### **GENERAL INFORMATION**

### **ATOMIC+ UNDERCUT®**

Heavy Duty Undercut Anchor

### **PRODUCT DESCRIPTION**

The Atomic+ Undercut anchor is designed for applications in cracked and uncracked concrete. The anchors are is available in standard ASTM A 36 steel, high strength ASTM A 193 Grade B7 steel and Type 316 stainless steel in Class 1 and Class 2 strength designations.

The Type 316 stainless steel version can be considered for exterior use and industrial applications where a high level of corrosion resistance is required.

The Atomic+ Undercut anchor is installed into a pre-drilled hole which has been enlarged at the bottom in the shape of a reversed cone using the undercut drill bit supplied by DEWALT. The result is an anchor which transfers load mainly through bearing, and unlike a typical expansion anchor is not dependent upon friction between the expansion sleeve and the concrete. Due to the use of a thick walled expansion sleeve, the load is distributed to a large area which can provide ductile behavior of the anchor even at relatively shallow embedments.

### **GENERAL APPLICATIONS AND USES**

- Structural connections, beam and column anchorage
- Safety related attachments
- Tension zone applications

### FEATURE AND BENEFITS

- + Consistent performance in high and low strength concrete
- + Anchors available for standard pre-set installations and for through bolt applications
- + Length ID code and identifying marking stamped on head of each anchor
- + Load transfers to concrete through bearing, not friction, behaves like a cast-in-place bolt
- + Bearing load transfer allows for closer spacing and edge distances
- + Can be designed for predictable ductile steel performance
- + Undercut created in seconds with durable undercutting tool

### **APPROVALS AND LISTINGS**

- International Code Council, Evaluation Service (ICC-ES), ESR-3067 Code compliant with the 2015 IBC, 2015 IRC, 2012 IBC, 2012 IRC, 2009 IBC, 2009 IRC, 2006 IBC, and 2006 IRC
- Tested in accordance with ACI 355.2/ASTM E488 and ICC-ES AC193 for use in structural concrete under the design provisions of ACI 318-14 Chapter 17 or ACI 318-11/08 Appendix D
- Evaluated and qualified by an accredited independent testing laboratory for recognition in cracked and uncracked concrete including seismic and wind loading (Category 1 anchors)

### **GUIDE SPECIFICATIONS**

CSI Divisions: 03 16 00 – Concrete Anchors and 05 05 19 - Post-Installed Concrete Anchors. Undercut anchors shall be Atomic+ Undercut as supplied by DEWALT, Towson, MD. Anchors shall be installed in accordance with published instructions and the Authority Having Jurisdiction.

### Heavy duty loading

- · Pipe supports, strut & base mounts
- Suspended equipment
- Seismic and wind loading

SECTION CONTENTS

General Information......1

Installation Specifications ......4

Performance Data.....5

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ATOMIC+ UNDERCUT ASSEMBLY

### THREAD VERSION

• UNC threaded stud

### **ANCHOR MATERIALS**

- Zinc Plated Carbon Steel
- Type 316 Stainless Steel

### **ANCHOR SIZE RANGE (TYP.)**

• 3/8" through 3/4" diameter

### **SUITABLE BASE MATERIALS**

- Normal-weight concrete
- · Sand-lightweight concrete







Heavy Duty Undercut Anchor

e

ATOMIC+

## DEWALT

### **MATERIAL SPECIFICATIONS**

		Anchor De	esignation	
Anchor Component	Carbon Steel	High Strength Carbon Steel	Stainless Steel (Type 316)	High Strength Stainless Steel (Type 316)
Threaded Rod	ASTM A 36	ASTM A 193, Grade B7	ASTM A193, Grade B8M, Class 1	ASTM A193, Grade B8M, Class 2
Expansion Coupling (Cone)	ASTM A 1	08 12L14	ASTM A	A 274 S
Expansion/Spacer Sleeve	ASTM A 5	13 Type 5	ASTM A	A 274 S
Hex Nut	ASTM A 56	63, Grade C	ASTM A 194	4, Grade 8M
Washer	ASTM F 844; Meets dir of ANSI B18.22	nensional requirements .1, Type A plain	Type 316 SS; Meets dii of ANSI B18.22	nensional requirements .1, Type A plain
Plating	Zinc plating in accordance with equivalent; Minimum plating requi	ASTM B 633, SC1 (Fe/Zn 5) or irement for Mild Service Condition	Not ap	blicable

### **ANCHOR SPECIFICATIONS**

### **Dimensional Characteristics Table for Atomic+ Undercut**

Anchor Designation	Anchor Type	Anchor Rod ASTM Designation	Rod Diameter, d <sub>b</sub> (inch)	Anchor Length, Ib (inches)	Sleeve Length, Is (inches)	Sleeve Diameter, ds (inch)	Expansion Coupling Diameter d <sub>e</sub> (inch)	Max. Fixture Thickness, t (inches)
03100SD	Standard	A 36	3/8	5-1/2	2-3/4	5/8	5/8	1-3/4
03102SD	Through bolt (TB)	A 36	3/8	5-1/2	4-1/2	5/8	5/8	1-3/4
03600SD	Standard	A 193, Grade B8M, Class 1	3/8	5-1/2	2-3/4	5/8	5/8	1-3/4
03602SD	Through bolt (TB)	A 193, Grade B8M, Class 1	3/8	5-1/2	4-1/2	5/8	5/8	1-3/4
03603SD	Standard	A193, Grade B8M, Class 2	3/8	6-3/4	4	5/8	5/8	1-3/4
03605SD	Through Bolt (TB)	A193, Grade B8M, Class 2	3/8	6-3/4	5-3/4	5/8	5/8	1-3/4
03104SD	Standard	A 193, Grade B7	3/8	6-3/4	4	5/8	5/8	1-3/4
03106SD	Through bolt (TB)	A 193, Grade B7	3/8	6-3/4	5-3/4	5/8	5/8	1-3/4
03108SD	Standard	A 36	1/2	7	4	3/4	3/4	1-3/4
03110SD	Through bolt (TB)	A 36	1/2	7	5-3/4	3/4	3/4	1-3/4
03608SD	Standard	A 193, Grade B8M, Class 1	1/2	7	4	3/4	3/4	1-3/4
03610SD	Through bolt (TB)	A 193, Grade B8M, Class 1	1/2	7	5-3/4	3/4	3/4	1-3/4
03609SD	Standard	A193, Grade B8M, Class 2	1/2	8	5	3/4	3/4	1-3/4
03613SD	Through Bolt (TB)	A193, Grade B8M, Class 2	1/2	8	6-3/4	3/4	3/4	1-3/4
03112SD	Standard	A 193, Grade B7	1/2	8	5	3/4	3/4	1-3/4
03114SD	Through bolt (TB)	A 193, Grade B7	1/2	8	6-3/4	3/4	3/4	1-3/4
03116SD	Standard	A 193, Grade B7	1/2	9-3/4	6-3/4	3/4	3/4	1-3/4
03118SD	Through bolt (TB)	A 193, Grade B7	1/2	9-3/4	8-1/2	3/4	3/4	1-3/4
03120SD	Standard	A 36	5/8	7-3/4	4-1/2	1	1	1-3/4
03122SD	Through bolt (TB)	A 36	5/8	7-3/4	6-1/4	1	1	1-3/4
03620SD	Standard	A 193, Grade B8M, Class 1	5/8	7-3/4	4-1/2	1	1	1-3/4
03622SD	Through bolt (TB)	A 193, Grade B8M, Class 1	5/8	7-3/4	6-1/4	1	1	1-3/4
03635SD	Standard	A193, Grade B8M, Class 2	5/8	10-3/4	7-1/2	1	1	1-3/4
03639SD	Through Bolt (TB)	A193, Grade B8M, Class 2	5/8	10-3/4	9-1/4	1	1	1-3/4
03124SD	Standard	A 193, Grade B7	5/8	10-3/4	7-1/2	1	1	1-3/4
03126SD	Through bolt (TB)	A 193, Grade B7	5/8	10-3/4	9-1/4	1	1	1-3/4
03128SD	Standard	A 193, Grade B7	5/8	12-1/4	9	1	1	1-3/4
03130SD	Through bolt (TB)	A 193, Grade B7	5/8	12-1/4	10-3/4	1	1	1-3/4
03132SD	Standard	A 36	3/4	8-5/8	5	1-1/8	1-1/8	1-3/4
03134SD	Through bolt (TB)	A 36	3/4	8-5/8	6-3/4	1-1/8	1-1/8	1-3/4
03632SD	Standard	A 193, Grade B8M, Class 1	3/4	8-5/8	5	1-1/8	1-1/8	1-3/4
03634SD	Through bolt (TB)	A 193, Grade B8M, Class 1	3/4	8-5/8	6-3/4	1-1/8	1-1/8	1-3/4
03648SD	Standard	A193, Grade B8M, Class 2	3/4	13-5/8	10	1-1/8	1-1/8	1-3/4
03649SD	Through Bolt (TB)	A193, Grade B8M, Class 2	3/4	13-5/8	11-3/4	1-1/8	1-1/8	1-3/4
03136SD	Standard	A 193, Grade B7	3/4	13-5/8	10	1-1/8	1-1/8	1-3/4
03138SD	Through bolt (TB)	A 193, Grade B7	3/4	13-5/8	11-3/4	1-1/8	1-1/8	1-3/4

### **Atomic+ Undercut Anchor Detail**



### **Head Marking**

# C+

Letter Code = Length Identification Mark '+' Symbol = Strength Design Compliant Anchor (see ordering information)

### Length Identification

Longin	100110																			
Mark	A	В	C	D	E	F	G	H	I	J	K	L	М	N	0	Р	Q	R	S	Т
From	1-1/2"	2"	2-1/2"	3"	3-1/2"	4"	4-1/2"	5"	5-1/2"	6"	6-1/2"	7"	7-1/2"	8"	8-1/2"	9"	9-1/2"	10"	11"	12"
Up to but not including	2"	2-1/2"	3"	3-1/2"	4"	4-1/2"	5"	5-1/2"	6"	6-1/2"	7"	7-1/2"	8"	8-1/2"	9"	9-1/2"	10"	11"	12"	13"
Longth ident	tification	mork indi	catae ava	rall longth	of anche	r														

Length identi



# MECHANICAL ANCHORS

Heavy Duty Undercut Anchor

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**ATOMIC+ UNDERC** 

**INSTALLATION INSTRUCTIONS** 



### Atomic+ Undercut Anchor Detail (before and after application of setting sleeve and attachment)



### Axial Stiffness Values, $\beta$ , for Atomic+ Undercut Anchors in Normal-Weight Concrete<sup>1</sup>

Conorato Stata	Notation	Ilaito		Nominal Anchor Size	/ Rod Diameter (inch)	
CONCIECE STATE	Notation	Units	3/8	1/2	5/8	3/4
	$eta_{min}$	10 <sup>3</sup> lbf/in		13	31	
Uncracked concrete	$eta_{m}$	10 <sup>3</sup> lbf/in		93	30	
	$eta_{max}$	10 <sup>3</sup> lbf/in		1,4	144	
	$eta_{min}$	10 <sup>3</sup> lbf/in		9	1	
Cracked concrete	$eta_{m}$	10 <sup>3</sup> lbf/in		39	94	
	$eta_{max}$	10 <sup>3</sup> lbf/in		1,7	24	
1. Valid for anchors with	high strength threaded rod (A	A 193 Grade B7). For ancho	rs with low strength threaded	d rod (A 36) values must be r	nultiplied by 0.7.	

### **INSTALLATION SPECIFICATIONS**

### Installation Specifications for Atomic+ Undercut Anchors

Anchor Property/Setting Information Units J/8 inch 1/2 inch 5/8 inch 3/4 inch												
Information	Notation	Units	3/8	inch		1/2 inch			5/8 inch		3/4	inch
Outside anchor diameter	da	in. (mm)	0.6 (15	625 5.9)		0.750 (19.1)			1.000 (25.4)		1.1 (28	25 3.6)
Minimum diameter of hole clearance in fixture <sup>2</sup>	Сh	in. (mm)	7/	16 .1)		9/16 (14.3)			11/16 (17.5)		13, (20	/16 ).6)
Anchor rod designation, carbon steel	ASTM	-	A36	A193 Gr. B7	A36	A193 G	rade B7	A36	A193 G	rade B7	A36	A193 Gr. B7
Anchor rod designation, stainless steel	ASTM	-	A193 Gr. B8M Class 1	A193 Gr. B8M Class 2	A193 Gr. B8M Class 1	A193 Gr. B8M Class 2	-	A193 Gr. B8M Class 1	A193 Gr. B8M Class 2	-	A193 Gr. B8M Class 1	A193 Gr. B8M Class 2
Minimum nominal embedment depth	hnom	in. (mm)	3-1/8 (79)	4-3/8 (111)	4-1/4 (108)	5-1/4 (133)	7 (178)	5 (127)	8 (203)	9-1/2 (241)	5-7/8 (149)	10-7/8 (276)
Effective embedment	hef	in. (mm)	2-3/4 (68)	4 (102)	4 (102)	5 (127)	6-3/4 (171)	4-1/2 (114)	7-1/2 (190)	9 (229)	5 (127)	10 (254)
Minimum hole depth1	h₀	in. (mm)	3-1/8 (79)	4-3/8 (111)	4-1/4 (108)	5-1/4 (133)	7 (178)	5 (127)	8 (204)	9-1/2 (241)	5-7/8 (149)	10-7/8 (276)
	For h <sub>min1</sub>	in. (mm)	5-1/2 (140)	8 (204)	8 (204)	10 (254)	13-1/2 (343)	9 (229)	15 (381)	18 (457)	10 (254)	20 (508)
Minimum concrete	C <sub>ac,1</sub> ≥	in. (mm)	4-1/8 (105)	6 (152)	6 (152)	7-1/2 (190)	10-1/8 (257)	6-3/4 (171)	11-1/4 (256)	13-1/2 (343)	7-1/2 (190)	15 (381)
member thickness	For h <sub>min2</sub>	in. (mm)	4-3/8 (111)	6 (152)	6 (152)	7-1/2 (190)	10-1/8 (257)	6-3/4 (171)	11-1/4 (256)	13-1/2 (343)	7-1/2 (190)	15 (381)
	$C_{ac,2} \geq$	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$					10-1/2 (267)	30 (762)				
Minimum edge distance	Cmin	in. (mm)	2-1/4 (57)	3-1/4 (82)	3-1/4 (82)	4 (102)	5-3/8 (86)	3-5/8 (92)	6 (152)	4 (102)	8 (204)	
Minimum spacing distance	Smin	in. (mm)	2-3/4 (70)	4 (102)	4 (102)	5 (127)	6-3/4 (171)	4-1/2 (114)	7-1/2 (190)	9 (229)	5 10 (127) (254)	
Maximum thickness of fixture	t	in. (mm)	1-: (4	3/4 4)		1-3/4 (44)			1-3/4 (44)		1-3/4 (44)	
Maximum torque	Tinst	ftlbf.	2	6		44			60		133	
Torque wrench / socket size	-	in.	11,	/16		7/8			1-1/16		1-1	1/4
Nut Height	-	in.	23	/64		31/64			39/64		47,	/64
		-		5	top Drill Bi	t						
Nominal stop drill bit diameter	d <sub>bit</sub>	in.	5. AN	/8 ISI		3/4 ANSI			1 ANSI		1- AN	1/8 ISI
Stop drill bit for anchor installation	-	-	3220SD	3221SD	3222SD	3223SD	3224SD	3225SD	3226SD	3227SD	3228SD	3229SD
Drilled hole depth of stop bit <sup>1</sup>	-	-	3-1/8	4-3/8	4-1/4	5-1/4	7	5	8	9-1/2	5-7/8	10-7/8
Stop drill bit shank type	-	-	SI	DS		SDS			SDS-Max		SDS	-Max
				Une	dercut Drill	Bit						
Nominal undercut drill bit diameter	duc	in.	5,	/8		3/4			1		1-1	1/8
Undercut drill bit designation	-	-	320	0SD		3201SD			3202SD		320	3SD
Maximum depth of hole for undercut drill bit	-	in. (mm)	(22	9 29)		10-1/4 (260)			12-1/4 (311)		13-1/2 (343)	
Undercut drill bit shank type	-	-	SI	DS		SDS			SDS-Max		SDS	-Max
Required impact drill energy	-	ftlbf.	1	.6		2.5			3.2		4	.0
				S	etting Sleev	e						
Recommended setting sleeve	-	-	321	OSD		3211SD			3212SD		3213SD	

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

1. For through bolt applications, the actual hole depth is given by the minimum hole depth plus the maximum thickness of fixture less the thickness of the actual part(s) being fastened to the base material (h<sub>0,act</sub> = h<sub>0</sub> + t - t<sub>pl</sub>).

2. For through bolt applications the minimum diameter of hole clearance in fixture is 1/16-inch larger than the nominal outside anchor diameter.

Anchor category

Outside anchor diameter

Effective embedment

ŝ.

ASTM A36 (fy ≥ 36 k ASTM A193 Grade E (fy ≥ 105 ksi)

ksi) ksi) ksi)

Grade B S = 30 b Grade B S = 95 b

ASTM A193 ( Class 1 (fy > ASTM A193 ( ASTM A193 ( Class 2 (fy >

3/4 inch

1.125

(28.6)

0.3345

(216)

10

(254)

105

(723)

125

(860)

41.810

(186.0)

20.875

(93.2)

20,875

(93.2)

95

(655)

105

(760)

36,795

(163.7)

18,400

(81.8)

30

24

1.0

(See note 4)

See note 6

22,000

(98.2)

22.000

See

note 6

5

(127)

36

(248)

58

(400)

19,400

(86.3)

9.685

(43.2)

9,685

(43.2)

30

(205)

75

(515)

19.065

(84.8)

9,535

(42.4)

# ANCHORS **CHANICAL**

# leavy Duty Undercut Anchor e Т ~ UNDEF OMIC+

See note 6 (98.2)2.0 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; for anchors resisting seismic load combinations the additional requirements of ACI 2. All values of  $\phi$  were determined from the load combinations of IBC Section 1605.2, ACI 318-14 Section 5.3 or ACI 318-11 Section 9.2, as applicable. If the load combinations of ACI 318-11 Appendix C are used, then the appropriate value of  $\phi$  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(c) or ACI 318-11 D.4.3(c), as applicable, are used.

6. Pullout strength does not control design of indicated anchors. Do not calculate pullout strength for indicated anchor size and embedment.

4. For all design cases  $\Psi_{c,N} = 1.0$ . The appropriate effectiveness factor for cracked concrete (kura) or uncracked concrete (kura) must be used.

7. Anchors are permitted to be used in lightweight concrete provided the modification factor  $\lambda_a$  equal to 0.8 $\lambda$  is applied to all values of  $\sqrt{f^*c}$  affecting N<sub>a</sub> and V<sub>a</sub>.  $\lambda$  shall be determined in accordance with the corresponding version of ACI 318.

8 The notation in brackets is for the 2006 IBC

9. Shear strength values are based on standard (pre-set) installation, and must be used for both standard (pre-set) and through-bolt installations

10. These values are only applicable to carbon steel anchors; values are not established for stainless steel anchors.

11. Calculated using futa,ss = 57 ksi (1.9fy) in accordance with ACI 318-14 Chapter 17 or ACI 318-11 Appendix D.

3. Anchors are considered a ductile steel element as defined by ACI 318-14 2.3 or ACI 318-11 D.1, as applicable.

For SI: 1 inch = 25.4 mm, 1 ksi = 6.895 MPa (N/mm<sup>2</sup>), 1 lbf = 0.0044 kN, 1 in<sup>2</sup> = 645 mm<sup>2</sup>

318-14 17.2.3 or ACI 318-11 D.3.3, as applicable, shall apply.

WAL	Τ.
DRS & FASTEN	ERS

PERFORMANCE DATA

**Anchor Property / Setting Information** 

Tensile stress area of anchor rod steel

of anchor rod10

of anchor rod

strength of anchor rod10

Minimum specified yield strength

Minimum specified ultimate tensile

Steel strength in tension, static10

Steel strength in shear, static9,10

Steel strength in shear, seismic9,10

Minimum specified yield strength

(Type 316 stainless steel anchor)

strength of anchor rod

Reduction factor for steel strength in tension<sup>2</sup>

Reduction factor for steel strength in shear<sup>2</sup>

Effectiveness factor for uncracked concrete

Effectiveness factor for cracked concrete

Reduction factor for concrete breakout

Reduction factor for concrete breakout

Characteristic pullout strength.

uncracked concrete (2,500 psi)5

Characteristic pullout strength,

cracked concrete (2,500 psi)5

Characteristic pullout strength,

Coefficient for pryout strength

Reduction factor for pullout strength<sup>2</sup>

Reduction factor for pryout strength<sup>2</sup>

seismic (2,500 psi)5,10

1.

Modification factor for cracked and

uncracked concrete4

strength in tension<sup>2</sup>

strength in shear<sup>2</sup>

Minimum specified ultimate tensile

(Type 316 stainless steel anchor)

(Type 316 stainless steel anchor)11

(Type 316 stainless steel anchor)1

Steel strength in tension, static

Steel strength in shear, static

Tension and Shear Design Information For Atomic+ Undercut Anchor in Concrete

Notation

1.2 or 3

 $d_a[d_o]^8$ 

hef

Ase

fy

futa

Nsa

Vsa

Veq

fy,ss

f<sub>uta.ss</sub>

Nsass

V<sub>sa,ss</sub>

φ

ф

Kunci

kcr

 $\Psi_{ ext{c,N}}$ 

φ

φ

N<sub>p,uncr</sub>

N<sub>D,cr</sub>

Nea

φ

**K**cp

φ

(For use with load combinations taken from ACI 318-14 Section 5.3 or ACI 318-11 Section 9.2)<sup>1</sup>

3/8 inch

0.625

(15.9)

0.0775

(50)

4

(102)

105

(723)

125

(860)

9,685

(43.2)

4.885

(21.7)

4,885

(21.7)

95

(655)

105

(760)

8,525

(37.9)

4,265

(19.0)

**CONCRETE BREAKOUT STRENGTH IN TENSION AND SHEAR**<sup>7</sup>

PULLOUT STRENGTH IN TENSION

9,000

(40.2)

9.000

(40.2)

**PRYOUT STRENGTH IN SHEAR** 

2.0

See

note 6

See

note 6

30

24

1.0

(See note 4)

See note 6

See

note 6

See

note 6

STEEL STRENGTH IN TENSION AND SHEAR<sup>3</sup>

4

(102)

36

(248)

58

(400)

8,230

(36.7)

4.110

(18.4)

4,110

(18.4)

30

(205)

75

(515)

8,085

(36.0)

4,045

(18.0)

2 - 3/4

(68)

36

(248)

58

(400)

4.495

(20.1)

2.245

(10.0)

2,245

(10.0)

30

(205)

75

(515)

4.415

(19.6)

2,210

(9.8)

Units

in.

(mm)

in.

(mm)

in.3

(mm<sup>2</sup>

ksi

(N/mm<sup>2</sup>)

ksi

(N/mm<sup>2</sup>

lb

(kN)

lb

(kN)

lb

(kN)

ksi

(N/mm<sup>2</sup>)

ksi

(N/mm<sup>2</sup>)

lb

(kN)

lb

(kN)

-

-

-

-

lb

(kN)

lb

(kN)

lb

(kN)

-

5. For all design cases  $\Psi_{cP} = 1.0$ . For concrete compressive strength greater than 2,500 psi N\_{en} = (pullout strength from table)\*(specified concrete compressive strength/2,500)<sup>as</sup>.

Nominal Anchor Diameter

1

4-1/2

(114)

36

(248)

58

(400)

13,100

(58.5)

6.560

(29.3)

6,560

(29.3)

30

(205)

75

(515)

12,880

(57.3)

6,440

(28.6)

0.75

0.65

0.65 (Condition B)

0.70 (Condition B)

0.65 (Condition B)

0.70 (Condition B)

See

note 6

See

note 6

6-3/4

(171)

105

(723)

125

(860)

17,735

(79.1)

8.855

(39.5)

8,855

(39.5)

5/8 inch

1.000

(25.4)

7 - 1/2

(190)

0.2260

(146)

105

(723)

125

(860)

28,250

(126.1)

14,110

(63.0)

14,110

(63.0)

95

(655)

105

(760)

24.860

(110.6)

12,430

(55.3)

30

24

1.0

(See note 4)

See note 6

2.0

15,000

(67.0)

15.000

(67.0)

9

(229)

105

(723)

125

(860)

28,250

(126.1)

14,110

(63.0)

14,110

(63.0)

1/2 inch

0.750

(19.1)

5

(127)

0.1419

(91)

105

(723)

125

(860)

17,735

(79.1)

8,855

(39.5)

8,855

(39.5)

95

(655)

105

(760)

15.610

(69.4)

7,805

(34.7)

30

24

1.0

(See note 4)

See note 6

2.0

11,500

(51.3)

11 500

(51.3)

1-800-4 DEWALT

– REV. D

TECHNICAL GUIDE - MECHANICAL ANCHORS © 2021 DEWALT



Heavy Duty Undercut Anc

**ATOMIC+ UNDERCUT®** 

### FACTORED DESIGN STRENGTH ( $\phi$ N<sub>N</sub> and $\phi$ V<sub>N</sub>) calculated in accordance with ACI 318-14 Chapter 17:

- Tabular values are provided for illustration and are applicable for single anchors installed in normal-weight concrete with minimum slab thickness, h<sub>a</sub> = h<sub>min2</sub>, and with the following conditions:
   c<sub>a1</sub> is greater than or equal to the critical edge distance, c<sub>ac</sub> (table values based on c<sub>a1</sub> = c<sub>ac</sub>).
  - Ca2 is greater than or equal to 1.5 times Ca1.
- 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, hef, 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.



### Tension and Shear Design Strength for Carbon Steel Atomic+ Undercut in Cracked Concrete



🔲 - Anchor Pullout/Pryout Strength Controls 🔲 - Concrete Breakout Strength Controls 🔳 - Steel Strength Controls

### Tension and Shear Design Strength for Carbon Steel Atomic+ Undercut in Uncracked Concrete

						Minimum Co	oncrete Comp	ressive Stren	gth, f'c (psi)			
Nominal	Nominal	Anchor	2,5	600	3,0	000	4,0	000	6,0	000	8,0	00
Size (in.)	hnom (in.)	Designation (ASTM)	∲Nn Tension (lbs.)	∳V∩ Shear (Ibs.)	ØN∩ Tension (Ibs.)	∳V₁ Shear (Ibs.)	ØN⊓ Tension (Ibs.)	∲V∩ Shear (Ibs.)	ØN₀ Tension (Ibs.)	∲V₁ Shear (Ibs.)	ØN∩ Tension (Ibs.)	∲V∩ Shear (Ibs.)
2/0	3-1/8	A 36	3,370	1,460	3,370	1,460	3,370	1,460	3,370	1,460	3,370	1,460
3/0	4-3/8	A 193, Gr. B7	7,265	3,175	7,265	3,175	7,265	3,175	7,265	3,175	7,265	3,175
	4-1/4	A 36	6,175	2,670	6,175	2,670	6,175	2,670	6,175	2,670	6,175	2,670
1/2	5-1/4	A 193, Gr. B7	10,900	5,755	11,940	5,755	13,300	5,755	13,300	5,755	13,300	5,755
	7	A 193, Gr. B7	13,300	5,755	13,300	5,755	13,300	5,755	13,300	5,755	13,300	5,755
	5	A 36	9,305	4,265	9,825	4,265	9,825	4,265	9,825	4,265	9,825	4,265
5/8	8	A 193, Gr. B7	20,025	9,170	21,190	9,170	21,190	9,170	21,190	9,170	21,190	9,170
	9-1/2	A 193, Gr. B7	21,190	9,170	21,190	9,170	21,190	9,170	21,190	9,170	21,190	9,170
2/4	5-7/8	A 36	10,900	6,410	11,940	6,410	13,790	6,410	14,550	6,410	14,550	6,410
3/4	10-7/8	A 193, Gr. B7	30,830	13,570	31,360	13,570	31,360	13,570	31,360	13,570	31,360	13,570
🗌 - Anchor	Pullout/Pryout	t Strength Controls	🔲 - Concrete E	Breakout Streng	th Controls 📕	- Steel Strengtl	n Controls					

### Converted Allowable Loads for Carbon Steel Atomic+ Undercut in Cracked Concrete<sup>1,2</sup>

						Minimu	n Concrete C	ompressive S	Strength			
Nominal Anchor	Nominal Embed.	Anchor Rod	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
Diameter (in.)	h (in.)	Designation (ASTM)	Tallowable,ASD Tension (Ibs.)	Vallowable,ASD Shear (Ibs.)								
2/0	3-1/8	A 36	2,405	1,045	2,405	1,045	2,405	1,045	2,405	1,045	2,405	1,045
3/0	4-3/8	A 193, Gr. B7	4,180	2,270	4,580	2,270	5,190	2,270	5,190	2,270	5,190	2,270
	4-1/4	A 36	4,410	1,905	4,410	1,905	4,410	1,905	4,410	1,905	4,410	1,905
1/2	5-1/4	A 193, Gr. B7	5,340	4,110	5,850	4,110	6,755	4,110	8,270	4,110	9,500	4,110
	7	A 193, Gr. B7	5,340	4,110	5,850	4,110	6,755	4,110	8,270	4,110	9,500	4,110
	5	A 36	5,320	3,045	5,825	3,045	6,730	3,045	7,020	3,045	7,020	3,045
5/8	8	A 193, Gr. B7	6,965	6,550	7,630	6,550	8,810	6,550	10,790	6,550	12,455	6,550
	9-1/2	A 193, Gr. B7	6,965	6,550	7,630	6,550	8,810	6,550	10,790	6,550	12,455	6,550
2/4	5-7/8	A 36	6,230	4,580	6,825	4,580	7,880	4,580	9,650	4,580	10,395	4,580
3/4	10-7/8	A 193, Gr. B7	10,215	9,695	11,190	9,695	12,920	9,695	15,825	9,695	18,270	9,695

1. Allowable load values are calculated using a conversion factor,  $\alpha$ , from Factored Design Strengths and conditions shown on the previous page.

2. Tabulated allowable load values assume 50% dead load and 50% live load, with controlling load combination 1.2D + 1.6L. Calculated weighted average for the conversion factor

 $\alpha$  : 1.2(0.5) + 1.6(0.5) = 1.4.

### Converted Allowable Loads for Carbon Steel Atomic+ Undercut in Uncracked Concrete<sup>1,2</sup>

						Minimu	n Concrete C	ompressive S	Strength			
Nominal Anchor	Nominal Embed.	Anchor Rod	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
Diameter (in.)	hnom (in.)	Designation (ASTM)	Tallowable,ASD Tension (Ibs.)	Vallowable,ASD Shear (Ibs.)	Tallowable,ASD Tension (lbs.)	Vallowable,ASD Shear (Ibs.)	Tallowable,ASD Tension (Ibs.)	V <sub>allowable,ASD</sub> Shear (Ibs.)	Tallowable,ASD Tension (Ibs.)	Vallowable,ASD Shear (Ibs.)	Tallowable,ASD Tension (Ibs.)	Vallowable,ASD Shear (Ibs.)
2/0	3-1/8	A 36	2,405	1,045	2,405	1,045	2,405	1,045	2,405	1,045	2,405	1,045
3/0	4-3/8	A 193, Gr. B7	5,190	2,270	5,190	2,270	5,190	2,270	5,190	2,270	5,190	2,270
	4-1/4	A 36	4,410	1,905	4,410	1,905	4,410	1,905	4,410	1,905	4,410	1,905
1/2	5-1/4	A 193, Gr. B7	7,785	4,110	8,530	4,110	9,500	4,110	9,500	4,110	9,500	4,110
	7	A 193, Gr. B7	9,500	4,110	9,500	4,110	9,500	4,110	9,500	4,110	9,500	4,110
	5	A 36	6,645	3,045	7,020	3,045	7,020	3,045	7,020	3,045	7,020	3,045
5/8	8	A 193, Gr. B7	14,305	6,550	15,135	6,550	15,135	6,550	15,135	6,550	15,135	6,550
	9-1/2	A 193, Gr. B7	15,135	6,550	15,135	6,550	15,135	6,550	15,135	6,550	15,135	6,550
2/4	5-7/8	A 36	7,785	4,580	8,530	4,580	9,850	4,580	10,395	4,580	10,395	4,580
3/4	10-7/8	A 193, Gr. B7	22,020	9,695	22,400	9,695	22,400	9,695	22,400	9,695	22,400	9,695
						0, ,, ,						

1. Allowable load values are calculated using a conversion factor,  $\alpha$ , from Factored Design Strengths and conditions shown on the previous page.

2. Tabulated allowable load values assume 50% dead load and 50% live load, with controlling load combination 1.2D + 1.6L. Calculated weighted average for the conversion factor  $\alpha$  : 1.2(0.5) + 1.6(0.5) = 1.4.



Heavy Duty Undercut Anch

**ATOMIC+ UNDERCUT®** 

### FACTORED DESIGN STRENGTH ( $\phi$ N<sub>N</sub> and $\phi$ V<sub>N</sub>) calculated in accordance with aci 318-14 chapter 17:

- Tabular values are provided for illustration and are applicable for single anchors installed in normal-weight concrete with minimum slab thickness, h<sub>a</sub> = h<sub>min2</sub>, and with the following conditions:
   c<sub>a1</sub> is greater than or equal to the critical edge distance, c<sub>ac</sub> (table values based on c<sub>a1</sub> = c<sub>ac</sub>).
  - Ca2 is greater than or equal to 1.5 times Ca1.
- 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, hef, 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.



### Tension and Shear Design Strength for Stainless Steel Atomic+ Undercut Anchor in Cracked Concrete



🔲 - Anchor Pullout/Pryout Strength Controls 🔲 - Concrete Breakout Strength Controls 🔳 - Steel Strength Controls

### Tension and Shear Design Strength for Stainless Steel Atomic+ Undercut Anchor in Uncracked Concrete



					Minimum Co	ncrete Comp	ressive Stren	igth, f'c (psi)			
Nominal Embed	Anchor Rod	2,5	00	3,0	00	4,0	000	6,0	000	8,0	00
hnom (in.)	Designation (ASTM)	ØN∩ Tension (lbs.)	ØV∩ Shear (lbs.)	ØN∩ Tension (lbs.)	ØV∩ Shear (lbs.)	ØN∩ Tension (lbs.)	ØV∩ Shear (lbs.)	ØN∩ Tension (lbs.)	ØV∩ Shear (lbs.)	ØN∩ Tension (lbs.)	ØV∩ Shear (lbs.)
3-1/8	A 193, Gr. B8M Class 1	3,310	1,435	3,310	1,435	3,310	1,435	3,310	1,435	3,310	1,435
4-3/8	A 193, Gr. B8M Class 2	6,395	2,770	6,395	2,770	6,395	2,770	6,395	2,770	6,395	2,770
4-1/4	A 193, Gr. B8M Class 1	6,065	2,625	6,065	2,625	6,065	2,625	6,065	2,625	6,065	2,625
5-1/4	A 193, Gr. B8M Class 2	10,900	5,075	11,705	5,075	11,705	5,075	11,705	5,075	11,705	5,075
5	A 193, Gr. B8M Class 1	9,305	4,185	9,660	4,185	9,660	4,185	9,660	4,185	9,660	4,185
8	A 193, Gr. B8M Class 2	18,645	8,080	18,645	8,080	18,645	8,080	18,645	8,080	18,645	8,080
5-7/8	A 193, Gr. B8M Class 1	10,900	6,195	11,940	6,195	13,790	6,195	14,300	6,195	14,300	6,195
10-7/8	A 193, Gr. B8M Class 2	27,595	11,955	27,595	11,955	27,595	11,955	27,595	11,955	27,595	11,955
	Nominal Embed. Nom (n.)           3-1/8           4-3/8           4-3/8           5-1/4           5           8           5-7/8           10-7/8	Nominal Embed. hom (in.)         Anchor Rod Designation           3-1/8         A 193, Gr. B8M Class 1           4-3/8         A 193, Gr. B8M Class 2           4-1/4         A 193, Gr. B8M Class 1           5-1/4         A 193, Gr. B8M Class 2           5         A 193, Gr. B8M Class 1           8         A 193, Gr. B8M Class 2           5-7/8         A 193, Gr. B8M Class 1           10-7/8         A 193, Gr. B8M Class 2	Anchor Rod Designation (in.)         Anchor Rod Designation (ASTM)	Anchor Rod Designation (ASTM)	Anchor Rod Designation (In.)         Anchor Rod Designation (ASTM)         Z.500         Manual (MS.)           3-1/8         A 193, Gr. B8M Class 1         3,310         Mais         3,310           3-1/8         A 193, Gr. B8M Class 2         3,310         1,435         3,310           4-3/8         A 193, Gr. B8M Class 2         6,395         2,770         6,395           4-1/4         A 193, Gr. B8M Class 1         6,065         2,625         6,065           5-1/4         A 193, Gr. B8M Class 2         10,900         5,075         11,705           5         A 193, Gr. B8M Class 1         9,305         4,185         9,660           8         A 193, Gr. B8M Class 1         10,900         5,075         11,705           5         A 193, Gr. B8M Class 1         10,900         5,075         11,960           5         B8M Class 1         9,305         4,185         9,660           8         B8M Class 1         10,900         5,075         11,940           5         A 193, Gr. B8M Class 1         10,900         6,195         11,940           6         B8M Class 2         10,900         6,195         11,940	Anchor Embed. hoom (in.)         Anchor Rod Designation (ASTM) $a_{2,50}$ $a_{3,00}$ 3.1/8         A 193, Gr. B8M Class 1         3,310         1,435         3,310         1,435           4-3/8         A 193, Gr. B8M Class 2         6,395         2,770         6,395         2,770           4-1/4         A 193, Gr. B8M Class 2         6,065         2,625         6,065         2,625           5-1/4         A 193, Gr. B8M Class 2         10,900         5,075         11,705         5,075           5         A 193, Gr. B8M Class 2         9,305         4,185         9,660         4,185           8         A 193, Gr. B8M Class 2         10,900         6,195         11,940         6,195           5-7/8         A 193, Gr. B8M Class 2         10,900         6,195         11,940         6,195           10-7/8         A 193, Gr. B8M Class 2         27,595         11,955         27,595         11,955         27,595	Anchor Embed. hoom (in.)         Anchor Rod Designation (ASTM) $(2,50)$ $(3,00)$ $(4,0)$ $3,100$ $2,500$ $3,000$ $4,0$ $M_{00}$ $M_{$	Anchor Rod Designation (In.)         Anchor Rod Designation (ASTM) $\overline{Q}_{1,50}$ $\overline{Q}_{1,00}$ $\overline{Q}_{$	Anchor Bembed. hoom (in.)         Anchor Rod Designation (ASTM) $2,500$ $3,000$ $4,000$ $6,0$ $M_{hoom}$ (in.) $M_{ho}$ (ASTM) $M_{ho}$ (BS.)	Anchor Bembed, hoom (In.)         Anchor Rod Designation (ASTM) $\overline{Q}_{N_0}$	Anchor hominal (n.)         Anchor Rod Designation (ASTM) $\overline{Q}_{N_{c}}$

				1		Minimu	m Concrete C	ompressive a	Strength		1	
Nominal Anchor	Nominal Embed.	Anchor Rod	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
Diameter (in.)	h <sub>nom</sub> (in.)	Designation (ASTM)	Tallowable,ASD Tension (lbs.)	Vallowable,ASD Shear (Ibs.)	Tallowable,ASD Tension (lbs.)	Vallowable,ASD Shear (Ibs.)	Tallowable,ASD Tension (lbs.)	Vallowable,ASD Shear (Ibs.)	Tallowable,ASD Tension (lbs.)	Vallowable,ASD Shear (Ibs.)	f 'c = 8,0           Tailovable,ASD           Tension (Ibs.)           2,365           4,570           4,330           8,360           6,900           12,455           10,215           18,270	Vallowable,ASD Shear (Ibs.)
2/0	3-1/8	A 193, Gr. B8M Class 1	2,365	1,025	2,365	1,025	2,365	1,025	2,365	1,025	2,365	1,025
3/8	4-3/8	A 193, Gr. B8M Class 2	4,180	1,980	4,570	1,980	4,570	1,980	4,570	1,980	4,570	1,980
1/0	4-1/4	A 193, Gr. B8M Class 1	4,330	1,875	4,330	1,875	4,330	1,875	4,330	1,875	4,330	1,875
1/2	5-1/4	A 193, Gr. B8M Class 2	5,340	3,625	5,850	3,625	6,755	3,625	8,270	3,625	8,360	3,625
E /0	5	A 193, Gr. B8M Class 1	5,320	2,990	5,825	2,990	6,730	2,990	6,900	2,990	6,900	2,990
5/6	8	A 193, Gr. B8M Class 2	6,965	5,770	7,630	5,770	8,810	5,770	10,790	5,770	12,455	5,770
2/4	5-7/8	A 193, Gr. B8M Class 1	6,230	4,425	6,825	4,425	7,880	4,425	9,650	4,425	10,215	4,425
3/4	10-7/8	A 193, Gr. B8M Class 2	10,215	8,540	11,190	8,540	12,920	8,540	15,825	8,540	f 'c = 8,           Tension (lbs.)           2,365           4,570           4,330           8,360           6,900           12,455           10,215           18,270	8,540

### Converted Allowable Loads for Stainless Steel Atomic+ Undercut in Cracked Concrete<sup>1,2</sup>

1. Allowable load values are calculated using a conversion factor,  $\alpha$ , from Factored Design Strengths and conditions shown on the previous page.

2. Tabulated allowable load values assume 50% dead load and 50% live load, with controlling load combination 1.2D + 1.6L. Calculated weighted average for the conversion factor  $\alpha$  : 1.2(0.5) + 1.6(0.5) = 1.4.

### Converted Allowable Loads for Stainless Steel Atomic+ Undercut in Uncracked Concrete<sup>1,2</sup>

						Minimu	m Concrete C	ompressive S	Strength			
Nominal Anchor	Nominal Embed.	Anchor Rod	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
Diameter (in.)	h <sub>nom</sub> (in.)	Designation (ASTM)	Tallowable,ASD Tension (Ibs.)	Vallowable,ASD Shear (Ibs.)								
2/0	3-1/8	A 193, Gr. B8M Class 1	2,365	1,025	2,365	1,025	2,365	1,025	2,365	1,025	2,365	1,025
3/0	4-3/8	A 193, Gr. B8M Class 2	4,570	1,980	4,570	1,980	4,570	1,980	4,570	1,980	4,570	1,980
1/0	4-1/4	A 193, Gr. B8M Class 1	4,330	1,875	4,330	1,875	4,330	1,875	4,330	1,875	4,330	1,875
1/2	5-1/4	A 193, Gr. B8M Class 2	7,785	3,625	8,360	3,625	8,360	3,625	8,360	3,625	8,360	3,625
E/9	5	A 193, Gr. B8M Class 1	6,645	2,990	6,900	2,990	6,900	2,990	6,900	2,990	6,900	2,990
5/0	8	A 193, Gr. B8M Class 2	13,320	5,770	13,320	5,770	13,320	5,770	13,320	5,770	13,320	5,770
2/4	5-7/8	A 193, Gr. B8M Class 1	7,785	4,425	8,530	4,425	9,850	4,425	10,215	4,425	10,215	4,425
5/4	10-7/8	A 193, Gr. B8M Class 2	19,710	8,540	19,710	8,540	19,710	8,540	19,710	8,540	19,710	8,540

1. Allowable load values are calculated using a conversion factor,  $\alpha$ , from Factored Design Strengths and conditions shown on the previous page.

2. Tabulated allowable load values assume 50% dead load and 50% live load, with controlling load combination 1.2D + 1.6L. Calculated weighted average for the conversion factor

 $\alpha$  : 1.2(0.5) + 1.6(0.5) = 1.4.

### **ORDERING INFORMATION**

Cat. No.	Anchor Rod ASTM Designation	Nominal Anchor Diameter	Anchor Outside Diameter	Overall Length	Required Undercut Bit (Cat. No.)	Required Stop Bit (Cat. No.)	Anchor Type	Std. Box
03100SD	ASTM A36	3/8"	5/8"	5-1/2"		03220SD	Standard	20
03102SD	ASTM A36	3/8"	5/8"	5-1/2"	000000	*	Through Bolt	20
03104SD	ASTM A193 Gr. B7	3/8"	5/8"	6-3/4"	0320030	03221SD	Standard	20
03106SD	ASTM A193 Gr. B7	3/8"	5/8"	6-3/4"		*	Through Bolt	20
03108SD	ASTM A36	1/2"	3/4"	7"		03222SD	Standard	15
03110SD	ASTM A36	1/2"	3/4"	7"		*	Through Bolt	15
03112SD	ASTM A193 Gr. B7	1/2"	3/4"	8"	0220100	03223SD	Standard	15
03114SD	ASTM A193 Gr. B7	1/2"	3/4"	8"	0320150	*	Through Bolt	15
03116SD	ASTM A193 Gr. B7	1/2"	3/4"	9-3/4"		03224SD	Standard	15
03118SD	ASTM A193 Gr. B7	1/2"	3/4"	9-3/4"		*	Through Bolt	15
03120SD	ASTM A36	5/8"	1"	7-3/4"		03225SD	Standard	10
03122SD	ASTM A36	5/8"	1"	7-3/4"		*	Through Bolt	10
03124SD	ASTM A193 Gr. B7	5/8"	1"	10-3/4"	020020	03226SD	Standard	10
03126SD	ASTM A193 Gr. B7	5/8"	1"	10-3/4"	0320230	*	Through Bolt	10
03128SD	ASTM A193 Gr. B7	5/8"	1"	12-1/4"		03227SD	Standard	10
03130SD	ASTM A193 Gr. B7	5/8"	1"	12-1/4"	]	*	Through Bolt	10
03132SD	ASTM A36	3/4"	1-1/8"	8-5/8"		03228SD	Standard	8
03134SD	ASTM A36	3/4"	1-1/8"	8-5/8"	03203SD	*	Through Bolt	8
03136SD	ASTM A193 Gr. B7	3/4"	1-1/8"	13-5/8"		03229SD	Standard	8
03138SD	ASTM A193 Gr. B7	3/4"	1-1/8"	13-5/8"	1	*	Through Bolt	8

\*Contact DEWALT for appropriate drilling method and hardware

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### Atomic+ Undercut Anchor Type 316 Stainless Steel

Cat. No.	Anchor Rod ASTM Designation	Nominal Anchor Diameter	Anchor Outside Diameter	Overall Length	Required Undercut Bit (Cat. No.)	Required Stop Bit (Cat. No.)	Anchor Type	Std. Box
03600SD	ASTM A193, Grade B8M, Class 1	3/8"	5/8"	5-1/2"		03220SD	Standard	20
03602SD	ASTM A193, Grade B8M, Class 1	3/8"	5/8"	5-1/2"	0220000	*	Through Bolt	20
03603SD	ASTM A193, Grade B8M, Class 2	3/8"	5/8"	6-3/4"	0320030	03221SD	Standard	20
03605SD	ASTM A193, Grade B8M, Class 2	3/8"	5/8"	6-3/4"		*	Through Bolt	20
03608SD	ASTM A193, Grade B8M, Class 1	1/2"	3/4"	7"		03222SD	Standard	15
03610SD	ASTM A193, Grade B8M, Class 1	1/2"	3/4"	7"	0000100	*	Through Bolt	15
03609SD	ASTM A193, Grade B8M, Class 2	1/2"	3/4"	8"	03201SD	03223SD	Standard	15
03613SD	ASTM A193, Grade B8M, Class 2	1/2"	3/4"	8"		*	Through Bolt	15
03620SD	ASTM A193, Grade B8M, Class 1	5/8"	1"	7-3/4"		03225SD	Standard	10
03622SD	ASTM A193, Grade B8M, Class 1	5/8"	1"	7-3/4"	0200000	*	Through Bolt	10
03635SD	ASTM A193, Grade B8M, Class 2	5/8"	1"	10-3/4"	0320230	03226SD	Standard	10
03639SD	ASTM A193, Grade B8M, Class 2	5/8"	1"	10-3/4"		*	Through Bolt	10
03632SD	ASTM A193, Grade B8M, Class 1	3/4"	1-1/8"	8-5/8"		03228SD	Standard	8
03634SD	ASTM A193, Grade B8M, Class 1	3/4"	1-1/8"	8-5/8"	0200200	*	Through Bolt	8
03648SD	ASTM A193, Grade B8M, Class 2	3/4"	1-1/8"	13-5/8"	03203SD	03229SD	Standard	8
03649SD	ASTM A193, Grade B8M, Class 2	3/4"	1-1/8"	13-5/8"	1	*	Through Bolt	8
For availability of all *Contact DEWALT for	For availability of all anchor lengths please contact DEWALT. *Contact DEWALT for appropriate drilling method and hardware							

### **Stop Drill Bits**

DEWALT

**ANCHORS & FASTENERS** 

Cat. No.	Nominal Stop Drill Bit Diameter	Corresponding Nominal Anchor Diameter	Max. Drill Depth	Shank Type	Std. Tube		
03220SD	5/8	3/8	3-1/8"	SDS	1		
03221SD	5/8	3/8	4-3/8"	SDS	1		
03222SD	3/4	1/2	4-1/4"	SDS	1		
03223SD	3/4	1/2	5-1/4"	SDS	1		
03224SD	3/4	1/2	7"	SDS	1		
03225SD	1	5/8	5"	SDS-Max	1		
03226SD	1	5/8	8"	SDS-Max	1		
03227SD	1	5/8	9-1/2"	SDS-Max	1		
03228SD	1-1/8	3/4	5-13/16"	SDS-Max	1		
03229SD	1-1/8	3/4	10-13/16"	SDS-Max	1		
The Stop Drill Bit creates a drill hole to the proper depth for standard installations of the Atomic+ Undercut anchor.							

(For through bolt applications please contact DEWALT for appropriate drilling method and hardware)

### **Undercut Drill Bits**

Cat. No.	Nominal Undercut Drill Bit Diameter	Corresponding Nominal Anchor Diameter	Maximum Depth of Hole	Shank Type	Std. Tube	
03200SD	5/8	3/8	9"	SDS	1	
03201SD	3/4	1/2	10-1/4"	SDS	1	
03202SD	1	5/8	12-1/4"	SDS-Max	1	
03203SD	1-1/8	3/4	13-1/2"	SDS-Max	1	
The Undercut Drill Bit has a unique design that enlarges the bottom of the drill hole creating a reverse cone sized to receive the Atomic+ Undercut anchor						

### **Setting Sleeve for Undercut Anchors**

Cat No.	Corresponding Nominal Anchor Diameter	Std. Box
03210SD	3/8	1
03211SD	1/2	1
03218SD	5/8	1
03213SD	3/4	1

### **Replacement Blade Assemblies for Undercut Drill Bit**

Cat No.	Description	Std. Tube
03205SD	Atomic+ (3/8") Cutter Blade - 5/8"	1
03206SD	Atomic+ (1/2") Cutter Blade - 3/4"	1
03208SD	Atomic+ (5/8") Cutter Blade - 1"	1
03209SD	Atomic+ (3/4") Cutter Blade - 1-1/8"	1

### **Replacement Bow Jaws for Undercut Drill Bit**

Cat No.	Description	Std. Tube
03212SD	3/8" Bow Jaw for 5/8" Hole	1
03215SD	1/2" Bow Jaw for 3/4" Hole	1
03216SD	5/8" Bow Jaw for 1" Hole	1
03217SD	3/4" Bow Jaw for 1-1/8" Hole	1









ATOMIC+ UNDERCUT® Heavy Duty Undercut Anchor