

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 color 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

- Tested in accordance with ASTM E488
- Miami-Dade County Notice of Acceptance (NOA) No. 21-0113.01
- Florida Statewide Product Approval FL29068.2

GUIDE SPECIFICATIONS

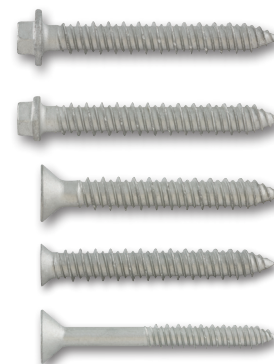
CSI Divisions: 03 16 00 - Concrete Anchors, 04 05 19.16 - Masonry Anchors and 05 05 19 - Post-Installed Concrete Anchors. Concrete Screw Anchors shall be UltraCon as supplied by DEWALT, Towson, MD. Concrete screw anchors shall be installed in accordance with published instructions and the Authority Having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

MATERIAL SPECIFICATIONS

Anchor Component	Specifications
Anchor Body	Case Hardened Carbon Steel
Coating/Plating/Finish	Stalgard® 1000 hour rating for ASTM B117 salt spray test

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ULTRACON

HEAD STYLES

- Hex Washer Head
- TrimFit® Hex Head
- Flat Head
- TrimFit® Flat Head
- Oversized Flat Head
- Star 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 Identification

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.



Hex Washer Head (HWH)



TrimFit Hex Head (THH)



Flat Head (PFH)



Star Flat Head (SFH)



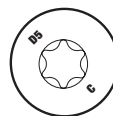
Phillips TrimFit Flat Head (PTFH)



Star TrimFit Flat Head (STFH)



Phillips Oversized Flat Head (POFH)



Star Oversized Flat Head (SOFH)

UltraCon Carbon Steel ^{1,2}

Screw Property / Setting Information	Notation	Nominal Anchor Size							
		5/16" HWH	5/16" THH	5/16" PFH	5/16" SFH	5/16" PTFH	5/16" STFH	5/16" POFH	5/16" SOFH
Anchor Shank Diameter (in)	d_a	0.246	0.246	0.246	0.246	0.246	0.246	0.246	0.246
ANSI Drill Bit Size (in)	d_{bit}	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/4
Typ. Fixture Clearance hole (in)	d_h	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8
Head Height (in.)	-	11/64	5/32	13/64	13/64	1/8	1/8	5/16	5/16
Head Width (in)	-	5/16	5/16	35/64	35/64	13/32	13/32	11/16	11/16
Washer O.D. (in)	-	35/64	7/16	N/A	N/A	N/A	N/A	N/A	N/A
Washer Thickness (in)	-	1/16	1/16	N/A	N/A	N/A	N/A	N/A	N/A
Hex Driver (in)	-	5/16	5/16	-	-	-	-	-	-
Bit Tip Size	Phillips (No.)	-	-	#3	-	#3	-	#3	-
	Star	-	-	-	T-30	-	T-30	-	T-30

HWH = Hex Washer Head; THH = TrimFit Hex Head; PFH = Phillips Flat Head, SFH = Star Flat Head, PTFH = Phillips TrimFit® Flat Head, STFH = Star TrimFit® Flat Head,

POFH = Phillips Oversized Flat Head, SOFH = Star Oversized Flat Head

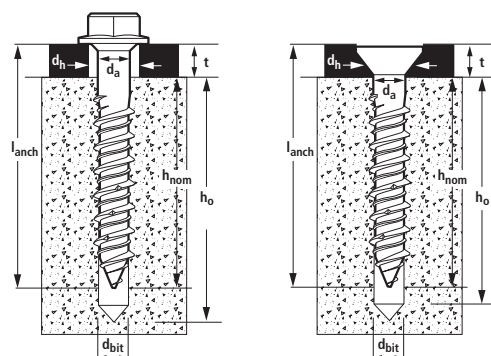
- For minimum nominal embedment depths, h_{nom} , see the performance data tables. The minimum hole depth, h_o , is 1/4-inch more than the selected nominal embedment depth.
- Pre-drilling is not required for UltraCon into wood (but can be considered).

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"

Length identification mark indicates length of anchor measure from under the head for hex head UltraCon anchors and overall length for flat head UltraCon anchors.

Anchor Detail

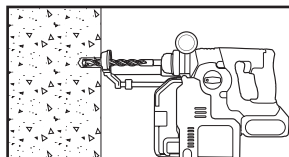


Nomenclature

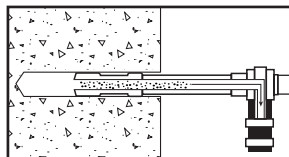
- d_a = Diameter of anchor
- d_{bit} = Diameter of drill bit
- d_h = Diameter of fixture clearance hole
- h_{nom} = Minimum embedment depth
- h = Base material thickness
The minimum value of h should be $1.5h_{nom}$ or 3" whichever is greater
- h_o = Minimum hole depth

INSTALLATION INSTRUCTIONS

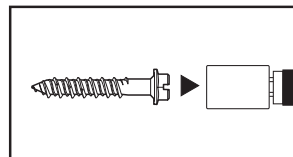
Installation Instruction for UltraCon



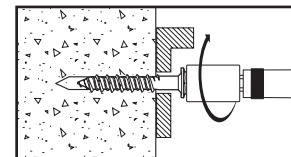
Step 1
Using the proper drill bit size, drill a hole into the base material to the required depth, h_o , which is a 1/4-inch deeper than the minimum embedment depth, h_{nom} .



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.

PERFORMANCE DATA

Ultimate Load Capacities for UltraCon in Normal-weight Concrete^{1,2}

Nominal Anchor Diameter (in.)	Min. Embed. (in.)	Min. Edge Dist. (in.)	Min. Spacing (in.)	Minimum Concrete Compressive Strength			
				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
	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 uncracked 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 Concrete¹



Nominal Anchor Diameter (in.)	Min. Embed. (in.)	Min. Edge Dist. (in.)	Min. Spacing (in.)	Minimum Concrete Compressive Strength			
				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.

Ultimate Load Capacities for UltraCon in Hollow and Grout-Filled Concrete Masonry^{1,2}

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 anchors installed in grout-filled concrete block conforming to ASTM C90.

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 Masonry¹

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.

Ultimate Load Capacities for UltraCon in Southern Yellow Pine^{1,2}

Nominal Anchor Diameter (in.)	Min. Embed. (in.)	Min. Edge Dist. (in.)	Tension (lbs.)	Shear (lbs.)
5/16	1	1-9/16 (5d)	545	840
	1-1/2		1,450	1,150
	2		1,835	1,340

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. Consideration of safety factors of 10 and higher may be necessary depending upon the application such as life safety or overhead.

2. Tests in Southern Yellow Pine with minimum Specific Gravity of 0.55; screw oriented tangential to wood grain.

ORDERING INFORMATION

UltraCon

Cat. No.								Screw Size	Pack Qty.	Carton Qty.
HWH	THH	FH	SFH	PTFH	STFH	POFH	SOFH			
DFM5ELG481	DFM5ELG482	-	-	-	-	-	-	5/16" X 1-3/4"	1000	-
DFM5ELG486	DFM5ELG487	DFM5ELG941	DFM5ELG941S	DFM5ELG945	DFM5ELG945S	-	-	5/16" X 2-1/4"	1000	-
DFM5ELG491	DFM5ELG492	DFM5ELG948	DFM5ELG948S	DFM5ELG955	DFM5ELG955S	-	-	5/16" X 2-3/4"	500	-
-	-	-	-	-	-	DFM5ELG203	DFM5ELG203S	5/16" X 3"	50	250
DFM5ELG496	DFM5ELG497	DFM5ELG960	DFM5ELG960S	DFM5ELG965	DFM5ELG965S	-	-	5/16" X 3-1/4"	500	-
DFM5ELG501	DFM5ELG502	-	-	DFM5ELG972	DFM5ELG972S	-	-	5/16" X 3-3/4"	500	-
DFM5ELG506	-	DFM5ELG979	DFM5ELG979S	DFM5ELG976	DFM5ELG976S	-	-	5/16" X 4"	500	-
-	-	-	-	-	-	DFM5ELG204	DFM5ELG204S	-	50	250
DFM5ELG511	-	DFM5ELG992	DFM5ELG992S	DFM5ELG991	DFM5ELG991S	-	-	5/16" X 5"	250	-
-	-	-	-	-	-	DFM5ELG205	DFM5ELG205S	-	50	250
DFM5ELG516	-	DFM5ELG998	DFM5ELG998S	-	-	-	-	5/16" X 6"	250	-
-	-	-	-	-	-	DFM5ELG206	DFM5ELG206S	-	50	250

HWH = Hex Washer Head; THH = TrimFit Hex Head; PFH = Phillips Flat Head, SFH = Star Flat Head, PTFH = Phillips TrimFit® Flat Head, STFH = Star TrimFit® Flat Head,

POFH = Phillips Oversized Flat Head, SOFH = Star 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.

Approximate thread length for hex head parts (HWH & THH) is 2" except for 1-3/4" long hex head parts which have 1-1/2" of thread length.

Approximate thread length for flat head parts (PFH, SFH, PTFH, STFH, POFH & SOFH) is 1-3/4".

Drill Bits

Cat. No.	Description
DW5417	1/4" x 6" SDS Plus Drill Bit
DW5418	1/4" x 8-1/2" SDS Plus Drill Bit
DW5420	1/4" x 12" SDS Plus Drill Bit
DW5421	1/4" x 14" SDS Plus 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" 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/Rp Dust Extractor
DWV012	10 Gallon Wet Dry Hepa/Rp Dust Extractor
DWH161D1	20V Max* XR Brushless Universal Dust Extractor Kit

