

GENERAL INFORMATION

DOMESTIC WEDGE ANCHOR

Carbon Steel and Stainless Steel Wedge Expansion Anchors

Anchor produced in the U.S.A., nut and washer made in Taiwan or China*

PRODUCT DESCRIPTION

The Domestic Wedge Anchor is a threaded, torque-controlled, carbon steel or stainless steel wedge expansion anchor which is designed for consistent performance in concrete. Suitable base materials are normal-weight and sand-lightweight concrete. The anchor is manufactured with carbon steel body and expansion clip or a stainless steel body and expansion clip. Nut and washer are included.

GENERAL APPLICATIONS AND USES

- Steel fixtures
- Support connections
- Equipment and railing

FEATURES AND BENEFITS

- + Anchors made in the U.S.A., nut and washer made in Taiwan or China, domestic nut and washer available upon request.
- + Nominal drill bit size is the same as the anchor diameter
- + Anchor can be installed through standard fixture holes
- + Length ID code and identifying marking stamped on head of each anchor
- + Anchor design allows for follow-up expansion after setting under tensile loading
- + Corrosion resistant stainless steel anchors available

APPROVALS AND LISTINGS

- Tested to ASTM E 488

GUIDE SPECIFICATIONS

CSI Divisions: 031600-Concrete Anchors, 05090-Metal Fastenings and 050519 Post-installed Concrete Anchors. Expansion anchors shall be Domestic Wedge Anchor as supplied by Powers Fasteners, Inc., Brewster, NY. Anchors shall be installed in accordance with published instructions and the Authority Having Jurisdiction.

MATERIAL SPECIFICATIONS

Anchor component	Specification		
	Carbon Steel ¹	Type 303	Type 316
Anchor body	AISI C12L14	Type 303 Stainless Steel	Type 316 Stainless Steel
Washer	AISI C1010-1018	300 Series Stainless Steel	Type 316 Stainless Steel
Hex Nut	Low Carbon Steel, ASTM A563, Grade A	Type 18-8	Type 316 Stainless Steel
Expansion wedge (clip)	AISI C1010-1018 1037	Type 18-8	Type 316 Stainless Steel

1. Plated with Commercial Bright Zinc and supplementary chromate treatment in accordance with ASTM B 633, SC1 Type III.
 * Domestic nut and washer available upon request.

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DOMESTIC WEDGE ANCHOR ASSEMBLY

THREAD VERSION

- UNC threaded stud

ANCHOR MATERIALS

- Carbon Steel Type 304 Stainless Steel, or Type 316 Stainless Steel

ANCHOR SIZE RANGE (TYP.)

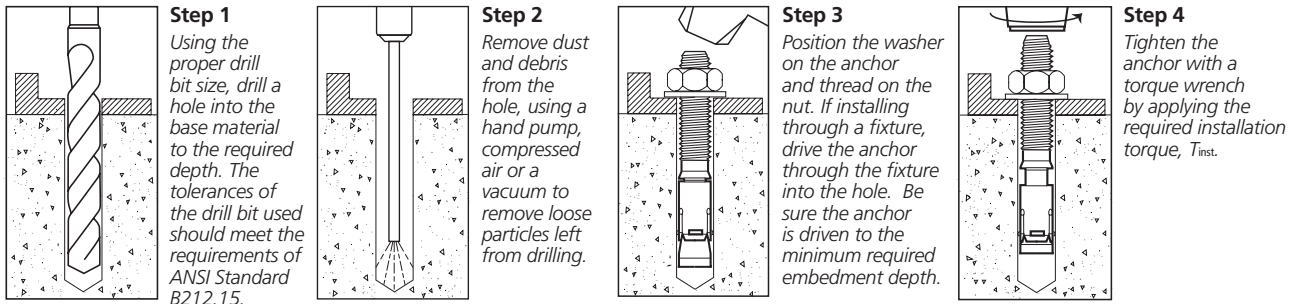
- 1/4" diameter through 1-1/4" diameter

SUITABLE BASE MATERIALS

- Normal-weight concrete
- Sand-lightweight concrete

INSTALLATION INSTRUCTIONS

Installation Instructions for Domestic Wedge Anchor



Installation Table for Domestic Wedge Anchor

Anchor Property/ Setting Information	Notation	Units	Nominal Anchor Diameter (inch)							
			1/4	3/8	1/2	5/8	3/4	7/8	1	1-1/4
Anchor outside diameter	d	in. (mm)	0.25 (6.4)	0.375 (9.5)	0.500 (12.7)	0.625 (15.9)	0.750 (19.1)	0.875 (22.2)	1.000 (25.4)	1.250 (31.8)
Nominal drill bit diameter	d_{bit}	in.	1/4 ANSI	3/8 ANSI	1/2 ANSI	5/8 ANSI	3/4 ANSI	7/8 ANSI	1 ANSI	1-1/4 ANSI
Minimum diameter of hole clearance in fixture	d_h	in. (mm)	5/16 (7.9)	7/16 (11.1)	9/16 (14.3)	11/16 (17.5)	13/16 (20.6)	15/16 (23.8)	1-1/8 (28.6)	1-3/8 (34.9)
Minimum nominal embedment depth	h_{nom}	in. (mm)	1-1/8 (28.6)	1-1/2 (38.1)	2-1/4 (57.2)	2-3/4 (69.9)	3-1/4 (82.6)	3-7/8 (98.4)	4-1/2 (114.3)	5-1/2 (139.7)
Minimum hole depth	h_o	in. (mm)	1-3/8 (34.9)	1-7/8 (47.6)	2-3/4 (69.9)	3-1/4 (82.6)	3-3/4 (95.3)	4-3/8 (111.1)	5 (127.0)	6 (152.4)
Minimum member thickness	h_{min}	in. (mm)	3 (76.2)	3 (76.2)	3-3/8 (85.7)	4-1/8 (104.8)	4-7/8 (123.8)	5-13/16 (147.6)	6-3/4 (171.5)	8-1/4 (209.6)
Installation torque	T_{inst}	ft.-lbf. (N-m)	5-10 (6.8-13.6)	25-30 (33.9-40.7)	50-60 (67.8-81.4)	75-90 (102-122)	150-175 (203-237)	200-250 (271-339)	250-300 (339-407)	400-450 (542-610)
Torque wrench/socket size	-	in.	7/16	9/16	3/4	15/16	1-1/8	1-5/16	1-1/2	1-7/8
Nut height	-	in.	7/32	21/64	7/16	35/64	41/64	3/4	55/64	1-1/16

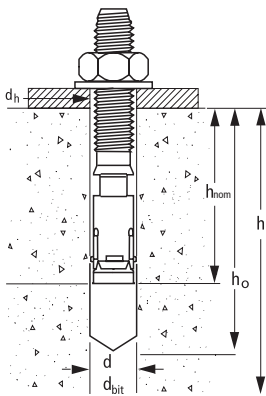
For SI: 1 inch = 25.4 mm, 1 ft.-lbf = 1.356 N-m.

Length Identification

Mark	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
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"
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"

Length identification mark indicates overall length of anchor.

Installation Detail



Nomenclature

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

REFERENCE PERFORMANCE DATA

Ultimate Load Capacities for Domestic Wedge Anchor in Normal-Weight Concrete^{1,2}

Nominal Anchor Diameter (in.)	Minimum Embedment Depth (in.)	Concrete Compressive Strength, f' _c					
		2,000 psi		4,000 psi		6,000 psi	
		Ultimate Tension Load Capacity (lbs.)	Ultimate Shear Load Capacity (lbs.)	Ultimate Tension Load Capacity (lbs.)	Ultimate Shear Load Capacity (lbs.)	Ultimate Tension Load Capacity (lbs.)	Ultimate Shear Load Capacity (lbs.)
1/4	1-1/8	1,170	1,445	1,770	1,815	2,775	2,635
	1-3/4	1,840		2,410		2,775	
	2-3/4	1,975		2,750		2,830	
3/8	1-1/2	1,630	4,320	3,640	5,120	4,450	6,235
	3	3,230		5,655		5,975	
	5	4,075		6,330		6,360	
1/2	2-1/4	4,000	7,420	6,715	9,380	9,615	9,890
	4	6,335		8,945		10,190	
	6	6,900		10,175		12,065	
5/8	2-3/4	5,000	8,265	8,750	12,930	9,760	16,375
	5	8,855		15,590		16,800	
	7	9,380		16,710		17,735	
3/4	3-1/4	6,640	12,505	11,315	17,050	16,230	22,965
	6	10,085		18,410		21,095	
	8	11,170		19,805		22,525	
7/8	3-7/8	8,395	18,250	16,355	20,235	16,800	23,980
	5-3/4	12,065		18,250		23,405	
1	4-1/2	9,775	23,620	18,250	27,605	27,460	28,910
	7-1/2	11,890		26,725		34,960	
	10	15,590		30,490		37,840	
1-1/4	5-1/2	17,550	32,275	22,970	42,690	32,370	55,565
	7	21,050		27,845		48,365	
	10	27,895		34,790		61,270	

1. Tabulated load values are for anchors installed in uncracked concrete with no edge or spacing considerations. 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 loads.



Allowable Load Capacities for Carbon Steel and Stainless Steel Domestic Wedge Anchor in Normal-Weight Concrete^{1,2,3}

Nominal Anchor Diameter (in.)	Minimum Embedment Depth (in.)	Concrete Compressive Strength, f' _c					
		2,000 psi		4,000 psi		6,000 psi	
		Allowable Tension Load Capacity (lbs.)	Allowable Shear Load Capacity (lbs.)	Allowable Tension Load Capacity (lbs.)	Allowable Shear Load Capacity (lbs.)	Allowable Tension Load Capacity (lbs.)	Allowable Shear Load Capacity (lbs.)
1/4	1-1/8	295	360	445	455	695	660
	1-3/4	460		600		695	
	2-3/4	495		690		710	
3/8	1-1/2	410	1,080	910	1,280	1,115	1,560
	3	810		1,415		1,495	
	5	1,020		1,580		1,590	
1/2	2-1/4	1,000	1,855	1,680	2,345	2,405	2,475
	4	1,585		2,235		2,550	
	6	1,725		2,545		3,015	
5/8	2-3/4	1,250	2,065	2,190	3,235	2,440	4,095
	5	2,215		3,900		4,200	
	7	2,345		4,180		4,435	
3/4	3-1/4	1,660	3,125	2,830	4,265	4,060	5,740
	6	2,520		4,600		5,275	
	8	2,795		4,950		5,630	
7/8	3-7/8	2,100	4,565	4,090	5,060	4,200	5,995
	5-3/4	3,015		4,565		5,850	
1	4-1/2	2,445	5,905	4,565	6,900	6,865	7,230
	7-1/2	2,975		6,685		8,740	
	10	3,900		7,625		9,460	
1-1/4	5-1/2	4,390	8,070	5,745	10,675	8,095	13,890
	7	5,265		6,960		12,095	
	10	6,975		8,700		15,320	

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. Allowable load capacities listed are calculated using and applied safety factor of 4.0.

MECHANICAL ANCHORS

DOMESTIC WEDGE ANCHOR
Carbon Steel and Stainless Steel Wedge Expansion Anchors

ORDERING INFORMATION



Domestic Wedge Anchor (Carbon Steel)

Cat. No.	Size	Min. Embed.	Thread Length	Std. Box	Std. Ctn.
7400USA	1/4" x 1-3/4"	1-1/8"	3/4"	100	500
7402USA	1/4" x 2-1/4"	1-1/8"	3/4"	100	500
7404USA	1/4" x 3-1/4"	1-1/8"	3/4"	100	500
7410USA	3/8" x 2-1/4"	1-1/2"	7/8"	50	250
7412USA	3/8" x 2-3/4"	1-1/2"	1-1/8"	50	250
7413USA	3/8" x 3"	1-1/2"	1-1/8"	50	250
7414USA	3/8" x 3-1/2"	1-1/2"	1-1/8"	50	250
7415USA	3/8" x 3-3/4"	1-1/2"	1-1/8"	50	250
7416USA	3/8" x 5"	1-1/2"	1-1/8"	50	250
7417USA	3/8" x 6-1/2"	1-1/2"	1-1/8"	50	200
7420USA	1/2" x 2-3/4"	2-1/4"	1-1/4"	50	200
7422USA	1/2" x 3-3/4"	2-1/4"	1-1/4"	50	200
7423USA	1/2" x 4-1/2"	2-1/4"	1-1/4"	50	200
7424USA	1/2" x 5-1/2"	2-1/4"	1-1/4"	50	150
7426USA	1/2" x 7"	2-1/4"	1-1/4"	25	100
7427USA	1/2" x 8-1/2"	2-1/4"	1-1/4"	25	100
7428USA	1/2" x 10"	2-1/4"	1-1/4"	25	100
7429USA	1/2" x 12"	2-1/4"	1-1/4"	25	100
7430USA	5/8" x 3-1/2"	2-3/4"	2"	25	100
7432USA	5/8" x 4-1/2"	2-3/4"	2"	25	100
7433USA	5/8" x 5"	2-3/4"	2"	25	100
7434USA	5/8" x 6"	2-3/4"	2"	25	75
7436USA	5/8" x 7"	2-3/4"	2"	25	75
7438USA	5/8" x 8-1/2"	2-3/4"	2"	25	75
7439USA	5/8" x 10"	2-3/4"	2"	25	75
7437USA	5/8" x 12"	2-3/4"	2"	25	75
7440USA	3/4" x 4-1/4"	3-1/4"	2"	20	60
7441USA	3/4" x 4-3/4"	3-1/4"	2"	20	60
7442USA	3/4" x 5-1/2"	3-1/4"	2"	20	60
7444USA	3/4" x 6-1/4"	3-1/4"	2"	20	60
7446USA	3/4" x 7"	3-1/4"	2"	20	60
7448USA	3/4" x 8-1/2"	3-1/4"	2"	10	40
7449USA	3/4" x 10"	3-1/4"	2"	10	30
7451USA	3/4" x 12"	3-1/4"	2"	10	30
7461USA	1" x 6"	4-1/2"	2-1/4"	10	40
7463USA	1" x 9"	4-1/2"	2-1/4"	10	30
7465USA	1" x 12"	4-1/2"	2-1/4"	5	15
7475USA	1-1/4" x 12"	5-1/2"	3-1/4"	5	15

Installation Accessories

Cat. No.	Description	Box Qty
08466	Adjustable torque wrench with 1/2" square drive (25 to 250 ft.-lbs.)	1
08280	Hand pump / dust blower	1

The published size includes the diameter and the overall length of the anchor.
 All anchors are packaged with nuts and washers.

Domestic Wedge Anchor (Type 303 Stainless Steel)

Cat. No.	Size	Min. Embed.	Thread Length	Std. Box	Std. Ctn.
7300USA	1/4" x 1-3/4"	1-1/8"	3/4"	100	500
7302USA	1/4" x 2-1/4"	1-1/8"	3/4"	100	500
7304USA	1/4" x 3-1/4"	1-1/8"	3/4"	100	500
7310USA	3/8" x 2-1/4"	1-1/2"	7/8"	50	250
7312USA	3/8" x 2-3/4"	1-1/2"	1-1/8"	50	250
7313USA	3/8" x 3"	1-1/2"	1-1/8"	50	250
7314USA	3/8" x 3-1/2"	1-1/2"	1-1/8"	50	250
7315USA	3/8" x 3-3/4"	1-1/2"	1-1/8"	50	250
7316USA	3/8" x 5"	1-1/2"	1-1/8"	50	250
7317USA	3/8" x 6"	1-1/2"	1-1/8"	50	200
7320USA	1/2" x 2-3/4"	2-1/4"	1-1/4"	50	200
7323USA	1/2" x 4-1/2"	2-1/4"	1-1/4"	50	200
7324USA	1/2" x 5-1/2"	2-1/4"	1-1/4"	50	150
7326USA	1/2" x 7"	2-1/4"	1-1/4"	25	100
7330USA	5/8" x 3-1/2"	2-3/4"	2"	25	100
7332USA	5/8" x 4-1/2"	2-3/4"	2"	25	100
7333USA	5/8" x 5"	2-3/4"	2"	25	100
7334USA	5/8" x 6"	2-3/4"	2"	25	75
7336USA	5/8" x 7"	2-3/4"	2"	25	75
7338USA	5/8" x 8-1/2"	2-3/4"	2"	25	75
7340USA	3/4" x 4-1/4"	3-1/4"	2"	20	60
7341USA	3/4" x 4-3/4"	3-1/4"	2"	20	60
7342USA	3/4" x 5-1/2"	3-1/4"	2"	20	60
7344USA	3/4" x 6-1/4"	3-1/4"	2"	20	60
7346USA	3/4" x 7"	3-1/4"	2"	20	60
7348USA	3/4" x 8-1/2"	3-1/4"	2"	10	40
7349USA	3/4" x 10"	3-1/4"	2"	10	30

Domestic Wedge Anchor (Type 316 Stainless Steel)

Cat. No.	Size	Min. Embed.	Thread Length	Std. Box	Std. Ctn.
7600USA	1/4" x 1-3/4"	1-1/8"	3/4"	100	500
7602USA	1/4" x 2-1/4"	1-1/8"	3/4"	100	500
7604USA	1/4" x 3-1/4"	1-1/8"	3/4"	100	500
7610USA	3/8" x 2-1/4"	1-1/2"	7/8"	50	250
7612USA	3/8" x 2-3/4"	1-1/2"	1-1/8"	50	250
7613USA	3/8" x 3"	1-1/2"	1-1/8"	50	250
7614USA	3/8" x 3-1/2"	1-1/2"	1-1/8"	50	250
7615USA	3/8" x 3-3/4"	1-1/2"	1-1/8"	50	250
7616USA	3/8" x 5"	1-1/2"	1-1/8"	50	250
7620USA	1/2" x 2-3/4"	2-1/4"	1-1/4"	50	200
7622USA	1/2" x 3-3/4"	2-1/4"	1-1/4"	50	200
7623USA	1/2" x 4-1/2"	2-1/4"	1-1/4"	50	200
7624USA	1/2" x 5-1/2"	2-1/4"	1-1/4"	50	150
7626USA	1/2" x 7"	2-1/4"	1-1/4"	25	100
7630USA	5/8" x 3-1/2"	2-3/4"	2"	25	100
7632USA	5/8" x 4-1/2"	2-3/4"	2"	25	100
7633USA	5/8" x 5"	2-3/4"	2"	25	100
7634USA	5/8" x 6"	2-3/4"	2"	25	75
7636USA	5/8" x 7"	2-3/4"	2"	25	75
7638USA	5/8" x 8-1/2"	2-3/4"	2"	25	75
7640USA	3/4" x 4-1/4"	3-1/4"	2"	20	60
7641USA	3/4" x 4-3/4"	3-1/4"	2"	20	60
7642USA	3/4" x 5-1/2"	3-1/4"	2"	20	60
7644USA	3/4" x 6-1/4"	3-1/4"	2"	20	60
7646USA	3/4" x 7"	3-1/4"	2"	20	60
7648USA	3/4" x 8-1/2"	3-1/4"	2"	10	40
7652USA	7/8" x 8"	3-7/8"	2-1/4"	10	40
7663USA	1" x 9"	4-1/2"	2-1/4"	10	30