000
-	DFM12762B	DFM12762SB			2500
DFM12724B	DFM12764B	DFM12764SB	1/4" x 2-1/4"	1-7/8"	1500
DFM12726B	DFM12766B	DFM12766SB	1/4" x 2-3/4"	1-7/8"	1000
DFM12728B	DFM12768B	DFM12768SB	1/4" x 3-1/4"	1-7/8"	1000
DFM12730B	DFM12770B	DFM12770SB	1/4" x 3-3/4"	1-7/8"	500
DFM12732B	DFM12772B	DFM12772SB	1/4" x 4"	1-7/8"	500
DFM12734B	-	-	1/4" x 5"	1-7/8"	500
DFM12735B	-	DFM12776SB	1/4" x 6"	1-7/8"	500

HWH = Hex Washer Head (slotted); PFH = Phillips Flat Head; SFH = Star Flat Head

- Shaded grey catalog numbers denote sizes which are less than the standard anchor length for strength design.

* Catalog numbers with an asterisk denote sizes that meet the minimum anchor length requirement for strength design provided the fixture attachment does not exceed 0.036-inch (0.91mm) in thickness.

** For HWH and PFH anchors, the approximate thread length is 1/8" longer than the tabulated thread length

- Hex Washer Head and Hex Flange Head UltraCon+ anchors are measured from below the washer. Phillips Flat Head and TrimFit Flat Head UltraCon+ anchors are measured end to end.

- To select the proper minimum anchor length, determine the nominal embedment depth required (e.g. required to obtain desired load capacity). Then add the thickness of the fixture, including any spacers or shims, to the embedment depth.



Silver UltraCon+ Master Pack

Cat. No.						Screw Size	Approximate Thread Length	Pack Qty.
HWH	HFH	PFH	SFH	PTFH	STFH			
-	-	DFM2ELG521	DFM2ELG521S	-	-	3/16" x 1-1/4"	1"	5000
-	-	DFM2ELG551	DFM2ELG551S	-	-	3/16" x 1-3/4"	1-1/2"	3000
-	-	DFM2ELG581	DFM2ELG581S	-	-	3/16" x 2-1/4"	1-7/8"	2500
-	-	DFM2ELG611	DFM2ELG611S	-	-	3/16" x 2-3/4"	1-7/8"	1500
-	-	DFM2ELG641	DFM2ELG641S	-	-	3/16" x 3-1/4"	1-7/8"	1000
-	-	DFM2ELG671	DFM2ELG671S	-	-	3/16" x 3-3/4"	1-7/8"	1000
DFM2ELG340	-	-	-	DFM2ELG770	DFM2ELG770S	1/4" x 1-1/4"	1" **	2500
DFM2ELG341 *	-	-	-	DFM2ELG771	DFM2ELG771S	1/4" x 1-3/4"	1-1/2" **	2000
-	DFM2ELC145	-	-	-	-	1/4" x 1-3/4"	1-1/2" **	1500
DFM2ELG371	-	-	-	DFM2ELG801	DFM2ELG801S	1/4" x 2-1/4"	1-7/8"	1500
-	DFM2ELC151	-	-	-	-	1/4" x 2-1/4"	1-7/8"	1000
DFM2ELG401	DFM2ELC160	-	-	DFM2ELG831	DFM2ELG831S	1/4" x 2-3/4"	1-7/8"	1000
DFM2ELG431	DFM2ELC170	-	-	DFM2ELG861	DFM2ELG861S	1/4" x 3-1/4"	1-7/8"	1000
-	-	-	-	DFM2ELG891	DFM2ELG891S	1/4" x 3-3/4"	1-7/8"	500
-	-	-	-	DFM2ELG921	DFM2ELG921S	1/4" x 4"	1-7/8"	500

HWH = Hex Washer Head (slotted); HFH = Hex Flange Head; PFH = Phillips Flat Head; SFH = Star Flat Head; PTFH = Phillips TrimFit Flat Head; STFH = Star TrimFit Flat Head;
 - Shaded grey catalog numbers denote sizes which are less than the standard anchor length for strength design.

* catalog numbers with an asterisk denote sizes that meet the minimum anchor length requirement for strength design provided the fixture attachment does not exceed 0.036-inch (0.91mm) in thickness.

** For HWH and HFH anchors, the approximate thread length is 1/8" longer than the tabulated thread length

- Hex Flange Head Anchors are not covered by ICC-ES ESR-3068, ESR-3196, or ESR-3042. TrimFit Flat Head Anchors are not covered by ICC-ES ESR-3042.

- Hex Washer Head and Hex Flange Head UltraCon+ anchors are measured from below the washer. Phillips Flat Head and TrimFit Flat Head UltraCon+ anchors are measured end to end.

- To select the proper minimum anchor length, determine the nominal embedment depth (e.g. required to obtain desired load capacity). Then add the thickness of the fixture, including any spacers or shims, to the embedment depth.

White UltraCon+ Master Pack

Cat. No.						Screw Size	Approximate Thread Length	Pack Qty.
HWH	HFH	PFH	SFH	PTFH	STFH			
DFM2ELD200	-	DFM2ELD320	DFM2ELD320S	-	-	3/16" x 1-1/4"	1" **	5000
DFM2ELD210 *	-	DFM2ELD330	DFM2ELD330S	-	-	3/16" x 1-3/4"	1-1/2" **	3000
DFM2ELD220	-	DFM2ELD340	DFM2ELD340S	-	-	3/16" x 2-1/4"	1-7/8"	2500
DFM2ELD230	-	DFM2ELD350	DFM2ELD350S	-	-	3/16" x 2-3/4"	1-7/8"	1500
DFM2ELD240	-	DFM2ELD360	DFM2ELD360S	-	-	3/16" x 3-1/4"	1-7/8"	1000
-	-	DFM2ELD370	DFM2ELD370S	-	-	3/16" x 3-3/4"	1-7/8"	1000
DFM2ELD250	-	DFM2ELD385	DFM2ELD385S	-	-	1/4" x 1-1/4"	1" **	2500
-	DFM2ELD270	-	-	-	-	1/4" x 1-1/4"	1" **	2000
DFM2ELD195 *	-	DFM2ELD386	DFM2ELD386S	DFM2ELD400	DFM2ELD400S	1/4" x 1-3/4"	1-1/2" **	2000
-	DFM2ELD275	-	-	-	-	1/4" x 1-3/4"	1-1/2" **	1500
DFM2ELD205	-	DFM2ELD387	DFM2ELD387S	DFM2ELD410	DFM2ELD410S	1/4" x 2-1/4"	1-7/8"	1500
-	DFM2ELD285	-	-	-	-	1/4" x 2-1/4"	1-7/8"	1000
DFM2ELD215	DFM2ELD295	DFM2ELD388	DFM2ELD388S	DFM2ELD420	DFM2ELD420S	1/4" x 2-3/4"	1-7/8"	1000
DFM2ELD225	-	DFM2ELD389	DFM2ELD389S	DFM2ELD430	DFM2ELD430S	1/4" x 3-1/4"	1-7/8"	1000
-	DFM2ELD305	-	-	-	-	1/4" x 3-1/4"	1-7/8"	500
DFM2ELD235	-	-	-	DFM2ELD440	DFM2ELD440S	1/4" x 3-3/4"	1-7/8"	500
DFM2ELD245	-	-	-	DFM2ELD450	DFM2ELD450S	1/4" x 4"	1-7/8"	500
DFM2ELD255	-	-	-	-	-	1/4" x 5"	1-7/8"	500
DFM2ELD265	-	-	-	-	-	1/4" x 6"	1-7/8"	500

HWH = Hex Washer Head (slotted); HFH = Hex Flange Head; PFH = Phillips Flat Head; SFH = Star Flat Head; PTFH = Phillips TrimFit Flat Head; STFH = Star TrimFit Flat Head;
 - Shaded grey catalog numbers denote sizes which are less than the standard anchor length for strength design.

* catalog numbers with an asterisk denote sizes that meet the minimum anchor length requirement for strength design provided the fixture attachment does not exceed 0.036-inch (0.91mm) in thickness.

** For HWH and HFH anchors, the approximate thread length is 1/8" longer than the tabulated thread length

- Hex Flange Head Anchors are not covered by ICC-ES ESR-3068, ESR-3196, or ESR-3042. TrimFit Flat Head Anchors are not covered by ICC-ES ESR-3042.

- Hex Washer Head and Hex Flange Head UltraCon+ anchors are measured from below the washer. Phillips Flat Head and TrimFit Flat Head UltraCon+ anchors are measured end to end.

- To select the proper minimum anchor length, determine the nominal embedment depth (e.g. required to obtain desired load capacity). Then add the thickness of the fixture, including any spacers or shims, to the embedment depth.

Bronze UltraCon+ Master Pack

Cat. No.					Screw Size	Approximate Thread Length	Pack Qty.
HWH	PFH	SFH	PTFH	STFH			
-	DFM2ELG612	DFM2ELG612S	-	-	3/16" x 2-3/4"	1-7/8"	1500
-	-	-	DFM2ELG832	DFM2ELG832S	1/4" x 2-3/4"	1-7/8"	1000
-	-	-	DFM2ELG862	DFM2ELG862S	1/4" x 3-1/4"	1-7/8"	1000
-	-	-	DFM2ELG892	DFM2ELG892S	1/4" x 3-3/4"	1-7/8"	500
DFM2ELE465	-	-	-	-	1/4" x 4"	1-7/8"	500

HWH = Hex Washer Head (slotted); PFH = Phillips Flat Head; SFH = Star Flat Head; TTFH = TrimFit Flat Head; STFH = Star TrimFit Flat Head;

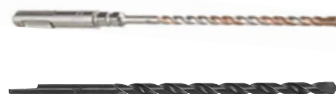
- TrimFit Flat Head Anchors are not covered by ICC-ES ESR-3042.

- Hex Washer Head and Hex Flange Head UltraCon+ anchors are measured from below the washer. Phillips Flat Head and TrimFit Flat Head UltraCon+ anchors are measured end to end.

- To select the proper minimum anchor length, determine the nominal embedment depth (e.g. required to obtain desired load capacity). Then add the thickness of the fixture, including any spacers or shims, to the embedment depth.

**UltraCon+ Drill Bits**

Cat. No.	Description
DW5381	5/32" x 7" UltraCon+ SDS bit
DW5382	3/16" x 7" UltraCon+ SDS bit
DFX153255	5/32" x 5-1/2" UltraCon+ straight shank bit
DFX131645	3/16" x 4-1/2" UltraCon+ straight shank bit
DFX131675	3/16" x 7-1/2" UltraCon+ straight shank bit

**Installation Kit**

Cat. No.	Description
DW5366	UltraCon+ Installation Kit includes: 5/32" and 3/16" Ultracon+ Bit 1/4" and 5/16" NutSetters T25 and T30 Star Bit Flathead Adapter Percussion Adapter Drive Sleeve 1/8" Allen Wrench

**Rotary Hammers**

Cat. No.	Description
DCH172	20V Max* 5/8 in. Brushless Cordless SDS Plus Rotary Hammer
DCH133	20V Max* XR Brushless 1" D-Handle SDS Plus Rotary Hammer

**Accessories**

Cat. No.	Description
DWH303DH	Onboard Dust Extractor for 1" SDS Plus Hammers
DWH200	Dust Extraction Tube Kit with Hose

**Dust Extractors**

Cat. No.	Description
DCV585	Flexvolt® 60V Max* Dust Extractor
DWH161D1	20V Max* XR Brushless Universal Dust Extractor Kit

