

Drop-In Stainless-Steel Internally Threaded Anchor (DIASS)

Drop-in anchors are internally threaded drop-in expansion anchors for use in flush-mount applications in solid base materials. Minimum thread engagement should be equal to the nominal diameter of the threaded insert.

Features

- Hand- and power-setting tools available for fast, easy and economical installation
- Fixed-depth stop bit helps you drill to the correct depth every time

Material: Stainless steel

Codes: DOT; Factory Mutual 3017082; Underwriters Laboratories File Ex3605. Meets requirements of Federal Specifications A-A-55614, Type I.

Installation

1. Drill a hole in the base material using the appropriate diameter carbide drill bit as specified in the table. Drill the hole to the specified embedment depth plus 1/8" for flush mounting. Blow the hole clean using compressed air. Overhead installations need not be blown clean.
2. Insert designated anchor into hole. Tap with hammer until flush against surface.
3. Using the designated drop-in setting tool, drive expander plug toward the bottom of the anchor until shoulder of setting tool makes contact with the top of the anchor.
4. Minimum thread engagement should be equal to the nominal diameter of the threaded insert.

Caution: Oversized holes will make it difficult to set the anchor and will reduce the anchor's load capacity.



DIASS
Stainless-Steel Drop-In



Fixed-Depth Drill Bit

Material Specifications

Anchor Component	Component Material	
	Type 303 or 304 Stainless Steel	Type 316 Stainless Steel
Anchor Body	AISI 303. Meets chemical requirements of ASTM A582	Type 316
Expander Plug	AISI 303	Type 316
Thread	UNC	UNC

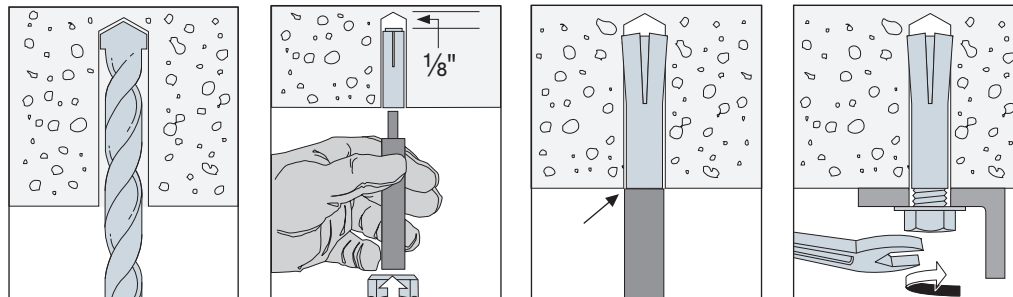
Fixed-Depth Drill Bits for DIASS

Model No.	Drill Bit Diameter (in.)	Drill Depth (in.)	Drop-In Anchor (in.)
MDPL037DIA	3/8	1 1/16	1/4
MDPL050DIA	1/2	1 11/16	3/8
MDPL062DIA	5/8	2 1/16	1/2

Stainless-Steel Drop-In Anchor Product Data

Rod Size (in.)	Type 303 or 304 Stainless Model No.	Type 316 Stainless Model No.	Drill Bit Diameter (in.)	Bolt Threads (per in.)	Body Length (in.)	Thread Length (in.)	Quantity	
							Box	Carton
1/4	DIA25SS	DIA256SS	3/8	20	1	3/8	100	500
3/8	DIA37SS	DIA376SS	1/2	16	1 1/16	5/8	50	250
1/2	DIA50SS	DIA506SS	5/8	13	2	3/4	50	200
5/8	DIA62SS	—	7/8	11	2 1/2	1	25	100
3/4	DIA75SS	—	1	10	3 1/8	1 1/4	20	80

Installation Sequence



Drop-In Stainless-Steel Internally Threaded Anchor (DIASS)

Allowable Tension Loads for Stainless-Steel Drop-In Anchor
in Normal-Weight Concrete

Rod Size in. (mm)	Drill Bit Dia. in.	Embed. Depth in. (mm)	Critical Edge Dist. in. (mm)	Critical Spacing in. (mm)	Tension Load						
					$f'_c \geq 2,000$ psi (13.8 MPa) Concrete			$f'_c \geq 3,000$ psi (20.7 MPa) Concrete		$f'_c \geq 4,000$ psi (27.6 MPa) Concrete	
					Ultimate lb. (kN)	Std. Dev. lb. (kN)	Allowable lb. (kN)	Allowable lb. (kN)	Ultimate lb. (kN)	Std. Dev. lb. (kN)	Allowable lb. (kN)
¼ (6.4)	⅜	1 (25)	3 (76)	4 (102)	1,400 (6.2)	201 (0.9)	350 (1.6)	405 (1.8)	1,840 (8.2)	451 (2.0)	460 (2.0)
⅜ (9.5)	½	1⅞ (40)	4½ (114)	6 (152)	2,400 (10.7)	251 (1.1)	600 (2.7)	795 (3.5)	3,960 (17.6)	367 (1.6)	990 (4.4)
½ (12.7)	⅝	2 (51)	6 (152)	8 (203)	3,320 (14.8)	372 (1.7)	830 (3.7)	1,178 (5.2)	6,100 (27.1)	422 (1.9)	1,525 (6.8)
⅝ (15.9)	⅞	2½ (64)	7½ (191)	10 (254)	5,040 (22.4)	689 (3.1)	1,260 (5.6)	1,715 (7.6)	8,680 (38.6)	971 (4.3)	2,170 (9.7)
¾ (19.1)	1	3⅞ (79)	9 (229)	12½ (318)	8,160 (36.3)	961 (4.3)	2,040 (9.1)	2,365 (10.5)	10,760 (47.9)	1,696 (7.5)	2,690 (12.0)

See footnotes below.

Allowable Shear Loads for Stainless-Steel Drop-In Anchor
in Normal-Weight Concrete

Rod Size in. (mm)	Drill Bit Dia. in.	Embed. Depth in. (mm)	Critical Edge Dist. in. (mm)	Critical Spacing in. (mm)	Shear Load					
					$f'_c \geq 2,000$ psi (13.8 MPa) Concrete			$f'_c \geq 3,000$ psi (20.7 MPa) Concrete		$f'_c \geq 4,000$ psi (27.6 MPa) Concrete
					Ultimate lb. (kN)	Std. Dev. lb. (kN)	Allowable lb. (kN)	Allowable lb. (kN)	Allowable lb. (kN)	
¼ (6.4)	⅜	1 (25)	3½ (89)	4 (102)	1,960 (8.7)	178 (0.8)	490 (2.2)	490 (2.2)	490 (2.2)	
⅜ (9.5)	½	1⅞ (40)	5¼ (133)	6 (152)	3,240 (14.4)	351 (1.6)	810 (3.6)	925 (4.1)	1,040 (4.6)	
½ (12.7)	⅝	2 (51)	7 (178)	8 (203)	7,000 (31.1)	562 (2.5)	1,750 (7.8)	1,750 (7.8)	1,750 (7.8)	
⅝ (15.9)	⅞	2½ (64)	8¾ (222)	10 (254)	11,080 (49.3)	923 (4.1)	2,770 (12.3)	2,770 (12.3)	2,770 (12.3)	
¾ (19.1)	1	3⅞ (79)	10½ (267)	12½ (318)	13,800 (61.4)	1,781 (7.9)	3,450 (15.3)	3,725 (16.6)	4,000 (17.8)	

1. The allowable loads listed are based on a safety factor of 4.0.
2. Refer to allowable load-adjustment factors for edge distance and spacing on p. 155.
3. Allowable loads may be linearly interpolated between concrete strengths listed.
4. The minimum concrete thickness is 1½ times the embedment depth.

Drop-In Stainless-Steel (DIASS) Design Information — Concrete

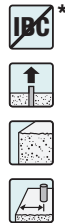
Allowable Load-Adjustment Factors for Stainless-Steel Drop-In Anchors in Normal-Weight Concrete: Edge Distance and Spacing, Tension and Shear Loads

How to use these charts:

1. The following tables are for reduced edge distance and spacing.
2. Locate the anchor size to be used for either a tension and/or shear load application.
3. Locate the edge distance (c_{act}) or spacing (s_{act}) at which the anchor is to be installed.
4. The load adjustment factor (f_c or f_s) is the intersection of the row and column.
5. Multiply the allowable load by the applicable load adjustment factor.
6. Reduction factors for multiple edges or spacing are multiplied together.

Edge Distance Tension (f_c)

Edge Dist. c_{act} (in.)	Size	1/4	3/8	1/2	5/8	3/4
	c_{cr}	3	4 1/2	6	7 1/2	9
	c_{min}	1 3/4	2 5/8	3 1/2	4 3/8	5 1/4
	f_{cmin}	0.65	0.65	0.65	0.65	0.65
1 3/4		0.65				
2		0.72				
2 1/2		0.86				
2 5/8		0.90	0.65			
3		1.00	0.72			
3 1/2			0.81	0.65		
4			0.91	0.72		
4 3/8			0.98	0.77	0.65	
4 1/2			1.00	0.79	0.66	
5				0.86	0.72	
5 1/4				0.90	0.75	0.65
5 1/2				0.93	0.78	0.67
6				1.00	0.83	0.72
6 1/2					0.89	0.77
7					0.94	0.81
7 1/2					1.00	0.86
8						0.91
8 1/2						0.95
9						1.00



See notes below.

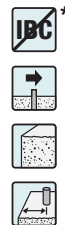
Spacing Tension and Shear (f_s)

s_{act} (in.)	Size	1/4	3/8	1/2	5/8	3/4
	s_{cr}	4	6	8	10	12 1/2
	s_{min}	2	3	4	5	6 1/4
	f_{smin}	0.50	0.50	0.50	0.50	0.50
1 1/2						
2		0.50				
2 1/2		0.63				
3		0.75	0.50			
3 1/2		0.88	0.58			
4		1.00	0.67	0.50		
4 1/2			0.75	0.56		
5			0.83	0.63	0.50	
5 1/2			0.92	0.69	0.55	
6			1.00	0.75	0.60	
6 1/4				0.78	0.63	0.50
7				0.88	0.70	0.56
8				1.00	0.80	0.64
9					0.90	0.72
10					1.00	0.80
11						0.88
12						0.96
12 1/2						1.00



Edge Distance Shear (f_c)

Edge Dist. c_{act} (in.)	Size	1/4	3/8	1/2	5/8	3/4
	c_{cr}	3 1/2	5 1/4	7	8 3/4	10 1/2
	c_{min}	1 3/4	2 5/8	3 1/2	4 3/8	5 1/4
	f_{cmin}	0.45	0.45	0.45	0.45	0.45
1 3/4		0.45				
2		0.53				
2 1/2		0.69				
2 5/8		0.73	0.45			
3		0.84	0.53			
3 1/2		1.00	0.63	0.45		
4			0.74	0.53		
4 3/8			0.82	0.59	0.45	
4 1/2			0.84	0.61	0.47	
5			0.95	0.69	0.53	
5 1/4			1.00	0.73	0.56	0.45
5 1/2				0.76	0.59	0.48
6				0.84	0.65	0.53
6 1/2				0.92	0.72	0.58
7				1.00	0.78	0.63
7 1/2					0.84	0.69
8					0.91	0.74
8 1/2					0.97	0.79
8 3/4					1.00	0.82
9						0.84
9 1/2						0.90
10						0.95
10 1/2						1.00



1. s_{act} = actual spacing distance at which anchors are installed (inches).
2. s_{cr} = critical spacing distance for 100% load (inches).
3. s_{min} = minimum spacing distance for reduced load (inches).
4. f_s = adjustment factor for allowable load at actual spacing distance.
5. f_{scr} = adjustment factor for allowable load at critical spacing distance. f_{scr} is always = 1.00.
6. f_{smin} = adjustment factor for allowable load at minimum spacing distance.
7. $f_s = f_{smin} + [(1 - f_{smin}) (s_{act} - s_{min}) / (s_{cr} - s_{min})]$.

1. c_{act} = actual edge distance at which anchor is installed (inches).
2. c_{cr} = critical edge distance for 100% load (inches).
3. c_{min} = minimum edge distance for reduced load (inches).
4. f_c = adjustment factor for allowable load at actual edge distance.
5. f_{ccr} = adjustment factor for allowable load at critical edge distance. f_{ccr} is always = 1.00.
6. f_{cmin} = adjustment factor for allowable load at minimum edge distance.
7. $f_c = f_{cmin} + [(1 - f_{cmin}) (c_{act} - c_{min}) / (c_{cr} - c_{min})]$.

*See p. 14 for an explanation of the load table icons.