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 excellent corrosion resistance in demanding applications, such as those in exposed environments.

GENERAL APPLICATIONS AND USES

- Mounts and clips
- Hurricane shutters
- Windows and screens
- Masonry facades (e.g. brick tie anchors)
- Aluminum enclosures
- Curtain wall and window wall support anchors
- Pressure-treated wood (e.g. ACQ)

FEATURES AND BENEFITS

+ High in-place value over life of structure
+ Good strength, performance and ductility
+ Stalgard GB coating creates greater galvanic compatibility in dissimilar metal applications involving aluminum
+ Anchor design and thread profile provides quick cutting during installation
+ Gimlet point allows for installation into wood without predrilling

APPROVALS AND LISTINGS

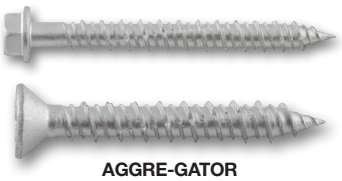
- Tested in accordance with ASTM E488
- Miami-Dade County Notice of Acceptance (NOA) No. 21-0201.08
- Florida Statewide Product Approval FL29068.1

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.

SECTION CONTENTS

General Information.....1
Material Specifications.....1
Installation Specifications.....2
Installation Instructions.....2
Performance Data.....3
Ordering Information.....5



AGGRE-GATOR

HEAD STYLES

- Hex Washer Head
- TrimFit® Flat Head

ANCHOR MATERIALS

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

ANCHOR SIZE RANGE

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

SUITABLE BASE MATERIALS

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

MIAMI-DADE COUNTY APPROVED

MATERIAL SPECIFICATIONS

Anchor Component	Specification
Anchor Head and Shank	300 series stainless steel
Tapping Threads and Gimlet Point	Hardened carbon steel
Coating/Plating/Finish	Stalgard® GB (silver color)
The tapping threads with gimlet point is approximately 1/2-inch in length.	

INSTALLATION SPECIFICATIONS

Aggre-Gator Hex Head and Flat Head Screw Anchors[1,2]

Dimension	Nominal Anchor Diameter	
	1/4" HWH	1/4" TFH
Anchor Shank Diameter (in.)	0.189	0.189
Ultracon+ Drill Bit Size (in.)	3/16	3/16
UltraCon+ bit tolerance range (in.)	0.202 to 0.206	
Typ. Fixture Clearance hole (in.)	5/16	5/16
Head Height (in.)	9/64	3/16
Head Width (in.)	5/16	13/32
Washer O.D. (in.)	13/32	N/A
Washer Thickness (in.)	3/64	N/A
Hex Driver (in) / Phillips Driver Size	5/16	#3

HWH = Hex Washer Head, TFH = TrimFit Head

1. For minimum nominal embedment depths, h_{nom}, see the performance data tables. The minimum hole depth, h_o, is 1/4-inch more than the selected nominal embedment depth.
2. In light gauge steel material (.036" / 20 gauge and thinner), the clearance hole can be the same diameter as the drill bit.

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.

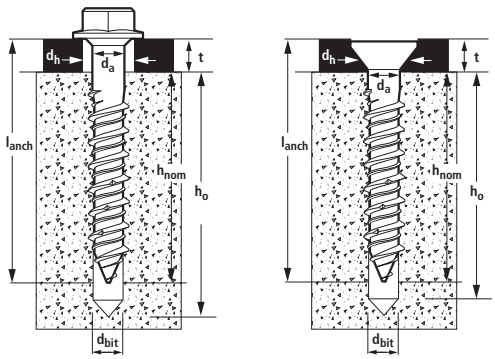
Hex Washer Head (HWH)

TrimFit® Head (TFH)

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"

Anchor Detail

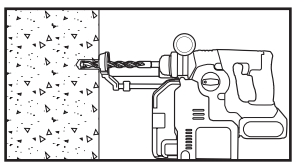


Nomenclature

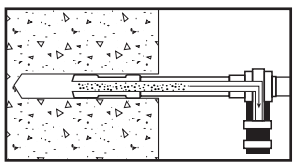
d_a (d) = Diameter of anchor
d_{bit} = Diameter of drill bit
d_h = Diameter of fixture clearance hole
h_{nom} = Minimum embedment depth
h = Base material thickness
The minimum value of h should be $1.5h_{nom}$ or 3" whichever is greater
h_o = Minimum hole depth

INSTALLATION INSTRUCTIONS

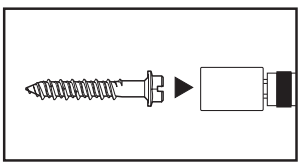
Installation Instructions for Aggre-Gator



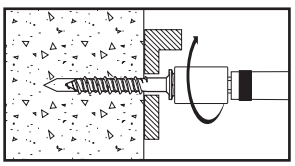
Step 1
Using the proper drill bit size, drill a hole into the base material to the required depth, h_o, which is a 1/4-inch deeper than the minimum embedment depth, h_{nom}.



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 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 screw.

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 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.
3. These shear values are for tests conducted with 1" x 4" nominal (3/4" max. thickness) treated southern yellow pine attached to concrete; the listed embedment is into the concrete.
4. These shear values are for tests conducted with 2" x 4" nominal (1-1/2" max. thickness) treated southern yellow pine attached to concrete; the listed embedment is into the 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[2]	-	200[2]	-	-	-	-	-	-
			1-3/4	-	190[3]	-	195[3]	-	-	-	-	-	-
	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 for uncracked concrete and 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. These shear values are for tests conducted with 1" x 4" nominal (3/4" max. thickness) treated southern yellow pine attached to concrete; the listed embedment is into the concrete.
3. These shear values are for tests conducted with 2" x 4" nominal (1-1/2" max. thickness) treated southern yellow pine attached to concrete; the listed embedment is into the 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 Block		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 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 Aggre-Gator in Hollow and Grout-Filled Concrete Masonry[1,2,3]

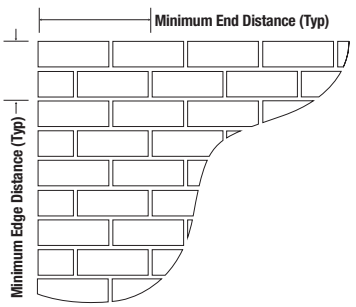
Nominal Anchor Diameter in.	Min. Edge Dist. in.	Min. Spacing in.	Min. Embed. in.	Hollow Block		Grout-Filled Block	
				Tension lbs.	Shear lbs.	Tension lbs.	Shear lbs.
1/4	2	3	1-1/4	155	185	165	205
			2	-	-	325	470
	4	1-1/2	1-1/4	-	-	145	280
			2	-	-	400	475
	4	3	1-1/4	175	210	-	-

1. Tabulated load values are for anchors installed in hollow or grout-filled concrete block conforming to ASTM C90. Mortar must be Type N, S or M. 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 an applied safety factor of 5.0. Consideration of safety factors of 10 or higher may be necessary depending on the application, such as life safety or overhead.
3. The tabulated values are applicable for anchors installed into the ends of concrete masonry units (e.g. wall opening) where minimum edge distances are maintained.

Allowable Load Capacities for Aggre-Gator Anchors Installed in Clay Brick Masonry[1,2,3,4,5]

Nominal Anchor Diameter d in.	Minimum Embed. in.	Minimum Edge Distance in.	Minimum End Distance in.	Installation Location	Tension lbs.	Shear lbs.
1/4	1-1/2	1-1/8	1-3/4	Face	220	370
		2-1/2		Mortar Joint	320	360

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 Type N, S or M. 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 an applied safety factor of 5.0. Consideration of safety factors of 10 or higher may be necessary depending upon the application such as life safety 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 nominal anchor diameter.
5. The tabulated values are applicable for anchors installed into the ends of masonry walls (e.g. wall opening) where minimum edge distances are maintained.



Ultimate Load Capacity for Aggre-Gator in Wood[1,2,3]

Nominal Anchor Diameter d in.	Minimum Embed. in.	Tension lbs.	Shear lbs.
1/4	1	205	435
	2	935	785

1. Pre-drilling is not required for this anchor into wood. (but can be considered).
2. Tabulated values are applicable for anchors installed at a minimum edge distance of 5 times the nominal anchor diameter.
3. Tested in stacked 2" x 4" (1-1/2" max. thickness) southern yellow pine; screws orientated tangential to wood grain.

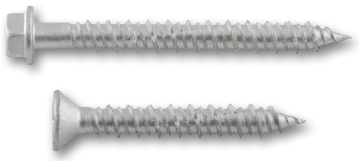
ORDERING INFORMATION

Silver Stalgard Aggre-Gator®

Cat. No.		Screw Size	Approximate Thread Length	Pack Qty.	Carton Qty.
HWH	TFH				
DFM3EML300	DFM3EMM300	1/4" X 1-1/4"	1-1/8"	50	300
DFM3EML315	DFM3EMM310	1/4" X 1-3/4"	1-5/8"	50	300
DFM3EML325	DFM3EMM320	1/4" X 2-1/4"	1-7/8"	50	300
DFM3EML335	DFM3EMM330	1/4" X 2-3/4"	1-7/8"	50	300
DFM3EML345	DFM3EMM340	1/4" X 3-1/4"	1-7/8"	50	300
DFM3EML365	DFM3EMM360	1/4" X 4"	1-7/8"	50	300

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

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 (e.g. required to obtain desired load capacity). Then add the thickness of the fixture, including any spacers or shims, to the embedment depth.



UltraCon+ Drill Bits

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

Installation Kit

Cat. No.	Description
DW5366	UltraCon®+ Installation Kit includes: 5/32" and 3/16" UltraCon+ bit, 1/4" and 5/16" nutsetters, #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" 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