GENERAL INFORMATION

ULTRACON®

Concrete and Masonry Fasteners

PRODUCT DESCRIPTION

The UltraCon fastening system is a complete family of screw anchors for light to medium duty applications in concrete and masonry block base materials. UltraCon is available in 5/16" diameter which provides increased shear and tensile strength to meet the needs of more demanding applications. The UltraCon is fast and easy to install and provides a neat, finished appearance. The UltraCon screw anchor is available in carbon steel with a Stalgard coating in silver that provides additional corrosion resistance.

GENERAL APPLICATIONS AND USES

- Window Frames
- Metal Door Frames
- Shelving and Racking
- Shutters and Guards
- Pipe Support
- Cable Trays

FEATURES AND BENEFITS

+ 5/16" diameter provides increased shear and tensile strength
+ Stalgard® coating provides 1000 hours of salt spray protection when tested in accordance with ASTM B117
+ Available in various head styles to fit the intended application
+ Installed with a standard ANSI bit

APPROVALS AND LISTINGS

- Miami-Dade County Notice of Acceptance (NOA) No. 21-0113.01
- Florida Statewide Product Approval FL29068.2

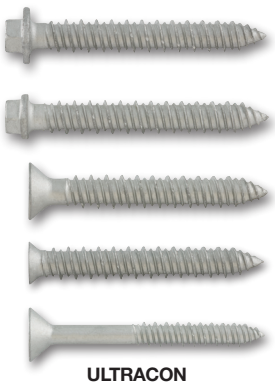
GUIDE SPECIFICATIONS

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 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	Specifications
Anchor Body	Case Hardened Carbon Steel
Coating/Plating/Finish	Stalgard® 1000 hour rating for ASTM B 117 salt spray test

SECTION CONTENTS



ULTRACON

HEAD STYLES

- Hex Washer Head
- TrimFit® Hex Head
- Phillips Flat Head
- TrimFit® Flat Head
- Oversized Flat Head

ANCHOR MATERIALS

- Carbon Steel with Stalgard Coating

ANCHOR SIZE RANGE (TYP.)

- 5/16" diameter x 1-3/4" to 6" lengths

SUITABLE BASE MATERIALS

- Normal-weight Concrete
- Hollow Concrete Masonry (CMU)
- Grouted-Filled Concrete Masonry (CMU)
- Wood

MIAMI-DADE COUNTY APPROVED

INSTALLATION SPECIFICATIONS

UltraCon Carbon Steel Hex Head

Dimension	Anchor Diameter, d				
	5/16" HWH	5/16" THH	5/16" PFH	5/16" TFH	5/16" OFH
Drill Bit Size (in)	1/4	1/4	1/4	1/4	1/4
Typ. Fixture Clearance hole (in)	3/8	3/8	3/8	3/8	3/8
Head Height (in.)	11/64	5/32	13/64	1/8	5/16
Head Width (in)	5/16	5/16	35/64	13/32	11/16
Washer OD (in)	35/64	7/16	N/A	N/A	N/A
Washer Thickness (in)	1/16	1/16	N/A	N/A	N/A
Hex Driver (in)/ Phillips Driver	5/16	5/16	#3	#3	#3

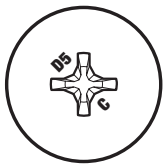
UltraCon Identification

Hex Washer Head (HWH)

TrimFit Hex Head (THH)

Phillips Flat Head (PFH)

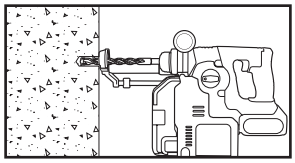
TrimFit Flat Head (TFH)



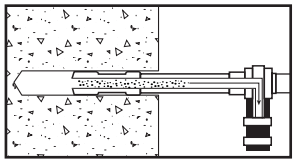
Oversized Flat Head (OFH)

The head markings consist of a "D" for the DEWALT brand, the number "5" for the 5/16" diameter, and the length code. TrimFit flat head variations also include two dots

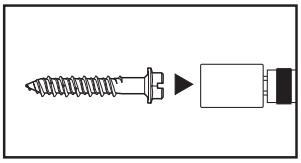
Installation Instruction for UltraCon



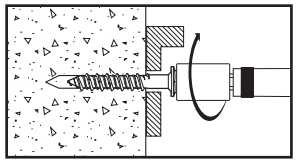
Step 1
Using the proper drill bit size, drill a hole into the base material to the required depth, ho, which is a 1/4-inch deeper than the minimum embedment depth, h_{nom}.



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.

UltraCon Length Code Identification System

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

Installation Table for UltraCon in Concrete[1]

Anchor Property/Setting Information	Notation	Units	Nominal Anchor Diameter
			5/16
Anchor Shank Diameter	d_a	in.	0.246
Typ. Diameter of Hole Clearance in Fixture	d_h	in.	3/8
Nominal Drill Bit Diameter	d_{bit}	in.	1/4
Bit Tolerance Range	-	in.	0.260 to 0.268
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.

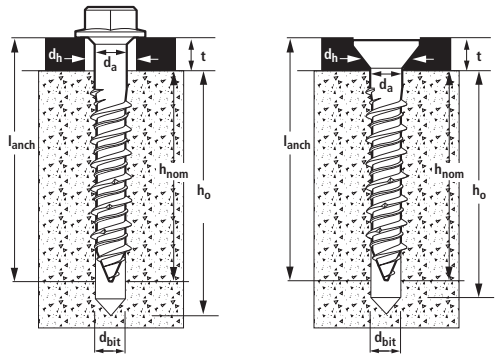
Installation Table for UltraCon in Masonry

Anchor Property/Setting Information	Notation	Units	Nominal Anchor Size (in.)
			5/16
Anchor Shank Diameter	d_a	in.	0.246
Typ. Diameter of Clearance Hole in Fixture	d_h	in.	3/8
Nominal Drill Bit Diameter	d_{bit}	in.	1/4
Bit Tolerance Range	-	in.	0.260 to 0.268
Minimum Nominal Embedment Depth (Grout Filled Masonry)	h_{nom}	in.	1-3/4
Minimum Hole Depth (Grout Filled Masonry)	h_o	in.	2
Minimum Nominal Embedment Depth (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

Installation Table for UltraCon in Wood

Anchor Property/Setting Information	Notation	Units	Nominal Anchor Size (in.)
			5/16
Anchor Shank Diameter	d_a	in.	0.246
Typ. Diameter of Clearance Hole in Fixture	d_h	in.	3/8
Nominal drill bit diameter	d_{bit}	in.	Pre-drilling is not required for UltraCon into wood
Hex Head Socket Size	-	in.	5/16
Phillips Bit Size	-	No.	3

Anchor Detail



Nomenclature

d_a = 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 UltraCon in Normal Weight Concrete

Nominal Anchor Diameter (in.)	Min. Embed. (in.)	Min. Edge Dist. (in.)	Min. Spacing (in.)	Concrete Compressive Stength			
				3000 psi		4000 psi	
				Tension (lbs.)	Shear (lbs.)	Tension (lbs.)	Shear (lbs.)
5/16	2	1-1/4	1-7/8	755	440	870	480
	2		3-3/4	1,070	440	1,235	480
	1		5	665	790	765	860
	1-3/4			1,940	1,215	2,240	1,320
	1	2-3/16	5	755	1,385	870	1,500
	1-3/4			2,215	2,900	2,560	3,140
	2	3-1/8	1-7/8	1,105	1,550	1,280	1,680
	2		3-3/4	1,680	2,620	1,940	2,840
	1		5	775	1,660	895	1,800
	1-3/4			2,435	3,140	2,815	3,400
	2			3,085	3,140	3,560	3,400

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 in Normal Weight Concrete

Nominal Anchor Diameter (in.)	Min. Embed. (in.)	Min. Edge Dist. (in.)	Min. Spacing (in.)	Concrete Compressive Stength			
				3000 psi		4000 psi	
				Tension (lbs.)	Shear (lbs.)	Tension (lbs.)	Shear (lbs.)
5/16	2	1-1/4	1-7/8	185	110	215	120
	2		3-3/4	265	110	305	120
	1		5	165	195	190	215
	1-3/4			485	300	560	330
	1	2-3/16	5	185	345	215	375
	1-3/4			550	725	640	785
	2	3-1/8	1-7/8	275	385	320	420
	2		3-3/4	420	655	485	710
	1		5	190	415	220	450
	1-3/4			605	785	700	850
	2			770	785	890	850

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 in Hollow and Grout-Filled Concrete Masonry

Nominal Anchor Diameter (in.)	Min. Embed. (in.)	Min. Edge Dist. (in.)	Min. Spacing (in.)	Hollow Block		Grouted-Filled Block	
				Tension (lbs.)	Shear (lbs.)	Tension (lbs.)	Shear (lbs.)
5/16	1-1/4	1-9/16	6	650	700	-	-
	1-3/4	2-1/2	5	-	-	1,150	1,850
	2-1/4			-	-	1,450	1,875
	1-1/4	3-1/8	1-7/8	650	875	-	-
	1-1/4		3-3/4	700	875	-	-
	1-1/4		6	1,125	1,450	-	-

1. Tabulated load values are for ancors 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 UltraCon in Hollow and Grout-Filled Concrete Masonry

Nominal Anchor Diameter (in.)	Min. Embed. (in.)	Min. Edge Dist. (in.)	Min. Spacing (in.)	Hollow Block		Grouted-Filled Block	
				Tension (lbs.)	Shear (lbs.)	Tension (lbs.)	Shear (lbs.)
5/16	1-1/4	1-1/16	6	130	140	-	-
	1-3/4	2-1/2	5	-	-	230	370
	2-1/4			-	-	290	375
	1-1/4	3-1/8	1-7/8	130	175	-	-
	1-1/4		3-3/4	140	175	-	-
	1-1/4		6	225	290	-	-

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.

Ultimate Tension and Shear Capacity for UltraCon in Southern Yellow Pine (minimum .55 specific gravity)[1]

Nominal Anchor Diameter (in.)	Min. Embed. (in.)	Min. Edge Dist. (in.)	Tension (lbs.)	Shear (lbs.)
5/16	1	5d	1,420	1,095
	1-1/2		2,470	1,615
	2		2,910	2,365
	1	10d	1,450	1,185
	1-1/2		2,470	1,675
	2		3,230	2,405

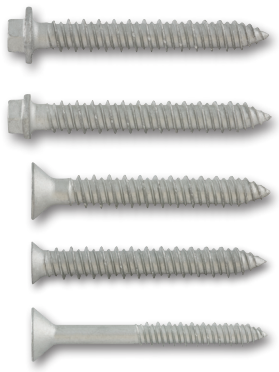
1. Tabulated load values are ultimates based on laboratory tests.

ORDERING INFORMATION

UltraCon

Cat. No.					Screw Size	Standard Box	Standard Carton
HWH	THH	PFH	TFH	OFH			
DFM5ELG481	DFM5ELG482	-	-	-	5/16" X 1-3/4"	1000	-
DFM5ELG486	DFM5ELG487	DFM5ELG941	DFM5ELG945	-	5/16" X 2-1/4"	1000	-
DFM5ELG491	DFM5ELG492	DFM5ELG948	DFM5ELG955	-	5/16" X 2-3/4"	500	-
-	-	-	-	DFM5ELG203	5/16" X 3"	50	250
DFM5ELG496	DFM5ELG497	DFM5ELG960	DFM5ELG965	-	5/16" X 3-1/4"	500	-
DFM5ELG501	DFM5ELG502	-	DFM5ELG972	-	5/16" X 3-3/4"	500	-
DFM5ELG506	-	DFM5ELG979	DFM5ELG976	-	5/16" X 4"	500	-
-	-	-	-	DFM5ELG204		50	250
DFM5ELG511	-	DFM5ELG992	DFM5ELG991	-	5/16" X 5"	250	-
-	-	-	-	DFM5ELG205		50	250
DFM5ELG516	-	DFM5ELG998	-	-	5/16" X 6"	250	-
-	-	-	-	DFM5ELG206		50	250

HWH = Hex Washer Head; THH = TrmFit Hex Head; PFH = Phillips Flat Head, TFH = TrimFit Flat Head, OFH = Oversized Flat Head
Hex Head UltraCon anchors are measured from below the washer while flat head UltraCon 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.



Drill Bits

Cat. No.	Description
DW5417	1/4" x 6" SDS Plus 2 Cutter Drill Bit
DW5418	1/4" x 8-1/2" SDS Plus 2 Cutter Drill Bit
DW5420	1/4" x 12" SDS Plus 2 Cutter Drill Bit
DW5421	1/4" x 14" SDS Plus 2 Cutter Drill Bit

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