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 installations
- Shutters and guards
- Interior hand rails
- Interior lighting fixtures
- Metal door frames
- Thresholds
- Joint flashing
- Screened Enclosures

FEATURES AND BENEFITS

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

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: 2018 IBC/IRC, 2015 IBC/IRC, 2012 IBC/IRC, and 2009 IBC/IRC
- Tested in accordance with ACI 355.2 and ICC-ES AC193 (including ASTM E488) for use in structural 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 labortatory for reliability against brittle failure, e.g. hydrogen embrittlement
- Miami-Dade County Notice of Acceptance (NOA) No. 20-0427.13
- 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

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ULTRACON+

HEAD STYLES

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

ANCHOR MATERIALS

- Carbon Steel with Stalgard Coating

ANCHOR SIZE RANGE (TYP.)

- 3/16" diameter x 1-1/4" to 4" lengths
- 1/4" diameter x 1" to 6" 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

INSTALLATION SPECIFICATIONS

UltraCon+ Carbon Steel Hex Head

Dimension	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 Flat Head

Dimension	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"
Phillips Bit Size (No.)	2	3
In light gauge steel material (.036" and below), the clearance hole can be the same diameter as the drill bit.		

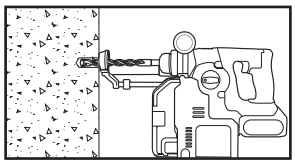
UltraCon+ Carbon Steel TrimFit Flat Head

Dimension	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"
Phillips Bit Size, (No.)	#3

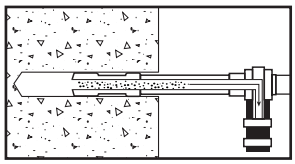
UltraCon+ Carbon Steel Hex Flange Head

Dimension	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 OD, (in.)	39/64"

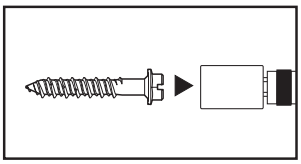
Installation Instruction for UltraCon+



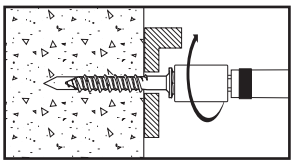
Step 1
Using the proper drill bit size, drill a hole into the base material to the required depth, ho, which is a 1/4-inch deeper than the minimum embedment depth, h_{nom}.



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 UltraCon+.

Head Marking

Hex Washer Head

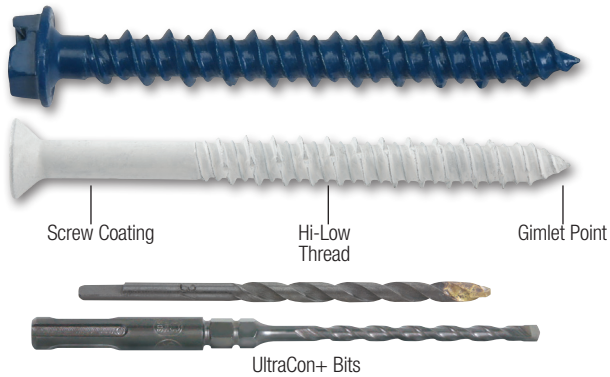
Philips Flat Head

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_{anch} (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[1,2]

Anchor Property/Setting Information	Notation	Units	Nominal Anchor Size (in.)	
			3/16	1/4
Anchor outside diameter	d_a	in. (mm)	0.145 (3.7)	0.185 (4.7)
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
Minimum nominal embedment depth	h_{nom}	in. (mm)	1-3/4 (44.4)	1-3/4 (44.4)
Minimum hole depth	h_o	in. (mm)	2 (50.8)	2 (50.8)
Hex head socket size	-	in.	1/4	5/16
Phillips bit size (No.)	-	-	2	3
Maximum installation torque	T_{screw}	ft-lbs	Not applicable using UltraCon+ installation socket tool	

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

1. The minimum base material thickness must be $1.5h_{nom}$ or 3", whichever is greater.

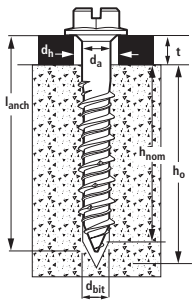
Installation Table for UltraCon+ in Masonry

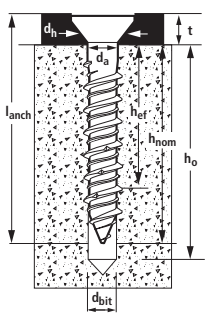
Anchor Property/Setting Information	Notation	Units	Nominal Anchor Size (in.)	
			3/16	1/4
Anchor outside diameter	d_a	in. (mm)	0.145 (3.7)	0.185 (4.7)
Nominal drill bit diameter	d_{bit}	in.	5/32 UltraCon+ Bit	3/16 UltraCon+ Bit
UltraCon+ bit tolerance range	-	in.	0.170 to 0.176	0.202 to 0.206
Minimum nominal embedment depth (Grout Filled Masonry)	h_{nom}	in. (mm)	1-1/2 (38.1)	1-1/2 (38.1)
Minimum hole depth (Grout Filled Masonry)	h_o	in. (mm)	1-3/4 (44.4)	1-3/4 (44.4)
Minimum nominal embedment depth (Hollow Masonry)	h_{nom}	in. (mm)	1 (25.4)	1 (25.4)
Minimum hole depth (Hollow Masonry)	h_o	in. (mm)	1-1/4 (31.8)	1-1/4 (31.8)
Hex head socket size	-	in.	1/4	5/16
Phillips bit size (No.)	-	-	2	3
Maximum installation torque	T_{screw}	ft-lbs	Not applicable using UltraCon+ installation socket tool	

Installation Table for UltraCon+ in Wood

Anchor Property/Setting Information	Notation	Units	Nominal Anchor Size (in.)	
			3/16	1/4
Anchor outside diameter	d_a	in. (mm)	0.145 (3.7)	0.185 (4.7)
Nominal drill bit diameter	d_{bit}	in.	Pre-drilling is not required for UltraCon+ into wood	
Hex head socket size	-	in.	1/4	5/16
Phillips bit size (No.)	-	-	2	3

UltraCon+ Anchor Detail





REFERENCE PERFORMANCE DATA

Ultimate and Allowable Load Capacities for UltraCon+ in Normal-Weight Concrete[1,2,3]

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 (44.4)	1 (25.4)	1 (25.4)	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 (44.4)		1-1/8 (28.6)	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 (44.4)		2-1/4 (57.2)	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 (25.4)		3 (76.2)	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 (34.9)			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 (44.4)		3-3/8 (85.7)	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 (44.4)	2-1/2 (63.5)	1-1/8 (28.6)	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 (44.4)		2-1/4 (57.15)	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 (25.4)		3 (76.2)	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 (34.9)			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 (44.4)		3-3/8 (85.7)	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 (44.4)	1 (25.4)	1 (25.4)	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 (44.4)		1-1/2 (38.1)	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 (44.4)		3 (76.2)	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)		4 (101.6)	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 (34.9)			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 (44.4)			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 (44.4)	2-1/2 (63.5)	1-1/2 (38.1)	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 (44.4)		3 (76.2)	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)		4 (101.6)	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 (34.9)			1,755 (7.7)	1,750 (7.7)	440 (1.9)	440 (1.9)	1,885 (8.3)	1,885 (8.3)	470 (2.1)	470 (2.1)	2,115 (9.3)	1,885 (8.3)	530 (2.3)	470 (2.1)
	1-3/4 (44.5)			2,125 (9.4)	1,395 (6.1)	530 (2.4)	350 (1.5)	2,285 (10.1)	1,500 (6.6)	570 (2.5)	375 (1.7)	2,565 (11.3)	1,500 (6.6)	640 (2.8)	375 (1.7)

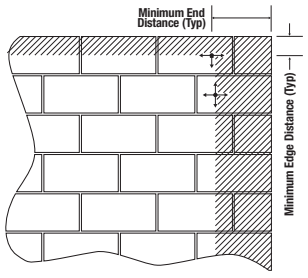
1. Tabulated Ultimate load values are for anchors installed in concrete. Concrete compressive strength must be at the specified minimum at the time of installation.
2. Allowable load capacities listed are calculated using an applied safety factor of 4.0. Consideration of safety factors of 10 or higher 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.

MASONRY PERFORMANCE DATA

Ultimate and Allowable Load Capacities for UltraCon+ Anchors Installed in the Face of Hollow Concrete Masonry[1,2,3]

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)	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 (31.8)	1 (25.4)	2 (50.8)	1-1/2 (38.1)	Normal Weight	740 (3.3)	405 (1.8)	150 (0.7)	80 (0.4)
	1-1/4 (31.8)			3 (76.2)	Normal Weight	815 (3.6)	585 (2.6)	165 (0.7)	115 (0.5)
	1-1/4 (31.8)			6 (152.4)	Normal Weight	815 (3.6)	585 (2.6)	165 (0.7)	115 (0.5)
	1 (25.4)	2 (50.8)	2 (50.8)	1-1/2 (38.1)	Lightweight	300 (1.3)	460 (2.1)	55 (0.3)	90 (0.4)
	1 (25.4)			3 (76.2)	Lightweight	340 (1.5)	460 (2.1)	65 (0.3)	90 (0.4)
	1-1/4 (31.8)			1-1/2 (38.1)	Normal Weight	740 (3.3)	700 (3.1)	150 (0.7)	140 (0.6)
	1-1/4 (31.8)	2-1/2 (63.5)	2-1/2 (63.5)	1-1/8 (28.6)	Normal Weight	790 (3.5)	935 (4.1)	160 (0.7)	185 (0.8)
	1-1/4 (31.8)			2-1/4 (57.2)	Normal Weight	790 (3.5)	935 (4.1)	160 (0.7)	185 (0.8)
	1-1/4 (31.8)			6 (152.4)	Normal Weight	790 (3.5)	935 (4.1)	160 (0.7)	185 (0.8)
	1 (25.4)	3 (76.2)	3 (76.2)	1-1/2 (38.1)	Lightweight	385 (1.8)	670 (3.0)	80 (0.4)	135 (0.6)
	1 (25.4)			3 (76.2)	Lightweight	440 (2.0)	670 (3.0)	90 (0.4)	135 (0.6)
1/4	1-1/4 (31.8)	1 (25.4)	2 (50.8)	1-1/2 (38.1)	Normal Weight	725 (3.2)	475 (2.1)	145 (0.6)	95 (0.4)
	1-1/4 (31.8)			3 (76.2)	Normal Weight	940 (4.1)	800 (3.5)	190 (0.8)	160 (0.7)
	1-1/4 (31.8)			6 (152.4)	Normal Weight	725 (3.2)	690 (3.0)	145 (0.6)	140 (0.6)
	1 (25.4)	2 (50.8)	2 (50.8)	2 (50.8)	Lightweight	435 (1.9)	530 (2.4)	90 (0.4)	90 (0.4)
	1 (25.4)			4 (101.6)	Lightweight	495 (2.2)	530 (2.4)	100 (0.4)	90 (0.4)
	1-1/4 (31.8)			2 (50.8)	Normal Weight	760 (3.4)	740 (3.3)	150 (0.6)	150 (0.7)
	1-1/4 (31.8)			4 (101.6)	Normal Weight	950 (4.2)	740 (3.3)	190 (0.8)	150 (0.7)
	1-1/4 (31.8)	2-1/2 (63.5)	2-1/2 (63.5)	1-1/2 (38.1)	Normal Weight	800 (3.5)	1,220 (5.4)	160 (0.7)	245 (1.1)
	1-1/4 (31.8)			3 (76.2)	Normal Weight	880 (3.9)	1,450 (6.4)	175 (0.8)	290 (1.3)
	1-1/4 (31.8)			6 (152.4)	Normal Weight	880 (3.9)	1,450 (6.4)	175 (0.8)	290 (1.3)
	1 (25.4)	3 (76.2)	3 (76.2)	2 (50.8)	Lightweight	510 (2.3)	820 (3.6)	100 (0.4)	165 (0.7)
	1 (25.4)			4 (101.6)	Lightweight	580 (2.6)	820 (3.6)	115 (0.5)	165 (0.7)

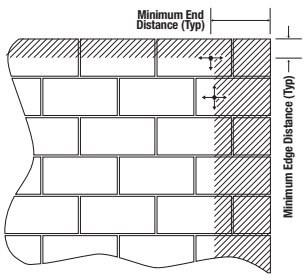
1. Tabulated load values are for anchors installed in minimum 8 wide, Type II, light weight or normal weight concrete masonry units conforming to ASTM C90 that have reached the minimum designated ultimate compressive strength at the time of installation (f'm ≥ 2,000 psi). Mortar must be a minimum Grade N.
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.



Ultimate and Allowable Load Capacities for UltraCon+ Anchors Installed in the Face of Grout-Filled Concrete Masonry[1,2,3]

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	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 (44.4)	1 (25.4)	2 (50.8)	1-1/2 (38.1)	Face	Normal Weight	510 (2.2)	435 (1.9)	100 (0.4)	85 (0.4)
	1-3/4 (44.4)			3-3/8 (85.7)	Face	Normal Weight	1,415 (6.2)	435 (1.9)	285 (1.2)	85 (0.4)
	2-1/4 (57.2)			4-1/2 (114.3)	Face	Normal Weight	2,080 (9.1)	755 (3.3)	415 (1.8)	150 (0.7)
	1-3/4 (44.4)	2-1/2 (63.5)	2-1/2 (63.5)	3-3/8 (85.7)	Face	Normal Weight	1,415 (6.2)	1,105 (4.9)	285 (1.2)	220 (1.0)
	1-3/4 (44.4)			3-9/16 (90.5)	Face	Normal Weight	1,485 (6.5)	1,260 (5.5)	295 (1.3)	250 (1.1)
	2-1/4 (57.2)			4-1/2 (114.3)	Face	Normal Weight	2,080 (9.1)	1,260 (5.5)	415 (1.8)	250 (1.1)
	1-1/2 (38.1)	8 (203.2)	3 (76.2)	3 (76.2)	Mortar	Lightweight	625 (2.8)	660 (2.9)	125 (0.6)	130 (0.6)
	1-1/2 (38.1)	3 (76.2)	3 (76.2)	3 (76.2)	Face	Lightweight	410 (1.8)	600 (2.7)	80 (0.4)	120 (0.5)
1/4	1-3/4 (44.4)	1 (25.4)	2 (50.8)	1-1/2 (38.1)	Face	Normal Weight	980 (4.3)	460 (2.0)	195 (0.9)	90 (0.4)
	1-3/4 (44.4)			4 (101.6)	Face	Normal Weight	1,855 (8.2)	1,045 (4.6)	370 (1.6)	210 (0.9)
	1-3/4 (44.4)	2-1/2 (63.5)	2-1/2 (63.5)	4 (101.6)	Face	Normal Weight	1,980 (8.7)	1,450 (6.4)	395 (1.7)	290 (1.3)
	2-1/4 (57.2)			4 (101.6)	Face	Normal Weight	3,135 (13.8)	1,440 (6.3)	625 (2.8)	290 (1.3)
	1-1/2 (38.1)	8 (203.2)	3 (76.2)	4 (101.6)	Mortar	Lightweight	730 (3.3)	1,010 (4.5)	145 (0.7)	200 (0.9)
	1-1/2 (38.1)	3 (76.2)	3 (76.2)	4 (101.6)	Face	Lightweight	650 (2.9)	1,010 (4.5)	130 (0.6)	200 (0.9)

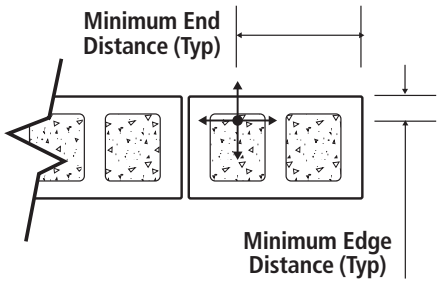
1. Tabulated load values for 3/16 and 1/4 anchors installed in normal weight concrete masonry units are based on minimum 8 wide block conforming to ASTM C90 that have reached the minimum designated ultimate compressive strength at the time of installation (f'm ≥ 2,000 psi). Mortar must be a minimum Grade N
2. Tabulated load values for 3/16 and 1/4 anchors installed in lightweight concrete masonry units are based on minimum 6 wide, Type II block conforming to ASTM C90 that have reached the minimum designated ultimate compressive strength at the time of installation (f'm ≥ 1,500 psi). Mortar must be a minimum Grade N
3. 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.
4. Allowable shear loads into the face shell of a masonry wall may be applied in any direction.



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)	ASTM C-90 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)	1-1/2" (38.1)	3 (76.2)	Lightweight	450 (2.0)	510 (2.3)	90 (0.4)	100 (0.5)
1/4	1-1/2" (38.1)	1-1/2" (38.1)	3 (76.2)	Lightweight	825 (3.7)	780 (3.5)	165 (0.7)	155 (0.7)

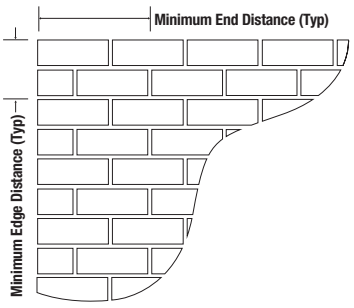
1. Tabulated load values are for 3/16-inch and 1/4-inch anchors installed in minimum 6" wide, Type II, light weight concrete masonry units conforming to ASTM C 90 that have reached the minimum designated ultimate compressive strength at the time of installation (f'm ≥ 1,500 psi). Mortar must be a minimum Grade N.
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 for the 3/16-inch and 1/4-inch diameter UltraCon+ in light weight block 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]

Nominal Anchor Diameter d in.	Minimum Embed. h_v 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)	1-3/4 (44.5)	1-3/4 (44.5)	Face	380 (1.7)	165 (0.7)
				Mortar Joint	300 (1.3)	190 (0.8)
1/4				Face	605 (2.7)	270 (1.2)
				Mortar Joint	200 (0.9)	155 (0.7)

1. Tabulated load values are for anchors installed in multiple wythe, minimum Grade SW, solid clay brick masonry walls conforming to ASTM C 62. Mortar must be minimum Type N. Masonry compressive strength must be at the specified minimum at the time of installation (f'm ≥ 1,500 psi).
2. Allowable load capacities listed are calculated using and 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.



Average Withdrawal Capacity and Average Bending Yield Moment of UltraCon+ in Wood[1]

Nominal Anchor Diameter d in.	Minimum Embed. h_v in. (mm)	Minimum Edge Distance in. (mm)	Withdrawal Capacity[1] lbs. (kN)	Bending Yield psi (MPa)
3/16	1 (25.4)	1-3/4 (44.5)	540 (2.4)	69,000 (475)
	1-1/2 (38.1)	1-3/4 (44.5)	820 (3.7)	69,000 (475)
1/4	1 (25.4)	1-3/4 (44.5)	680 (3.0)	97,000 (670)
	1-1/2 (38.1)	1-3/4 (44.5)	1,050 (4.7)	97,000 (670)

1. Tests in Douglas-Fir Larch with Specific Gravity of 0.42; screw oriented tangental to wood grain.

STRENGTH DESIGN INFORMATION

Strength Design Installation Table for UltraCon+[1]

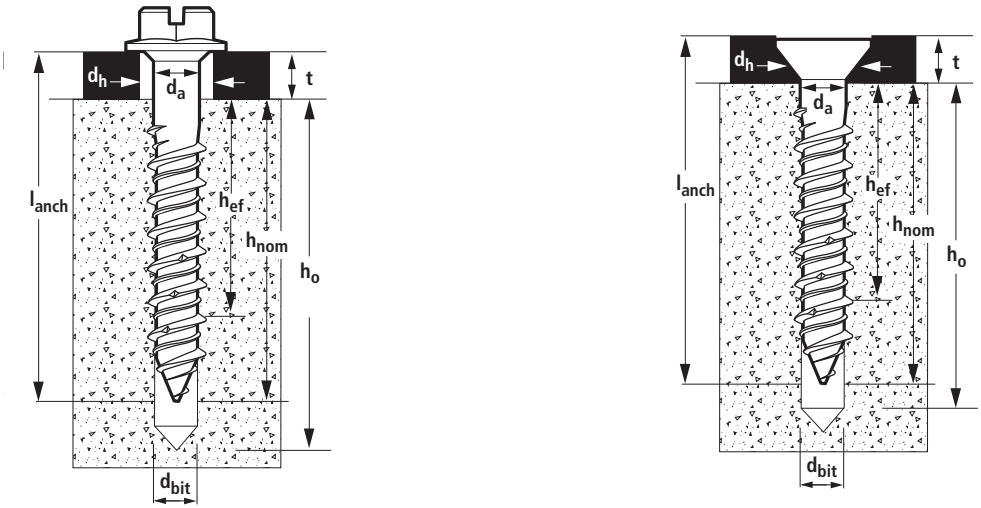
CODE LISTED
ICC-ES ESR-3068

Anchor Property/Setting Information	Notation	Units	3/16	1/4
Nominal outside anchor 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 (6.4)	h_{nom} + 1/4 (6.4)
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 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.

1. The Information presented in this table is to be used in conjunction with the design criteria of ACI 318-14 Chapter 17 or ACI 318-11 Appendix D, as applicable.
2. 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



Tension Design Information for UltraCon+ Anchor in Concrete

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)
STEEL STRENGTH IN TENSION[4]				
Minimum specified ultimate tensile strength (neck)	f_{uta}	ksi (N/mm^2)	100 (689)	100 (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[8]	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[7]				
Effective embedment	h_{ef}	in. (mm)	1.23 (31.2)	1.23 (31.2)
Effectiveness factor for concrete breakout	k_{uncr}	-	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	c_{ac}	in. (mm)	3 (76.2)	3 (76.2)
Reduction factor for concrete breakout strength[3]	ϕ	-	0.65 (Condition B)	
PULLOUT STRENGTH IN TENSION[7]				
Characteristic pullout strength, uncracked concrete (2,500 psi)[6]	$N_{p,uncr}$	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/mm^2, 1 lbf = 0.0044 kN.

1. The data in this table is intended to be used with the design provisions of ACI 318-14 Chapter 17 or ACI 318-11 Appendix D, as applicable.
2. Installation must comply with published instructions and details.
3. All values of ϕ were determined from the load combinations of IBC Section 1605.2, ACI 318-14 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 318-14 17.3.3 or ACI 318-11 D. 4.3, as applicable, for the appropriate ϕ factor.
4. 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.
5. For all design cases use $\Psi_{c,N} = 1.0$. The appropriate effectiveness factor for uncracked concrete (k_{uncr}) must be used.
6. For all design cases use $\Psi_{c,P} = 1.0$. For the calculation of $N_{p,uncr}$, the nominal pullout strength can be adjusted by calculation according to:
   $N_{pn,f'c} = N_{p,uncr} \left(\frac{f'c}{2,500}\right)^{n}$ (lbs, psi), $N_{pn,f'c} = N_{p,uncr} \left(\frac{f'c}{17.2}\right)^{n}$ (N,MPa)
   Where f'c is the specified concrete compressive strength and whereby the exponent $n = 0.3$ for the 3/16-inch-diameter (4.8mm) anchors, $n = 0.4$ for 1/4-inch-diameter (6.4mm) anchors.
7. 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.
8. Tabulated values for steel strength in tension must be used for design.

Shear Design Information for UltraCon+ Anchor in Concrete

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)
STEEL STRENGTH IN SHEAR[4]				
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[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[6]				
Coefficient for pryout strength	k_{cp}	-	1.0	1.0
Effective embedment	h_{ef}	in. (mm)	1.23 (31.2)	1.23 (31.2)
Reduction factor for pryout strength[3]	ϕ	-	0.70 (Condition B)	

For SI: 1 inch = 25.4 mm, 1 lbf = 0. 0044 kN.

1. The data in this table is intended to be used with the design provisions of ACI 318-14 Chapter 17 or ACI 318-11 Appendix D, as applicable.
2. Installation must comply with published instructions and details.
3. All values of ϕ were determined from the load combinations of IBC Section 1605.2 , ACI 318-14 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 318-14 17.3.3 or ACI 318-11 D. 4.3, as applicable, for the appropriate ϕ factor.
4. 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.
5. Tabulated values for steel strength in shear must be used for design.
6. 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.

STRENGTH DESIGN PERFORMANCE DATA

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	
		ϕNn Tension (lbs.)	ϕVn Shear (lbs.)	ϕNn Tension (lbs.)	ϕVn Shear (lbs.)	ϕNn Tension (lbs.)	ϕVn Shear (lbs.)	ϕNn Tension (lbs.)	ϕVn Shear (lbs.)	ϕNn Tension (lbs.)	ϕVn 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

1- 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}.

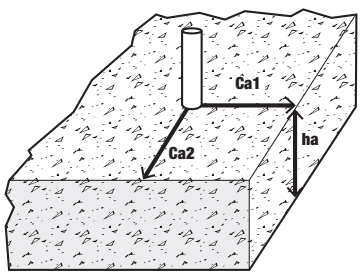
2- Calculations were performed according to ACI 318-14, Chapter 17. The load level corresponding to the controlling failure mode is listed. (e.g. For tension: steel, concrete breakout and pullout; For shear: steel, concrete breakout and pryout). Furthermore, the capacities for concrete breakout strength 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.

3- Strength reduction factors (ø) were based on ACI 318-14, Section 5.3 for load combinations. Condition B is assumed.

4- Tabular values are permitted for static loads only, seismic loading is not considered with these tables.

5- For designs that include combined tension and shear, the interaction of tension and shear loads must be calculated in accordance with ACI 318-14, Chapter 17.

6- Interpolation is not permitted to be used with the tabular values. For intermediate base material compressive strengths please see ACI 318-14, Chapter 17. For other design conditions including seismic considerations please see ACI 318-14, Chapter 17.



ORDERING INFORMATION

Blue UltraCon+ Standard Pack

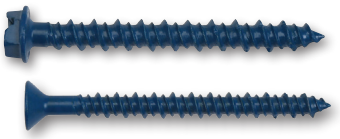
Cat. No.		Screw Size	Quantity	
HWH	PFH		Box	Carton
DFM12700	DFM12740	3/16" x 1-1/4"	100	500
DFM12702 *	DFM12742	3/16" x 1-3/4"	100	500
DFM12704	DFM12744	3/16" x 2-1/4"	100	500
DFM12706	DFM12746	3/16" x 2-3/4"	100	500
DFM12708	DFM12748	3/16" x 3-1/4"	100	500
DFM12710	DFM12750	3/16" x 3-3/4"	100	500
DFM12712	DFM12752	3/16" x 4"	100	500
DFM12715	-	1/4" x 1"	100	500
DFM12720	DFM12760	1/4" x 1-1/4"	100	500
DFM12722 *	DFM12762	1/4" x 1-3/4"	100	500
DFM12724	DFM12764	1/4" x 2-1/4"	100	500
DFM12726	DFM12766	1/4" x 2-3/4"	100	500
DFM12728	DFM12768	1/4" x 3-1/4"	100	500
DFM12730	DFM12770	1/4" x 3-3/4"	100	500
DFM12732	DFM12772	1/4" x 4"	100	500
DFM12734	DFM12774	1/4" x 5"	100	500
DFM12735	DFM12776	1/4" x 6"	100	500

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

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

* Catalog numbers with a * 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.

- One straight shank drill bit included in each standard box.
- 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 embedment depth 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

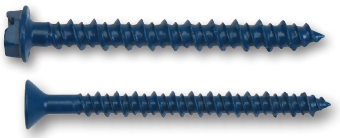
Cat. No.		Screw Size	Quantity
HWH	PFH		
DFM12700B	DFM12740B	3/16" x 1-1/4"	5000
DFM12702B *	DFM12742B	3/16" x 1-3/4"	3000
-	DFM12744B	3/16" x 2-1/4"	2500
DFM12704B	-		2000
DFM12706B	DFM12746B	3/16" x 2-3/4"	1500
DFM12708B	DFM12748B	3/16" x 3-1/4"	1000
DFM12710B	DFM12750B	3/16" x 3-3/4"	1000
DFM12712B	DFM12752B	3/16" x 4"	1000
DFM12720B	-	1/4" x 1-1/4"	2000
-	DFM12760B		2500
DFM12722B *	-	1/4" x 1-3/4"	2000
-	DFM12762B		2500
DFM12724B	DFM12764B	1/4" x 2-1/4"	1500
DFM12726B	DFM12766B	1/4" x 2-3/4"	1000
DFM12728B	DFM12768B	1/4" x 3-1/4"	1000
DFM12730B	DFM12770B	1/4" x 3-3/4"	500
DFM12732B	DFM12772B	1/4" x 4"	500
DFM12734B	-	1/4" x 5"	500
DFM12735B	-	1/4" x 6"	500

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

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

* Catalog numbers with a * 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.

- One straight shank drill bit included in each standard box.
- 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 embedment depth 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	Quantity
HWH	HFH	PFH	TFH		
-	-	DFM2ELG521	-	3/16" x 1-1/4"	5000
-	-	DFM2ELG551	-	3/16" x 1-3/4"	3000
-	-	DFM2ELG581	-	3/16" x 2-1/4"	2500
-	-	DFM2ELG611	-	3/16" x 2-3/4"	1500
-	-	DFM2ELG641	-	3/16" x 3-1/4"	1000
-	-	DFM2ELG671	-	3/16" x 3-3/4"	1000
DFM2ELG340	-	-	DFM2ELG770	1/4" x 1-1/4"	2500
DFM2ELG341 *	-	-	DFM2ELG771	1/4" x 1-3/4"	2000
-	DFM2ELC145	-	-		1500
DFM2ELG371	-	-	DFM2ELG801	1/4" x 2-1/4"	1500
-	DFM2ELC151	-	-		1000
DFM2ELG401	DFM2ELC160	-	DFM2ELG831	1/4" x 2-3/4"	1000
DFM2ELG431	DFM2ELC170	-	DFM2ELG861	1/4" x 3-1/4"	1000
-	-	-	DFM2ELG891	1/4" x 3-3/4"	500
-	-	-	DFM2ELG921	1/4" x 4"	500

HWH = Hex Washer Head (slotted); HFH = Hex Flange Head; PFH = Phillips Flat Head; TFH = TrimFit Flat Head

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

* catalog numbers with a * 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.

- Drill bit not included with master pack.
- 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 embedment depth 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

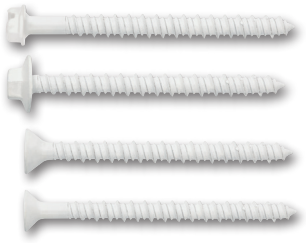
Cat. No.				Screw Size	Quantity
HWH	HFH	PFH	TFH		
DFM2ELD200	-	DFM2ELD320	-	3/16" x 1-1/4"	5000
DFM2ELD210 *	-	DFM2ELD330	-	3/16" x 1-3/4"	3000
DFM2ELD220	-	DFM2ELD340	-	3/16" x 2-1/4"	2500
DFM2ELD230	-	DFM2ELD350	-	3/16" x 2-3/4"	1500
DFM2ELD240	-	DFM2ELD360	-	3/16" x 3-1/4"	1000
-	-	DFM2ELD370	-	3/16" x 3-3/4"	1000
DFM2ELD250	-	DFM2ELD385	-	1/4" x 1-1/4"	2500
-	DFM2ELD270	-	-		2000
DFM2ELD195 *		DFM2ELD386	DFM2ELD400	1/4" x 1-3/4"	2000
-	DFM2ELD275	-	-		1500
DFM2ELD205	-	DFM2ELD387	DFM2ELD410	1/4" x 2-1/4"	1500
-	DFM2ELD285	-	-		1000
DFM2ELD215	DFM2ELD295	DFM2ELD388	DFM2ELD420	1/4" x 2-3/4"	1000
DFM2ELD225	-	DFM2ELD389	DFM2ELD430	1/4" x 3-1/4"	1000
-	DFM2ELD305	-	-		500
DFM2ELD235	-	-	DFM2ELD440	1/4" x 3-3/4"	500
DFM2ELD245	-	-	DFM2ELD450	1/4" x 4"	500
DFM2ELD255	-	-	-	1/4" x 5"	500
DFM2ELD265	-	-	-	1/4" x 6"	500

HWH = Hex Washer Head (slotted); HFH = Hex Flange Head; PFH = Phillips Flat Head; TFH = TrimFit Flat Head

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

* catalog numbers with a * 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.

- Drill bit not included with master pack.
- 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 embedment depth 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	Quantity
HWH	PFH	TFH		
-	DFM2ELG612	-	3/16" x 2-3/4"	1500
-	-	DFM2ELG832	1/4" x 2-3/4"	1000
-	-	DFM2ELG862	1/4" x 3-1/4"	1000
-	-	DFM2ELG892	1/4" x 3-3/4"	500
DFM2ELE465	-	-	1/4" x 4"	500

Add Notes under table:

- HWH = Hex Washer Head (slotted); PFH = Phillips Flat Head; TFH = TrimFit Flat Head
- Drill bit not included with master pack.

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 embedment depth 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

Installation Kit

Cat. No.	Description
DW5366	UltraCon®+ Installation Kit includes: 5/32" and 3/16" UltraCon+ bit, 1/4" and 5/16" nutsetters, #2 and #3 Phillips bits, Phillips flat head adapter, percussion adapter, drive sleeve and 1/8" allen wrench

Rotary Hammers

Cat. No.	Description
DCH273	20V Max* XR Brushless 1" L-Shape 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 in. SDS Plus Hammers
DWH050	Large Hammer Dust Extraction - Hole Cleaning
DWH200	Dust Extraction Tube Kit with Hose

Dust Extractors

Cat. No.	Description
DCV585	Flexvolt® 60V Max* Dust Extractor
DVW010	8 Gallon Wet Dry Hepa/Rrp Dust Extractor
DWV012	10 Gallon Wet Dry Hepa/Rrp Dust Extractor
DWH161D1	20V Max* XR Brushless Universal Dust Extractor Kit

GENERAL INFORMATION

ULTRACON® SS4

410 Stainless Steel Concrete and Masonry Fasteners

PRODUCT DESCRIPTION

The UltraCon SS4 anchor is a 410 stainless steel screw anchor for light to medium duty applications in concrete and masonry block base materials. The screw anchor is fast and easy to install and provides a neat, finished appearance. UltraCon SS4 anchors feature a Stalgard coating and provide enhanced corrosion resistance over carbon steel fasteners.

GENERAL APPLICATIONS AND USES

- Screen Enclosures
- Storm Shutters
- Light Duty Fixtures
- Light Duty Industrial Applications

FEATURES AND BENEFITS

+ Special heat treatment to protect inherent corrosion resistance of the 410 stainless steel material
+ Stalgard coating provides 1000 hours of salt spray protection when tested in accordance with ASTM B117

APPROVALS AND LISTINGS

- Miami-Dade County Notice of Acceptance (NOA) No. 19-0619.01
- Florida Statewide Product Approval FL29068.1

GUIDE SPECIFICATIONS

CSI Divisions: 03 16 00 - Concrete Anchors, 04 05 19.16 - Masonry Anchors and 05 05 19 - Post-Installed Concrete Anchors. Concrete Screw Anchors shall be UltraCon SS4 as supplied by DEWALT, Towson, MD. Concrete screw anchors shall be installed in accordance with published instructions and the Authority Having Jurisdiction.

MATERIAL SPECIFICATIONS

Anchor Component	Specification
Anchor Body	Type 410 Stainless Steel
Coating/Plating/Finish	Stalgard® 1000 hour rating for ASTM B 117 salt spray test
Note: 410 Stainless Steel fasteners in contact with aluminum and aluminum alloys is not recommended in accordance with AISI SS 502/ SSINA guidelines	

SECTION CONTENTS

General Information.....1
Material Specifications.....1
Installation Specifications.....2
Ordering Information.....4

ULTRACON SS4

HEAD STYLES

- Hex Washer Head
- TrimFit® Flat Head

ANCHOR MATERIALS

- Type 410 Stainless Steel
- Stalgard® Coating

ANCHOR SIZE RANGE

- 1/4" diameter x 1-1/4" to 6" length

SUITABLE BASE MATERIALS

- Normal-weight Concrete
- Hollow Concrete Masonry (CMU)
- Grout-Filled Concrete Masonry (CMU)

INSTALLATION SPECIFICATIONS

Dimension	Anchor Diameter, d	
	1/4" HEX	1/4" TFH
Ultracon+ Drill Bit Size (in)	3/16	3/16
Typ. Fixture Clearance hole (in)	5/16	5/16
Head Height (in)	9/64	3/16
Head Width (in)	5/16	13/32
Washer OD (in)	13/32	N/A
Washer Thickness (in)	1/32	N/A
Hex Driver (in)/ Phillips Driver	5/16	#3

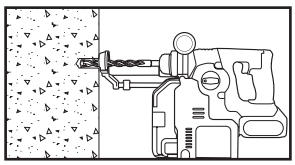
410 Stainless Steel UltraCon SS4 Identification

The head markings consist of a "D" for the DEWALT brand, the number "4" for the 410 series stainless steel classification, and the length code

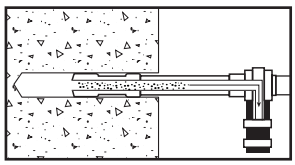
Hex Washer Head

TrimFit Head

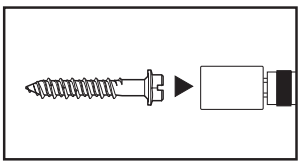
Installation Instruction for UltraCon SS4



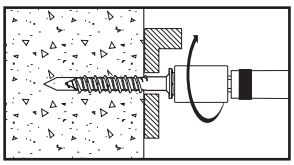
Step 1
Using the proper drill bit size, drill a hole into the base material to the required depth, ho, which is a 1/4-inch deeper than the minimum embedment depth, h_{nom}.



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 SS4 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 UltraCon SS4.

UltraCon SS4 Length Code Identification System

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

Installation Table for Aggre-Gator in Concrete[1]

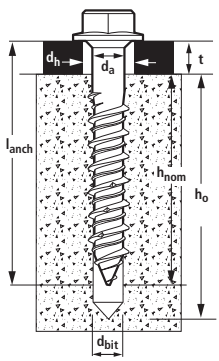
Anchor Property/ Setting Information	Notation	Units	Nominal Anchor Diameter
			1/4
Anchor Shank Diameter	d_a	in.	0.194
Typ. diameter of hole clearance in fixture	d_h	in.	5/16
Nominal drill bit diameter	d_{bit}	in.	3/16" UltraCon+ Bit
UltraCon+ bit tolerance range	-	in.	.202-.206
Minimum nominal embedment depth	h_{nom}	in.	1-1/2
Minimum hole depth	h_o	in.	1-3/4
Hex Head Socket size	-	in.	5/16
Phillips Bit Size	-	No.	3

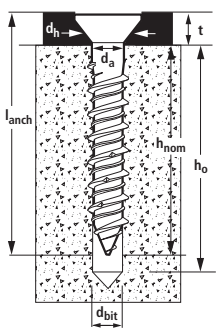
1. The minimum base material thickness must be $1.5h_{nom}$ or 3", whichever is greater.

Installation Table for Aggre-Gator in Masonry

Anchor Property/ Setting Information	Notation	Units	Nominal Anchor Diameter
			1/4
Anchor Diameter	d_a	in.	0.194
Diameter of clearence hole in fixture	d_h	in.	5/16
Nominal drill bit diameter	d_{bit}	in.	3/16" UltraCon+ Bit
UltraCon+ bit tolerance range	-	in.	.202-.206
Minimum nominal embedment depth (Grout Filled Masonry)	h_{nom}	in.	1-1/4
Minimum hole depth (Grout Filled Masonry)	h_o	in.	1-1/2
Minimum nominal embedment (Hollow Masonry)	h_{nom}	in.	1-1/4
Minimum hole depth (Hollow Masonry)	h_o	in.	1-1/2
Hex Head Socket size	-	in.	5/16
Phillips Bit Size	-	No.	3

Anchor Detail





Nomenclature

d = Diameter of anchor
d_{bit} = Diameter of drill bit
d_h = 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

Ultimate Load Capacities for UltraCon SS4 in Normal Weight Concrete

Nominal Anchor Diameter	Min. Edge Dist. (in.)	Min. Spacing (in.)	Min. Embed. (in.)	Minimum Concrete Compressive Strength			
				2500 psi		3000 psi	
				Tension (lbs.)	Shear (lbs.)	Tension (lbs.)	Shear (lbs.)
1/4	1	1-1/2	1-1/2"	340	265	365	280
			1-3/4"	540	385	580	410
		3	1-1/2"	610	275	660	295
			1-3/4"	1235	510	1330	540
	2-1/2	1-1/2	1-1/2"	720	730	770	775
			1-3/4"	1275	1900	1375	2020
		3	1-1/2"	885	990	955	1050
			1-3/4"	1515	2200	1630	2335

1. Tabulated load values are for anchors installed in concrete. Concrete compressive strength must be at the specified minimum at the time of installation
2. Ultimate load capacities must be reduced by a minimum safety factor of 4.0 or greater to determine allowable working load. Consideration of safety factors of 10 and higher may be necessary depending upon the application such as life safety or overhead.

Allowable Load Capacities for UltraCon SS4 in Normal Weight Concrete

Nominal Anchor Diameter	Min. Edge Dist. (in.)	Min. Spacing (in.)	Min. Embed. (in.)	Minimum Concrete Compressive Strength			
				2500 psi		3000 psi	
				Tension (lbs.)	Shear (lbs.)	Tension (lbs.)	Shear (lbs.)
1/4	1	1-1/2	1-1/2"	85	65	90	70
			1-3/4"	135	95	145	100
		3	1-1/2"	150	65	165	70
			1-3/4"	305	125	330	135
	2-1/2	1-1/2	1-1/2"	180	180	190	190
			1-3/4"	315	475	340	505
		3	1-1/2"	220	245	235	260
			1-3/4"	375	550	405	580

1. 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.
2. Allowable loads suggested herein are only valid when both the minimum anchor center-to-center spacing and minimum edge distances are complied with.

Ultimate Load Capacities for UltraCon SS4 in Hollow and Grout-Filled Concrete Masonry

Nominal Anchor Diameter (in.)	Min. Edge Dist. (in.)	Min. Spacing (in.)	Min. Embed. (in.)	Hollow Bock		Grout-Filled Block	
				Tension (lbs.)	Shear (lbs.)	Tension (lbs.)	Shear (lbs.)
1/4	1	1-1/2	1-1/4	530	220	685	280
			2	-	-	1090	280
		3	1-1/4	620	360	950	415
			2	-	-	1460	415
	2-1/2	1-1/2	1-1/4	530	445	1025	455
			2	-	-	1090	900
		3	1-1/4	620	615	1060	1000
			2	-	-	1930	1510

1. Tabulated load values are for anchors installed in grout-filled concrete block conforming to ASTM C-90 with a minimum block compressive strength of 2000 psi and minimum grout compressive strength of 1624 psi.
2. Ultimate load capacities must be reduced by a minimum safety factor of 5.0 or greater to determine allowable working load. Consideration of safety factors of 10 and higher may be necessary depending upon the application such as life safety or overhead.

Allowable Load Capacities for UltraCon SS4 in Hollow and Grout-Filled Concrete Masonry

Nominal Anchor Diameter (in.)	Min. Edge Dist. (in.)	Min. Spacing (in.)	Min. Embed. (in.)	Hollow Bock		Grout-Filled Block	
				Tension (lbs.)	Shear (lbs.)	Tension (lbs.)	Shear (lbs.)
1/4	1	1-1/2	1-1/4	105	40	135	55
			2	-	-	215	55
		3	1-1/4	120	70	190	80
			2	-	-	290	80
	2-1/2	1-1/2	1-1/4	105	85	205	90
			2	-	-	215	180
		3	1-1/4	120	120	210	200
			2	-	-	385	300

1. 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.
2. Allowable loads suggested herein are only valid when both the minimum anchor center-to-center spacing and minimum edge distances are complied with.

ORDERING INFORMATION

Silver Stalgard® UltraCon SS4

Cat. No.		Screw Size	Standard Box	Standard Carton
HWH	TFH			
DFM4EUH310	DFM4EUF310	1/4" X 1-1/4"	100	500
DFM4EUH315	DFM4EUF315	1/4" X 1-3/4"	100	500
DFM4EUH325	DFM4EUF325	1/4" X 2-1/4"	100	500
DFM4EUH335	DFM4EUF335	1/4" X 2-3/4"	100	500
DFM4EUH345	DFM4EUF345	1/4" X 3-1/4"	100	500
DFM4EUH355	DFM4EUF355	1/4" X 3-3/4"	100	500
DFM4EUH365	DFM4EUF365	1/4" X 4"	100	500
DFM4EUH375	-	1/4" X 5"	100	500
DFM4EUH385	-	1/4" X 6"	100	500

HWH = Hex Washer Head, TFH = TrimFit® Flat Head

One straight shank drill bit included in each standard box

Hex Head UltraCon SS4 Anchors are measured from below the washer while flat head UltraCon SS4 anchors are measured end to end. To select the proper minimum anchor length, determine the embedment depth required to obtain the 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
DW5382	3/16 x 7" UltraCon+ SDS bit

Installation Kit

Cat. No.	Description
DW5366	UltraCon®+ Installation Kit includes: 5/32" and 3/16" UltraCon+ bit, 1/4" and 5/16" nutsetters, #2 and #3 Phillips bits, Phillips flat head adapter, percussion adapter, drive sleeve and 1/8" allen wrench

Rotary Hammers

Cat. No.	Description
DCH273	20V Max* XR Brushless 1" L-Shape 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 in. SDS Plus Hammers
DWH050	Large Hammer Dust Extraction - Hole Cleaning
DWH200	Dust Extraction Tube Kit with Hose

Dust Extractors

Cat. No.	Description
DCV585	Flexvolt® 60V Max* Dust Extractor
DWV010	8 Gallon Wet Dry Hepa/Rrp Dust Extractor
DWV012	10 Gallon Wet Dry Hepa/Rrp Dust Extractor
DWH161D1	20V Max* XR Brushless Universal Dust Extractor Kit

GENERAL INFORMATION

AGGRE-GATOR®

300 Series Stainless Bi-Metal Concrete and Masonry Fasteners

PRODUCT DESCRIPTION

The Aggre-Gator anchor is a Bi-Metal screw anchor for light to medium duty applications in concrete and masonry block base materials. The Aggre-Gator is fast and easy to install and provides a neat, finished appearance. Aggre-gator anchors provide unmatched corrosion resistance in demanding applications, such as those in coastal or wet areas.

GENERAL APPLICATIONS AND USES

- Exposed anchoring/coastal/wet areas
- Hurrican shutters/windows/awnings/thresholds
- Stone facade support anchors
- Aluminum enclosures
- Curtain wall & window wall support anchors
- ACQ-treated wood

FEATURES AND BENEFITS

+ High in-place value over life of structure
+ High strength and ductility
+ Stalgard GB coating creates greater galvanic compatibility in dissimilar metal applications involving aluminum
+ Thread profile provides quick cutting and stability during installation
+ Best choice for ACQ-treated lumber

APPROVALS AND LISTINGS

- Miami-Dade County Notice of Acceptance (NOA) No. 19-0619.01
- Florida Statewide Product Approval FL29068.1

GUIDE SPECIFICATIONS

CSI Divisions: 03 16 00 - Concrete Anchors, 04 05 19.16 - Masonry Anchors and 05 05 19 - Post-Installed Concrete Anchors. Concrete Screw Anchors shall be Aggre-Gator as supplied by DEWALT, Towson, MD. Concrete screw anchors shall be installed in accordance with published instructions and the Authority Having Jurisdiction

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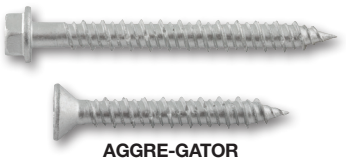


AGGRE-GATOR

HEAD STYLES

- Hex Washer Head
- TrimFit® Flat Head

ANCHOR MATERIALS

- 300 series (18-8) stainless steel head and shank and hardened steel tapping threads and gimlet points
- Stalgard® GB (Galvanic Barrier) coating

ANCHOR SIZE RANGE

- 1/4" diameter x 1-1/4" to 4" length

SUITABLE BASE MATERIALS

- Normal-weight Concrete
- Hollow Concrete Masonry (CMU)
- Grout-Filled Concrete Masonry (CMU)

MATERIAL SPECIFICATIONS

Anchor Component	Specification
Anchor Head and Shank	300 Series Stainless Steel
Anchor Gimlet Point and Tapping Threads	Hardened Steel
Coating/Plating/Finish	Stalgard® GB

INSTALLATION SPECIFICATIONS

Dimension	Anchor Diameter, d	
	1/4" HEX	1/4" TFH
Ultracon+ Drill Bit Size (in)	3/16	3/16
Typ. Fixture Clearance hole (in)	5/16	5/16
Head Height (in)	9/64	3/16
Head Width (in)	5/16	13/32
Washer OD (in)	13/32	N/A
Washer Thickness (in)	3/64	N/A
Hex Driver (in)/ Phillips Driver	5/16	#3

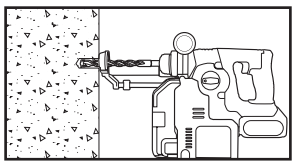
300 Series Stainless Steel Aggre-Gator Identification

The head markings consist of a "D" for the DEWALT brand, the number "3" for the 300 series stainless steel classification, and the length code

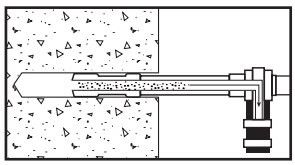
Hex Washer Head

TrimFit® Head

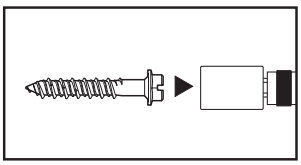
Installation Instruction for Aggre-Gator



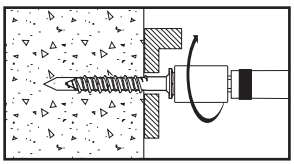
Step 1
Using the proper drill bit size, drill a hole into the base material to the required depth, ho, which is a 1/4-inch deeper than the minimum embedment depth, h_{nom}.



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 Aggre-Gator 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 Aggre-Gator.

Aggre-Gator Length Code Identification System

Length ID marking on head		☐	A	B	C	D	E	F
Overall anchor length ℓ_{anch} (inches)	From	1"	1-1/2"	2"	2-1/2"	3"	3-1/2"	4"
	Up to but not including	1-1/2"	2"	2-1/2"	3"	3-1/2"	4"	4-1/2"

Installation Table for Aggre-Gator in Concrete[1]

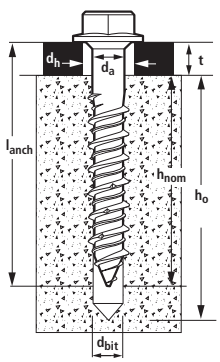
Anchor Property/ Setting Information	Notation	Units	Nominal Anchor Diameter
			1/4
Anchor Shank Diameter	d_a	in.	0.189
Typ. diameter of hole clearence in fixture	d_h	in.	5/16
Nominal drill bit diameter	d_{bit}	in.	3/16" UltraCon+ Bit
UltraCon+ bit tolerance range	-	in.	.202-.206
Minimum nominal embedment depth	h_{nom}	in.	1
Minimum hole depth	h_o	in.	1-1/4
Hex Head Socket size	-	in.	5/16
Phillips Bit Size	-	No.	3

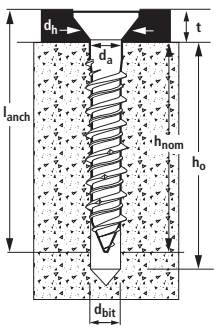
1. The minimum base material thickness must be $1.5h_{nom}$ or 3", whichever is greater.

Installation Table for Aggre-Gator in Masonry

Anchor Property/ Setting Information	Notation	Units	Nominal Anchor Diameter
			1/4
Anchor Diameter	d_a	in.	0.189
Diameter of clearence hole in fixture	d_h	in.	5/16
Nominal drill bit diameter	d_{bit}	in.	3/16" UltraCon+ Bit
UltraCon+ bit tolerance range	-	in.	.202-.206
Minimum nominal embedment depth (Grout Filled Masonry)	h_{nom}	in.	1-1/4
Minimum hole depth (Grout Filled Masonry)	h_o	in.	1-1/2
Minimum nominal embedment (Hollow Masonry)	h_{nom}	in.	1-1/4
Minimum hole depth (Hollow Masonry)	h_o	in.	1-1/2
Hex Head Socket size	-	in.	5/16
Phillips Bit Size	-	No.	3

Anchor Detail





Nomenclature

d = Diameter of anchor
d_{bit} = Diameter of drill bit
d_h = 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

PERFORMANCE DATA

Ultimate Load Capacities for Aggre-Gator in Normal Weight Concrete[1,2]

Nominal Anchor Diameter	Min. Edge Dist. (in.)	Min. Spacing (in.)	Min. Embed. (in.)	Minimum Concrete Compressive Strength									
				2000 psi		2500 psi		3000 psi		3500 psi		4000 psi	
				Tension (lbs.)	Shear (lbs.)	Tension (lbs.)	Shear (lbs.)	Tension (lbs.)	Shear (lbs.)	Tension (lbs.)	Shear (lbs.)	Tension (lbs.)	Shear (lbs.)
1/4	1-1/4	3	1	450	-	495	-	955	-	1015	-	1070	-
			1-3/8	1105	-	1215	-	1215	-	1215	-	1270	-
			1-3/4	1125	-	1235	-	1235	-	1235	-	1270	-
	1-1/2	3	1	450	780	495	815	955	980	1015	1020	1070	1020
			1-3/8	1105	990	1215	1035	1215	1175	1215	1220	1270	1220
			1-3/4	1125	1170	1235	1220	1235	1220	1235	1220	1270	1220
	2-1/2	1-1/2	1	740	780	815	815	965	980	1030	1020	1085	1020
			1-3/8	960	990	1055	1035	1055	1175	1055	1220	1085	1220
			1-3/4	1220	1170	1340	1220	1340	1220	1340	1220	1380	1220
		3	1-1/2	-	765[3]	-	800[3]	-	-	-	-	-	-
			1-3/4	-	760[4]	-	795[4]	-	-	-	-	-	-
	3	1-1/2	1	740	865	815	900	965	900	1030	900	1085	900
			1-3/8	960	1580	1055	1650	1055	1965	1055	2040	1085	2040
			1-3/4	1220	1870	1340	1950	1340	1985	1340	2060	1380	2060

1. Tabulated load values are for anchors installed in concrete. Concrete compressive strength must be at the specified minimum at the time of installation.
2. Ultimate load capacities must be reduced by a minimum safety factor of 4.0 or greater to determine allowable working load. Consideration of safety factors of 10 and higher may be necessary depending upon the application such as life safety or overhead.
3. 1x4 nominal (3/4 Max Thick) treated No. 2 southern yellow pine attached to concrete. Embedment depth in concrete.
4. 2x4 nominal (1-1/2 Max Thick) treated No. 2 southern yellow pine attached to concrete. Embedment depth in concrete.

Allowable Load Capacities for Aggre-Gator in Normal Weight Concrete[1,2]

Nominal Anchor Diameter	Min. Edge Dist. (in.)	Min. Spacing (in.)	Min. Embed. (in.)	Minimum Concrete Compressive Strength									
				2000 psi		2500 psi		3000 psi		3500 psi		4000 psi	
				Tension (lbs.)	Shear (lbs.)	Tension (lbs.)	Shear (lbs.)	Tension (lbs.)	Shear (lbs.)	Tension (lbs.)	Shear (lbs.)	Tension (lbs.)	Shear (lbs.)
1/4	1-1/4	3	1	110	-	120	-	235	-	250	-	265	-
			1-3/8	275	-	300	-	300	-	300	-	315	-
			1-3/4	280	-	305	-	305	-	305	-	315	-
	1-1/2	3	1	110	195	120	200	235	245	250	255	265	255
			1-3/8	275	245	300	255	300	290	300	305	315	305
			1-3/4	280	290	305	305	305	305	305	305	315	305
	2-1/2	1-1/2	1	185	195	200	200	240	245	255	255	270	255
			1-3/8	240	245	260	255	260	290	260	305	270	305
			1-3/4	305	290	335	305	335	305	335	305	345	305
		3	1-1/2	-	190[3]	-	200[3]	-	-	-	-	-	-
			1-3/4	-	190[4]	-	195[4]	-	-	-	-	-	-
	3	1-1/2	1	185	215	200	225	240	225	255	225	270	225
			1-3/8	240	395	260	410	260	490	260	510	270	510
			1-3/4	305	465	335	485	335	495	335	515	345	515

1. 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.
2. Allowable loads suggested herein are only valid when both the minimum anchor center-to-center spacing and minimum edge distances are complied with.
3. 1x4 (3/4 Max Thick) treated No. 2 southern yellow pine attached to concrete. Embedment depth in concrete.
4. 2x4 (1-1/2 Max Thick) treated No. 2 southern yellow pine attached to concrete. Embedment depth in concrete.

Ultimate Load Capacities for Aggre-Gator in Hollow and Grout-Filled Concrete Masonry[1,2]

Nominal Anchor Diameter (in.)	Min. Edge Dist. (in.)	Min. Spacing (in.)	Min. Embed. (in.)	Hollow Bock		Grout-Filled Block	
				Tension (lbs.)	Shear (lbs.)	Tension (lbs.)	Shear (lbs.)
1/4	2	3	1-1/4	780	935	830	1035
			2	-	-	1625	2365
	4	1-1/2	1-1/4	-	-	745	1410
			2	-	-	2015	2385
	4	3	1-1/4	880	1055	-	-

1. Tabulated load values are for anchors installed in grout-filled concrete block conforming to ASTM C-90.
2. Ultimate load capacities must be reduced by a minimum safety factor of 5.0 or greater to determine allowable working load. Consideration of safety factors of 10 and higher may be necessary depending upon the application such as life safety or overhead.

Allowable Load Capacities for Aggre-Gator in Hollow and Grout-Filled Concrete Masonry[1,2]

Nominal Anchor Diameter (in.)	Min. Edge Dist. (in.)	Min. Spacing (in.)	Min. Embed. (in.)	Hollow Bock		Grout-Filled Block	
				Tension (lbs.)	Shear (lbs.)	Tension (lbs.)	Shear (lbs.)
1/4	2	3	1-1/4	155	185	165	205
			2	-	-	325	470
	4	1-1/2	1-1/4	-	-	145	280
			2	-	-	400	475
	4	3	1-1/4	175	210	-	-

1. 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.
2. Allowable loads suggested herein are only valid when both the minimum anchor center-to-center spacing and minimum edge distances are complied with.

ORDERING INFORMATION

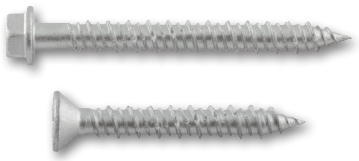
Silver Stalgard Aggre-Gator®

Cat. No.		Screw Size	Standard Box	Standard Carton
HWH	TFH			
DFM3EML300	DFM3EMM300	1/4" X 1-1/4"	50	300
DFM3EML315	DFM3EMM310	1/4" X 1-3/4"	50	300
DFM3EML325	DFM3EMM320	1/4" X 2-1/4"	50	300
DFM3EML335	DFM3EMM330	1/4" X 2-3/4"	50	300
DFM3EML345	DFM3EMM340	1/4" X 3-1/4"	50	300
DFM3EML365	DFM3EMM360	1/4" X 4"	50	300

HWH = Hex Washer Head, TFH = TrimFit® Flat Head

One straight shank drill bit included in each standard box

Hex Head Aggre-Gator anchors are measured from below the washer while flat head Aggre-Gator anchors are measured end to end. To select the proper minimum anchor length, determine the embedment depth required to obtain the 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
DW5382	3/16 x 7" UltraCon+ SDS bit

Installation Kit

Cat. No.	Description
DW5366	UltraCon®+ Installation Kit includes: 5/32" and 3/16" UltraCon+ bit, 1/4" and 5/16" nutsetters, #2 and #3 Phillips bits, Phillips flat head adapter, percussion adapter, drive sleeve and 1/8" allen wrench

Rotary Hammers

Cat. No.	Description
DCH273	20V Max* XR Brushless 1" L-Shape 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 in. SDS Plus Hammers
DWH050	Large Hammer Dust Extraction - Hole Cleaning
DWH200	Dust Extraction Tube Kit with Hose

Dust Extractors

Cat. No.	Description
DCV585	Flexvolt® 60V Max* Dust Extractor
DVW010	8 Gallon Wet Dry Hepa/Rrp Dust Extractor
DWV012	10 Gallon Wet Dry Hepa/Rrp Dust Extractor
DWH161D1	20V Max* XR Brushless Universal Dust Extractor Kit