



Strong-Bolt® 2 Wedge Anchor for Cracked and Uncracked Concrete

The Strong-Bolt® 2 wedge anchor is the next-generation solution for cracked and uncracked concrete. Following rigorous testing according to ICC-ES acceptance criteria, the Strong-Bolt 2 anchor received classification as a Category 1 anchor, the highest attainable anchor category for performance in cracked concrete under static and seismic loading. Available in stainless steel, it is code-listed by ICC-ES under the 2009 IBC requirements for post-installed anchors in cracked and uncracked concrete.

FEATURES:

- **Category 1 anchor classification:** The Strong-Bolt 2 anchor received classification as a Category 1 anchor, which is established by performance in reliability tests in accordance with AC193 and ACI355.2 test criteria. Category 1 is the highest attainable anchor category for reliability.
- **Tri-segmented clip:** Each segment adjusts independently, increasing follow-up expansion should the hole increase in size as a result of a crack
- **Dual embossments on each clip segment:** Enables clip to undercut into the concrete thereby increasing follow-up expansion should a crack occur
- **The 3/8" anchor solution approved for 3 1/4" concrete thickness:** The Strong-Bolt 2 anchor can be installed in cracked concrete with a minimum thickness of 3 1/4", including concrete-over-metal decking
- **High-strength alloy clip on carbon-steel anchors:** This special alloy clip offers improved performance
- **Standard (ANSI) fractional anchor:** Fits most fixtures and installs with common drill bit sizes and tools
- **Type 316 stainless-steel clip on stainless steel anchors:** In addition to superior corrosion resistance, a stainless-steel clip offers "memory" that contributes to the anchor's performance if the hole increases in size because of a crack

MATERIAL: Carbon-steel stud with special alloy clip; stainless-steel stud with stainless-steel clip

FINISH: Zinc-plated (carbon steel)

CODES: ICC-ES ESR-3037 (carbon and stainless steel in concrete); IAPMO ES ER-240 (carbon steel in CMU); City of Los Angeles RR25891; Underwriters Laboratories File Ex3605; Factory Mutual 3043442; Florida – Pending

TEST CRITERIA: The Strong-Bolt 2 wedge anchor has been tested in accordance with the ICC-ES Acceptance Criteria for Mechanical Anchors in Concrete Elements (AC 193) and ACI 355.2 for the following:

- Static tension and shear loading in cracked and uncracked concrete
- Seismic and wind loading in cracked and uncracked concrete
- Performance in cracked concrete
- Performance in lightweight concrete over metal deck

INSTALLATION: • Do not use an impact wrench to set or tighten the Strong-Bolt 2 anchor.

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

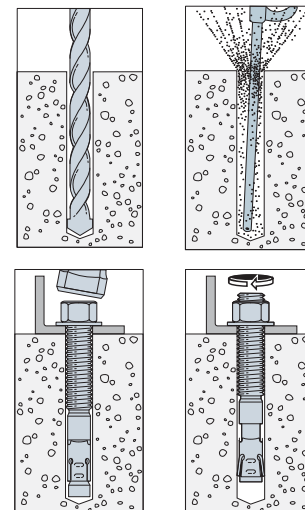
- Drill a hole in the base material using a carbide drill bit the same diameter as the nominal diameter of the anchor to be installed. Drill the hole to the specified embedment depth and blow it clean using compressed air. Overhead installations need not be blown clean. Alternatively, drill the hole deep enough to accommodate minimum hole depth and dust from drilling.
- Assemble the anchor with nut and washer so that the top of the nut is flush with the top of the anchor. Place the anchor in the fixture and drive into the hole until washer and nut are tight against the fixture.
- Tighten to the required installation torque.

DESIGN EXAMPLE: See pages 233–234



Strong-Bolt® 2 Wedge Anchor

Installation Sequence



Length Identification Head Marks on Strong-Bolt® 2 Wedge Anchors (corresponds to length of anchor – inches)

Mark	Units	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
From	in.	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	13	14	15	16	17	18
Up To But Not Including	in.	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	14	15	16	17	18	19

Strong-Bolt® 2 Wedge Anchor Product Information

Strong-Bolt® 2 Anchor Product Data

Size (in.)	Carbon Steel Model No.	316 Stainless Steel Model No.	Drill Bit Dia. (in.)	Thread Length (in.)	Quantity	
					Box	Carton
5/8 x 2 3/4	STB2-37234	STB2-372346SS	5/8	1 5/16	50	250
5/8 x 3	STB2-37300	STB2-373006SS	5/8	1 5/16	50	250
5/8 x 3 1/2	STB2-37312	STB2-373126SS	5/8	2 1/16	50	250
5/8 x 3 3/4	STB2-37334	STB2-373346SS	5/8	2 5/16	50	250
5/8 x 5	STB2-37500	STB2-375006SS	5/8	3 9/16	50	200
5/8 x 7	STB2-37700	STB2-377006SS	5/8	5 9/16	50	200
1/2 x 3 3/4	STB2-50334	STB2-503346SS	1/2	2 1/16	25	125
1/2 x 4 1/4	STB2-50414	STB2-504146SS	1/2	2 9/16	25	100
1/2 x 4 3/4	STB2-50434	STB2-504346SS	1/2	3 1/16	25	100
1/2 x 5 1/2	STB2-50512	STB2-505126SS	1/2	3 13/16	25	100
1/2 x 7	STB2-50700	STB2-507006SS	1/2	5 5/16	25	100
1/2 x 8 1/2	STB2-50812	STB2-508126SS	1/2	6	25	50
1/2 x 10	STB2-50100	STB2-501006SS	1/2	6	25	50
5/8 x 4 1/2	STB2-62412	STB2-624126SS	5/8	2 7/16	20	80
5/8 x 5	STB2-62500	STB2-625006SS	5/8	2 15/16	20	80
5/8 x 6	STB2-62600	STB2-626006SS	5/8	3 15/16	20	80
5/8 x 7	STB2-62700	STB2-627006SS	5/8	4 15/16	20	80
5/8 x 8 1/2	STB2-62812	STB2-628126SS	5/8	6	20	40
5/8 x 10	STB2-62100	STB2-621006SS	5/8	6	10	20
3/4 x 5 1/2	STB2-75512	STB2-755126SS	3/4	3 3/16	10	40
3/4 x 6 1/4	STB2-75614	STB2-756146SS	3/4	3 15/16	10	40
3/4 x 7	STB2-75700	STB2-757006SS	3/4	4 11/16	10	40
3/4 x 8 1/2	STB2-75812	STB2-758126SS	3/4	6	10	20
3/4 x 10	STB2-75100	STB2-751006SS	3/4	6	10	20

Material Specifications

Carbon Steel - Zinc Plated ¹			
Component Materials			
Anchor Body	Nut	Washer	Clip
Carbon Steel	Carbon Steel ASTM A 563, Grade A	Carbon Steel ASTM F844	Carbon Steel ASTM A 568

1. Zinc meets ASTM B 633, Class SC 1 (Fe / Zn 5), Type III.

Stainless Steel			
Component Materials			
Anchor Body	Nut	Washer	Clip
Type 316 Stainless Steel	Type 316 Stainless Steel	Type 316 Stainless Steel	Type 316 Stainless Steel

Carbon Steel Strong-Bolt® 2 Wedge Anchor Installation Information¹

Characteristic	Symbol	Units	Nominal Anchor Diameter								
			Carbon Steel								
			3/8 inch		1/2 inch		5/8 inch		3/4 inch		
Installation Information											
Nominal Diameter	d_a^3	in.	3/8		1/2		5/8		3/4		
Drill Bit Diameter	d	in.	3/8		1/2		5/8		3/4		
Baseplate Clearance Hole Diameter ²	d_c	in.	7/16		9/16		1 1/16		7/8		
Installation Torque	T_{inst}	ft-lbf	30		60		90		150		
Nominal Embedment Depth	h_{nom}	in.	1 7/8	2 7/8	2 3/4	3 3/8	3 3/8	5 1/8	4 1/8	5 3/4	
Effective Embedment Depth	h_{ef}	in.	1 1/2	2 1/2	2 1/4	3 3/8	2 3/4	4 1/2	3 3/8	5	
Minimum Hole Depth	h_{hole}	in.	2	3	3	4 1/8	3 5/8	5 3/8	4 3/8	6	
Minimum Overall Anchor Length	ℓ_{anch}	in.	2 3/4	3 1/2	3 3/4	5 1/2	4 1/2	6	5 1/2	7	
Critical Edge Distance	c_{ac}	in.	6 1/2	6	6 1/2	6 1/2	7 1/2	7 1/2	9	8	
Minimum Edge Distance	c_{min}	in.	6		7		4		6 1/2		
	for $s \geq$	in.	—		—		—		8		
Minimum Spacing	s_{min}	in.	3		7		4		7		
	for $c \geq$	in.	—		—		—		8		
Minimum Concrete Thickness	h_{min}	in.	3 1/4	4 1/2	4 1/2	5 1/2	6	5 1/2	7 7/8	8 3/4	
Additional Data											
Yield Strength	f_{ya}	psi	92,000				85,000				70,000
Tensile Strength	f_{uta}^4	psi	—				115,000				110,000
Minimum Tensile and Shear Stress Area	A_{se}	in ²	0.0514		0.105		0.166		0.270		
Axial Stiffness in Service Load Range - Cracked and Uncracked Concrete	β	lb./in	34,820		63,570		91,370		118,840		

- The information presented in this table is to be used in conjunction with the design criteria of ACI 318 Appendix D.
- The clearance must comply with applicable code requirements for the connected element.
- For the 2006 IBC, d_o replaces d_a .
- For the 2003 IBC, f_{ut} replaces f_{uta} .