SIMPSON
Strong-Tie
®

2014–2015 Product Guide

Anchoring and Fastening Systems

Commercial Cold-Formed Steel Solutions

(800) 999-5099 | www.strongtie.com

New Solutions. A New Look. The Same Experience You Expect from Simpson Strong-Tie.

This new Simpson Strong-Tie® Product Guide has been developed to provide our valued customers with a more complete resource for our expanding line of anchoring, repair, protection, strengthening, cold-formed steel and fastening applications. Simpson Strong-Tie has released and continues to develop innovative solutions for infrastructure, commercial, industrial and residential applications in concrete, masonry, steel and wood.

For technical information, ***www.strongtie.com*** remains your best source for up-to-date information, and a new-look Technical Manual will be released in the future for Designers and Specifiers. Thank you for your continued support of Simpson Strong-Tie!

The Simpson Strong-Tie Company Inc. "No Equal" pledge includes:

- Quality products value-engineered for the lowest installed cost at the highest-rated performance levels
- Most thoroughly tested and evaluated products in the industry
- Strategically located manufacturing and warehouse facilities
- National code agency listings
- Largest number of patented connectors in the industry
- European locations with an international sales team
- In-house R&D and tool-and-die professionals
- In-house product testing and quality control engineers
- Member of AITC, ASTM, ASCE, AWPA, ACI, AISC, CSI, ICFA, ICRI, NBMDA, NLBMDA, SDI, SETMA, STAFDA, SREA, NFBA, WTCA and local engineering groups.

The Simpson Strong-Tie® Quality Policy

We help people build safer structures economically. We do this by designing, engineering and manufacturing "No Equal" structural connectors and other related products that meet or exceed our customers' needs and expectations. Everyone is responsible for product quality and is committed to ensuring the effectiveness of the Quality Management System.

Karen Colonias
Chief Executive Officer

Terry Kingsfather
President

We are ISO 9001-2000 registered

nqa. ISO 9001 Registered

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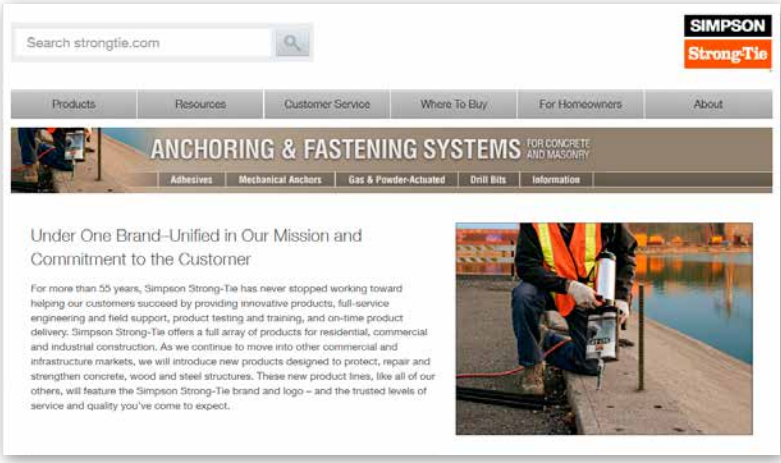

The New *www.strongtie.com*: Your Source for Up-to-Date Information

This Product Guide has been designed to provide quick reference information to our customers about our expanded line of products for infrastructure, commercial, industrial and residential applications. ***www.strongtie.com*** has been updated to offer comprehensive technical information, terms of sale, warranties, product warnings and much more. ***www.strongtie.com*** and future printed publications will provide technical information concerning:

- General instructions to installers and Designers
- Supplemental topics for anchors
- Corrosion and concrete deterioration
- Allowable stress and strength design examples
- Load and performance data
- Code reports (online)

For the most up-to-date information about our products, visit our website at *www.strongtie.com*.

Our toll-free engineering support number is (800) 999-5099.

	Page No.	Base Material: Concrete	Base Material: Lightweight Concrete over Metal Deck	Base Material: Grout-Filled Concrete Block	Base Material: Hollow Concrete Block	Base Material: Solid Brick	Base Material: Hollow Brick	Allowable Tension Load[1,2]: 500 lbs (2.2 kN) or less	Allowable Tension Load[1,2]: 500 lbs (2.2 kN) to 2,000 lbs (8.9 kN)	Allowable Tension Load[1,2]: 2,000 lbs (8.9 kN) or greater	Code Recognition[1]
Cracked Concrete Solutions											
AT-XP®	12	● (Including Cracked)		●				●	●	●	IAPMO UES; City of L.A.; Florida; NSF 61
SET-XP®	14	● (Including Cracked)		●				●	●	●	ICC-ES; IAPMO UES; City of L.A.; Florida; NSF 61; Various DOT
ET-HP™	16	●		●	●	●	●	●	●	●	ICC-ES; IAPMO UES; City of L.A.; Various DOT
Strong-Bolt® 2	18	● (Including Cracked)	● (Including Cracked)	●				●	●	●	ICC-ES; IAPMO UES; City of L.A.; Florida; CalTrans; Various DOT; UL; FM
Titen HD®	20	● (Including Cracked)	● (Including Cracked)	●	●	●	●	●	●	●	ICC-ES; City of L.A.; Florida; FM; Various DOT
Titen HD® Rod Hanger	23	●	●	●				●	●		ICC-ES (THD50234RH and THD37212RH only); City of L.A.; Florida; FM
Torq-Cut™ Anchor	25	● (Including Cracked)						●	●	●	ICC-ES; City of L.A.; Florida
Direct Fastening Solutions											
Gas Pins	43	●	●	●	●			●	●		ICC-ES; City of L.A.; Florida
Powder-Actuated Fasteners	60	●	●	●	●			●	●		ICC-ES; City of L.A.; Florida; FM
General Purpose Anchors / Fastener Solutions											
AT	70	●		●	●	●	●	●	●	●	ICC-ES; NSF 61; Various DOT
SET®	72	●		●	●	●	●	●	●	●	ICC-ES; City of L.A.; Florida; NSF 61; CalTrans; Various DOT
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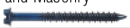
Titen HD® Rod Coupler 	76	●						●	●	●	
Titen HD® Mini 	77	●	●	●	●	●	●	●	●		
Wedge-All® 	78	●	●	●				●	●	●	ICC-ES; City of L.A.; Florida; UL; FM; Various DOT
Sleeve-All® 	82	●		●		●		●	●		UL; FM; Various DOT
Drop-In 	84	●	●					●	●	●	UL; FM; Various DOT
Blue Banger Hanger® 	87	●	●					●	●	●	Underwriters Laboratories; Factory Mutual
Easy-Set Expansion Anchor 	89	●		●				●	●	●	
Titen® Concrete and Masonry Screw 	90	●		●		●	●	●			Florida
Titen® Stainless Steel Concrete and Masonry Screw 	93	●		●		●	●				
Crimp Anchor 	96	●	●	●		●		●	●		Factory Mutual
Split Drive Anchor	98	●		●		●		●			
Nailon™ 	100	●		●	●	●	●	●			
Lag Screw Expansion Shield 	102	●		●	●	●	●	●			
Machine Screw Anchor 	103	●		●		●		●	●		
Sure Wall 	104	**Plywood and Gypsum Drywall**									
Heli-Tie™ Helical Wall Tie 	115	●		●	●	●	●	●			

1. Load values and code listings may not be available for all base materials cited in the table. To verify code listed applications refer to the code report at ***www.strongtie.com*** or contact Simpson Strong-Tie Company Inc. at 1-800-999-5099 (U.S. and Canada).
2. For Strength Design, reference performance data in the *Anchoring and Fastening Systems for Concrete and Masonry* catalog or visit ***www.strongtie.com***.

Cracked-Concrete Solutions

Simpson Strong-Tie offers a wide-range of product solutions for applications requiring cracked-concrete compliance. Products in this section are in compliance with ICC-ES AC308 (anchoring adhesives) or AC193 (mechanical anchors).

Cracked Concrete CODE LISTED

AT-XP® High-Strength, Fast-Cure, All-Weather Anchoring Adhesive

AT-XP® has been formulated for high-strength anchorage of threaded rod and rebar into concrete and masonry under a wide range of conditions. AT-XP dispenses easily in cold or warm environments with little to no odor, and when mixed properly is a dark teal color for easy post-installation identification.

Features:

- AT-XP has passed the demanding adverse-condition tests of ICC-ES AC308 pertaining to reduced temperature, elevated temperature and long-term sustained load
- Code-listed under the current IBC/IRC for cracked and uncracked concrete per IAPMO UES ER-263
- Code-listed under the current IBC/IRC for masonry per IAPMO UES ER-281
- Suitable for use under static and seismic loading conditions in cracked and uncracked concrete
- Cure times: 24 hours at 14°F, 1 hour at 68°F
- Easy hole-cleaning procedure – no power brushing required
- Suitable for use in damp or wet anchor sites
- When properly mixed, adhesive will be a uniform dark teal color for easy post-installation identification
- Available in 9.4 oz., 12.5 oz., and 30 oz. cartridges for application versatility
- Made in the USA

Applications:

- Threaded rod anchoring and rebar doweling into concrete and masonry
- Suitable for horizontal, vertical and overhead applications

Codes/Standards: IAPMO UES ER-263 (concrete); IAPMO UES ER-281 (masonry); City of Los Angeles RR25960; Florida FL 16230; NSF/ANSI Standard 61 (43.2 in²/1000 gal)

Installation Instructions: See pages 166–168

Shelf Life: 12 months from date of manufacture in unopened container.

Storage Conditions: For best results, store between 14°F–80°F. To store partially used cartridges, leave hardened nozzle in place. To re-use, attach new nozzle.

How Many Cartridges Do You Need?
See pages 169–170 or get the App at ***www.strongtie.com/anchorapps***.

AT-XP® Adhesive
1 mixing nozzle included

AT-XP Adhesive Cartridge Systems

Model No.	Capacity (ounces)	Carton Quantity
AT-XP10	9.4	6
AT-XP13	12.5	10
AT-XP30	30	5

Cure Schedule

Base Material Temperature		Cure Time (hrs.)
°F	°C	
14	-10	24
32	0	8
50	10	3
68	20	1
86	30	30 min.
100	38	20 min.

For water-saturated concrete (including damp and water-filled holes), the cure times must be doubled.

Complementary Products

AT-XP10 Adhesive
9.4 oz. Cartridge

- **AMN19Q** – Adhesive mixing nozzle (page 121) (1 included)

- **CDT10S** – Manual dispensing tool for 9.4 oz. cartridges (page 119)

AT-XP13 Adhesive
12.5 oz. Cartridge

- **AMN19Q** – Adhesive mixing nozzle (page 121) (1 included)

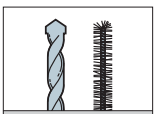
- **ADT813S** – Manual dispensing tool for 13 oz. cartridges (page 120)

AT-XP30 Adhesive
30 oz. Cartridge

- **AMN19Q** – Adhesive mixing nozzle (page 121) (1 included)

- **ADT30S** – Manual dispensing tool for 30 oz. cartridges (page 120)

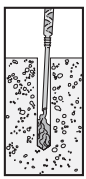
- **ADTA30P** – Pneumatic dispensing tool for 30 oz. acrylic adhesive dispensing cartridges (page 120)



Other complementary products for installation of this product:

Drill Bits: pages 128–141

Adhesive Accessories: pages 118–127



Installation instructions: pages 166–168

SET-XP® High-Strength Anchoring Adhesive

SET-XP® epoxy anchoring adhesive is a high-strength formula for anchoring and doweling in cracked and uncracked concrete and masonry applications. It is a two-part system with the resin and hardener being simultaneously dispensed and mixed through the mixing nozzle.

Features:

- SET-XP has passed the demanding adverse-condition tests of ICC-ES AC308 pertaining to elevated temperature and long-term sustained load
- Code-listed under the current IBC/IRC for cracked and uncracked concrete per ICC-ES ESR-2508
- Code-listed under the current IBC/IRC for masonry per IAPMO UES ER-265
- Suitable for use under static and seismic loading conditions in cracked and uncracked concrete
- Cure times: 24 hours at 70°F, 72 hours at 50°F
- Easy hole-cleaning procedure – no power brushing required
- Suitable for use in damp or wet anchor sites
- When properly mixed, adhesive will be a uniform teal color for easy post-installation identification
- Available in 8.5 oz., 22 oz., and 56 oz. cartridges for application versatility
- Made in the USA

Applications:

- Threaded rod anchoring and rebar doweling into concrete and masonry
- Suitable for horizontal, vertical and overhead applications
- Multiple DOT listings, refer to ***www.strongtie.com/DOT*** for current approvals

Codes/Standards: ICC-ES ESR-2508 (concrete); IAPMO UES ER-265 (masonry); City of Los Angeles RR25744; Florida FL 16230; ASTM C 881 (Type I and IV, Grade 3, Class C); NSF/ANSI Standard 61 (216 in²/1000 gal)

Installation Instructions: See pages 166–168

Shelf Life: 24 months from date of manufacture in unopened side-by-side cartridge.

Storage Conditions: For best results, store between 45°F–90°F. To store partially used cartridges, leave hardened nozzle in place. To re-use, attach new nozzle.

How Many Cartridges Do You Need?
See pages 171–174 or get the App at ***www.strongtie.com/anchorapps***.

SET-XP® Adhesive

SET-XP Cartridge System

Model No.	Capacity ounces	Carton Quantity
SET-XP10	8.5	12
SET-XP22	22	10
SET-XP56	56	6

Cure Schedule

Base Material Temperature		Cure Time (hrs.)
°F	°C	
50	10	72
60	16	48
70	21	24
90	32	24
110	43	24

For water-saturated concrete (including damp and water-filled holes), the cure times must be doubled.

Complementary Products

SET-XP10 Adhesive
8.5 oz. Cartridge

- Epoxy adhesive mixing nozzle (2 included)

- **CDT10S** – Manual dispensing tool for 8.5 oz. cartridges (page 119)

SET-XP22 Adhesive
22 oz. Cartridge

- **EMN22i** – Epoxy adhesive mixing nozzle (page 121)

- **EDT22S** – Manual dispensing tool for 22 oz. cartridges (page 119)

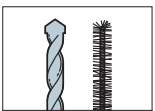
- **EDT22CKT** – Battery-powered dispensing tool for 22 oz. cartridges (page 119)

- **EDTA22P** – Pneumatic dispensing tool for 22 oz. cartridges (page 119)

SET-XP56 Adhesive
56 oz. Cartridge

- **EMN22i** – Epoxy adhesive mixing nozzle (page 121)

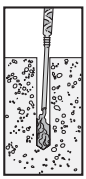
- **EDTA56P** – Pneumatic dispensing tool for 56 oz. cartridges (page 119)



Other complementary products for installation of this product:

Drill Bits: pages 128–141

Adhesive Accessories: pages 118–127



Installation instructions: pages 166–168

ET-HP® Anchoring Adhesive

ET-HP® is a two-component, high-solids epoxy system for use as a high-strength, non-shrink anchor grouting material. Resin and hardener are dispensed and mixed simultaneously through the mixing nozzle.

Note: The ET product has been renamed ET-HP to highlight the addition of testing in accordance with AC308 and performance data being presented in Strength Design format. No formulation or manufacturing changes have been made to the product.

Features:

- ET-HP has passed the demanding adverse-condition tests of ICC-ES AC308 pertaining to elevated temperature and long-term sustained load
- Code-listed under the current IBC/IRC for cracked and uncracked concrete per ICC-ES ESR-3372
- Code-listed under the current IBC/IRC for masonry per IAPMO UES ER-241
- Suitable for use under static and seismic loading conditions in cracked and uncracked concrete
- Cure times: 24 hours at 80°F, 72 hours at 50°F
- Easy hole-cleaning procedure – no power brushing required
- Suitable for use in damp or wet anchor sites
- When properly mixed, adhesive will be a uniform gray color
- Available in 22 oz. and 56 oz. cartridges for application versatility
- Made in the USA

Applications:

- Threaded rod and rebar doweling into concrete and masonry
- Suitable for horizontal, vertical and overhead applications
- Multiple DOT listings, refer to ***www.strongtie.com/DOT*** for current approvals

Codes: ICC-ES ESR-3372 (concrete); IAPMO UES ER-241 (masonry); ICC-ES ESR-3638 (URM); City of Los Angeles RR25120; ASTM C 881 (Type I and IV, Grade 3, Class C)

Installation Instructions: See pages 166–168

Shelf Life: 24 months from date of manufacture in unopened container

Storage Conditions: For best results store between 45°F–90°F. To store partially used cartridges, leave hardened nozzle in place. To re-use, attach new nozzle.

How Many Cartridges Do You Need?
See pages 171–174 or get the App at ***www.strongtie.com/anchorapps***.

Cracked Concrete CODE LISTED

ET-HP® Adhesive

ET-HP Cartridge Systems

Model No.	Capacity ounces	Carton Quantity
ET-HP22	22	10
ET-HP56	56	6

Cure Schedule

Base Material Temperature		Cure Time
°F	°C	
50	10	72 hrs.
60	16	24 hrs.
80	27	24 hrs.
100	38	24 hrs.

For water-saturated concrete (including damp and water-filled holes), the cure times must be doubled.

Complementary Products

ET-HP22 Adhesive
22 oz. Cartridge

- **EMN22i** – Epoxy adhesive mixing nozzle, (page 121)

- **EDT22S** – Manual dispensing tool for 22 oz. cartridges (page 119)

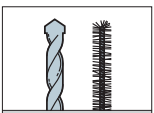
- **EDT22CKT** – Battery-powered dispensing tool for 22 oz. cartridges (page 119)

- **EDTA22P** – Pneumatic dispensing tool for 22 oz. cartridges (page 119)

ET-HP56 Adhesive
56 oz. Cartridge

- **EMN22i** – Standard epoxy adhesive mixing nozzle (page 121)

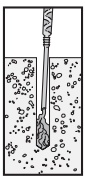
- **EDTA56P** – Pneumatic dispensing tool for 56 oz. cartridges (page 119)



Other complementary products for installation of this product:

Drill Bits: pages 128–141

Adhesive Accessories: pages 118–127



Installation instructions: pages 166–168

Strong-Bolt® 2 Wedge Anchor

Cracked Concrete CODE LISTED

The Strong-Bolt® 2 wedge anchor is a wedge-style expansion anchor designed to offer optimum performance in concrete and masonry. Carbon-steel anchors available in ¼" through 1" diameters; type 316 stainless steel anchors available in ¼" through ¾" diameters.

Strong-Bolt® 2 Wedge Anchor

Features:

- Qualified for static and seismic loading conditions
- Suitable for horizontal, vertical and overhead applications
- Qualified for minimum concrete thickness of 3¼", including lightweight concrete-over-metal decking
- Code-listed under the current IBC/IRC in accordance with AC193 for cracked and uncracked concrete applications per ICC-ES ESR-3037
- Code-listed under the current IBC/IRC in accordance with AC01 for masonry applications per IAPMO UES ER-240
- High-strength alloy clip (carbon version) for increased performance
- Standard (ANSI) fractional sizes: fits standard fixtures and installs with common drill bit and tool sizes

Head Stamp
The head is stamped with the length identification letter, bracketed top and bottom by horizontal lines.

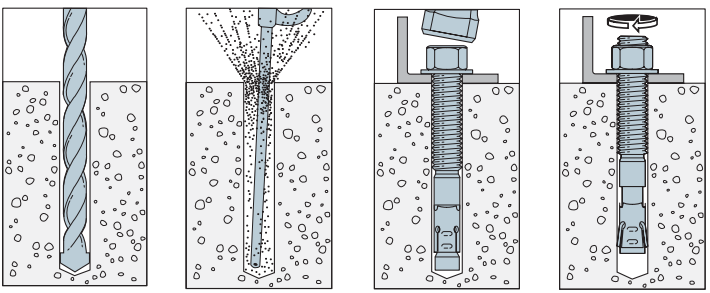
Codes: ICC-ES ESR-3037 (concrete); IAPMO UES ER-240 (carbon steel in CMU); City of Los Angeles RR25891 (concrete), RR25936 (carbon steel in CMU); Florida FL 15731; UL File Ex3605*; FM 3043442 and 3047639; meets requirements of Federal Specifications A-A-1923A, Type 4

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 minimum hole depth and blow it clean using compressed air. Overhead installations need not be blown clean. Alternatively, drill the hole deep enough to accommodate embedment 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.

Installation Sequence:



*4" nominal embedment depth required for ⅝" models.

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
¼ x 1¾	STB2-25134	STB2-251346SS	¼	15/16	100	500
¼ x 2¼	STB2-25214	STB2-252146SS	¼	1 7/16	100	500
¼ x 3¼	STB2-25314	STB2-253146SS	¼	2 7/16	100	500
⅜ x 2¾	STB2-37234	STB2-372346SS	⅜	1 5/16	50	250
⅜ x 3	STB2-37300	STB2-373006SS	⅜	1 9/16	50	250
⅜ x 3½	STB2-37312	STB2-373126SS	⅜	2 1/16	50	250
⅜ x 3¾	STB2-37334	STB2-373346SS	⅜	2 5/16	50	250
⅜ x 5	STB2-37500	STB2-375006SS	⅜	3 9/16	50	200
⅜ x 7	STB2-37700	STB2-377006SS	⅜	5 9/16	50	200
½ x 3¾	STB2-50334	STB2-503346SS	½	2 1/16	25	125
½ x 4¼	STB2-50414	STB2-504146SS	½	2 9/16	25	100
½ x 4¾	STB2-50434	STB2-504346SS	½	3 1/16	25	100
½ x 5½	STB2-50512	STB2-505126SS	½	3 13/16	25	100
½ x 7	STB2-50700	STB2-507006SS	½	5 5/16	25	100
½ x 8½	STB2-50812	STB2-508126SS	½	6	25	50
½ x 10	STB2-50100	STB2-501006SS	½	6	25	50
⅝ x 4½	STB2-62412	STB2-624126SS	⅝	2 7/16	20	80
⅝ x 5	STB2-62500	STB2-625006SS	⅝	2 15/16	20	80
⅝ x 6	STB2-62600	STB2-626006SS	⅝	3 15/16	20	80
⅝ x 7	STB2-62700	STB2-627006SS	⅝	4 15/16	20	80
⅝ x 8½	STB2-62812	STB2-628126SS	⅝	6	20	40
⅝ x 10	STB2-62100	STB2-621006SS	⅝	6	10	20
¾ x 5½	STB2-75512	STB2-755126SS	¾	3 3/16	10	40
¾ x 6¼	STB2-75614	STB2-756146SS	¾	3 15/16	10	40
¾ x 7	STB2-75700	STB2-757006SS	¾	4 11/16	10	40
¾ x 8½	STB2-75812	STB2-758126SS	¾	6	10	20
¾ x 10	STB2-75100	—	¾	6	10	20
1 x 7	STB2-100700	—	1	3½	5	20
1 x 10	STB2-1001000	—	1	3½	5	10
1 x 13	STB2-1001300	—	1	3½	5	10

These sizes also available in type 304 stainless steel.

Material Specifications

Component Materials				
Finish	**Anchor Body**	**Nut**	**Washer**	**Clip**
Carbon Steel - Zinc Plated[1]	Carbon Steel	Carbon Steel ASTM A 563 Grade A	Carbon Steel ASTM F844	Carbon Steel ASTM A 568
Type 316/304 Stainless Steel	Type 316/304 Stainless Steel	Type 316/304 Stainless Steel	Type 316/304 Stainless Steel	Type 316/304 Stainless Steel

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

UPDATED 3/1/14

(This page has been updated since printing)

Titen HD® Screw Anchor

Cracked Concrete CODE LISTED

The Titen® HD screw anchor is a patented, high-strength screw anchor for concrete and masonry. The anchor offers high-strength performance and low installation torque with no secondary setting. For use in dry, interior, non-corrosive environments or temporary outdoor applications, the Titen HD has been tested to offer industry-leading performance in cracked and uncracked concrete – even in seismic loading conditions.

Titen HD®
Screw Anchor
U.S. Patent
5,674,035 &
6,623,228

Features:

- Code-listed under the current IBC/IRC in accordance with AC193 for cracked concrete applications per ICC-ES ESR-2713
- Code-listed under the current IBC/IRC in accordance with AC106 for masonry applications per ICC-ES ESR-1056
- Thread design undercuts to efficiently transfer the load to the base material

Serrated teeth on the tip of the Titen HD® screw anchor facilitate cutting and reduce installation torque.

- Specialized heat-treating process creates tip hardness for better cutting without compromising the ductility that helps prevent breakage
- No special drill bit needed: Designed to install using standard-sized ANSI tolerance drill bits
- Installs with 50% less torque: Testing shows that when compared to competitors, the Titen HD requires 50% less torque to be installed in concrete
- Hex-washer head: Requires no separate washer and provides a clean installed appearance.
- Removable: Ideal for temporary anchoring (e.g. formwork, bracing) or applications where fixtures may need to be moved. Re-use of the anchor to achieve listed load values is not recommended.

Codes: ICC-ES ESR-2713 (concrete); ICC-ES ESR-1056 (masonry); City of Los Angeles RR25741 (concrete), RR25560 (masonry); Florida FL 11506; FM listed

Material: Carbon steel, heat treated

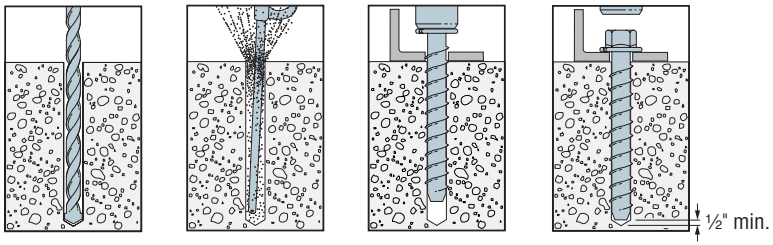
Finish: Zinc plated or mechanically galvanized

Installation: Holes in metal fixtures to be mounted should match the diameter specified in the table on page 22.

Caution: Oversized holes in the base material will reduce or eliminate the mechanical interlock of the threads with the base material and will reduce the anchor's load capacity.

- Use a Titen HD screw anchor one time only. Installing the anchor multiple times may result in excessive thread wear and reduce 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 plus ½" minimum to allow the thread tapping dust to settle and blow it clean using compressed air. Overhead installations need not be blown clean. Alternatively, drill the hole deep enough to accommodate embedment depth and dust from drilling and tapping.
- Insert the anchor through the fixture and into the hole.
- Tighten the anchor into the base material until the hex washer head contacts the fixture.
- Do not use impact wrenches to install into hollow CMU.

Installation Sequence



Titen HD® Anchor Product Data – Zinc Plated

Size (in.)	Model No.	Drill Bit Dia. (in.)	Wrench Size (in.)	Quantity	
				Box	Carton
⅜ x 3	THD37300H	⅜	9⁄16	50	200
⅜ x 4	THD37400H			50	200
⅜ x 5	THD37500H			50	100
⅜ x 6	THD37600H			50	100
½ x 3	THD50300H	½	¾	25	100
½ x 4	THD50400H			20	80
½ x 5	THD50500H			20	80
½ x 6	THD50600H			20	80
½ x 6 ½	THD50612H			20	40
½ x 8	THD50800H			20	40
½ x 12	THD501200H			20	40
½ x 13	THD501300H			20	40
½ x 14	THD501400H			20	40
½ x 15	THD501500H			20	40
⅝ x 4	THDB62400H	⅝	15⁄16	10	40
⅝ x 5	THDB62500H			10	40
⅝ x 6	THDB62600H			10	40
⅝ x 6 ½	THDB62612H			10	40
⅝ x 8	THDB62800H			10	20
¾ x 4	THD75400H	¾	1 1⁄8	10	40
¾ x 5	THD75500H			5	20
¾ x 6	THDT75600H			5	20
¾ x 7	THD75700H			5	10
¾ x 8 ½	THD75812H			5	10
¾ x 10	THD75100H			5	10

1. Zinc plating meets ASTM B633, SC1.
2. Length is measured from the underside of the head to the tip of the anchor.

The Titen HD® screw anchor ¾" x 6" and ¾" x 7" (models THDT75600H and THD75700H) have a 1" section under the head that is unthreaded to allow installation into tilt-up wall braces.

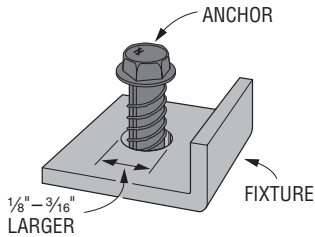
Titen HD® Anchor Product Data – Mechanically Galvanized

Size (in.)	Model No.	Drill Bit Dia. (in.)	Wrench Size (in.)	Quantity	
				Box	Carton
⅜ x 4	THD37400HMG	⅜	9/16	50	200
⅜ x 5	THD37500HMG			50	100
⅜ x 6	THD37600HMG			50	100
½ x 5	THD50500HMG	½	¾	20	80
½ x 6	THD50600HMG			20	80
½ x 6½	THD50612HMG			20	40
½ x 8	THD50800HMG			20	40
⅝ x 5	THD62500HMG	⅝	15/16	10	40
⅝ x 6	THD62600HMG			10	40
⅝ x 6½	THD62612HMG			10	40
⅝ x 8	THD62800HMG			10	20
⅝ x 5	THDB62500HMG	⅝	15/16	10	40
⅝ x 6	THDB62600HMG			10	40
⅝ x 6½	THDB62612HMG			10	40
⅝ x 8	THDB62800HMG			10	20
¾ x 8½	THD75812HMG	¾	1⅛	5	10
¾ x 10	THD75100HMG			5	10

1. Mechanical galvanizing meets ASTM B695, Class 65, Type 1. Intended for some preservative-treated wood sill plate applications. Not for use in other corrosive or outdoor environments. Visit ***www.strongtie.com*** for more corrosion information.

Hole Dimensions

Titen HD Diameter (in.)	Wrench Size (in.)	Recommended Fixture Hole Size (in.)
⅜	9/16	½–9/16
½	¾	5/8–1 11/16
⅝	15/16	¾–1 13/16
¾	1⅛	⅞–1 15/16



AISC 'oversized' fixture hole REQUIRED for Titen HD

Titen HD® Rod Hanger Concrete Threaded-Rod Anchors

Cracked Concrete CODE LISTED

The Titen HD® rod hanger is a high-strength screw anchor designed to suspend threaded rod from concrete slabs, concrete beams, or concrete over metal deck in order to hang pipes, cable trays and HVAC equipment. The anchor offers low installation torque with no secondary setting and has been tested to offer industry-leading performance in cracked and uncracked concrete – even in seismic loading conditions.

THD50234RH
(⅜" dia. shank)

THD37212RH
(⅜" dia. shank)

THD37218RH

THD25112RH

U.S. Patent
5,674,035 & 6,623,228

Features:

- High-load capacity as a result of the full-length threads that undercut the concrete and effectively transfer load into the base material
- Specialized heat-treating process creates tip hardness to facilitate cutting while the body remains ductile
- Serrated cutting teeth and patented thread design enable quick and easy installation
- No special installation tools required. Holes can be drilled with a rotary hammer or hammer drill with standard ANSI-size bit
- Anchors are installed with standard-size sockets
- The THD50234RH and THD37212RH are code-listed for cracked and uncracked concrete applications under the 2012, 2009 and 2006 IBC/IRC per ICC-ES ESR-2713

Material: Carbon steel, heat treated

Finish: Zinc plated

Codes: ICC-ES ESR-2713 (THD37212RH and THD50234RH); Florida FL 15730; Factory Mutual 3031136 (THD50234RH and THD37218RH) and 3035761 (THD37212RH)

Installation:

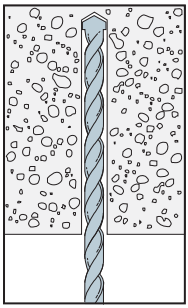
Caution: Oversized holes in the base material will reduce or eliminate the mechanical interlock of the threads with base material and will reduce the anchor's load capacity. Use a Titen HD® rod hanger one time only. Installing the anchor multiple times may result in excessive thread wear and reduce load 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 plus ½" minimum to allow the thread tapping dust to settle and blow it clean using compressed air. Overhead installations need not be blown clean. Alternatively, drill the hole deep enough to accommodate embedment depth and dust from drilling and tapping.
- IMPORTANT: Install with an applied torque of 15 ft-lbs for the THD25112RH and THD37218RH rod hangers using a torque wrench, driver drill, hammer drill or cordless ¼" impact driver with a maximum permitted torque rating of 100 ft-lb.

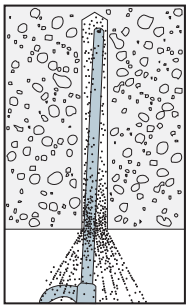
Titen HD® Rod Hanger Product Data

Size (in.)	Model No.	Accepts Rod Dia. (in.)	Drill Bit Dia. (in.)	Wrench Size (in.)	Min. Embed. (in.)	Quantity	
						Box	Carton
¼ x 1½	THD25112RH	¼	¼	⅜	1½	100	500
⅜ x 2⅛	THD37218RH	⅜	¼	½	2⅛	50	250
⅜ x 2½	THD37212RH	⅜	⅜	½	2½	50	200
½ x 2¾	THD50234RH	½	⅜	11/16	2¾	50	100

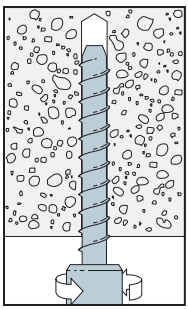
Installation Sequence

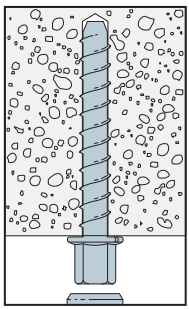


1. Drill a hole using the specified diameter carbide bit into the base material to a depth of at least ½" deeper than the required embedment.

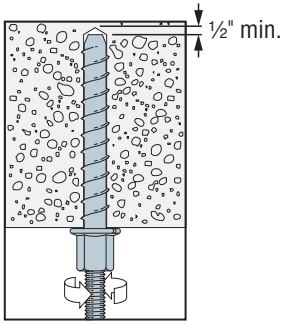


2. Blow the hole clean of dust and debris using compressed air.





3. Insert anchor into the hole. Tighten the anchor with an impact wrench or a torque wrench into the base material until the hex washer head contacts the base material.



4. Install threaded rod in the anchor to support pipes, wiring, etc.

Torq-Cut® Self-Undercutting Anchor

Cracked Concrete CODE LISTED

The Torq-Cut® self-undercutting anchor is a heavy-duty, high-capacity anchor designed and tested for use in cracked and uncracked concrete under static and seismic loading conditions. It is designed to meet the stringent requirements of the 2006, 2009 and 2012 IBC for post-installed anchors. The built-in, hardened cutting ring expands with installation torque forming undercut grooves in the concrete. This interlock between the anchor and the concrete provides superior load carrying capacity.

Features:

- Self-undercutting feature provides higher load carrying capacity than conventional mechanical anchors
- Code-listed under the current IBC/IRC in accordance with AC193 for cracked and uncracked concrete applications per ICC-ES ESR-2705
- Excellent for resisting seismic and vibratory loads
- Suitable for seismic applications categories A-F
- Ductile steel rod provides consistent, reliable performance
- Specially designed, low-friction expansion cone minimizes binding and speeds installation
- Installs just like a conventional expansion anchor, no special tool, drill bit, or secondary drilling is required
- The head is stamped with the Simpson Strong-Tie® "≠" sign and size identification for easy post installation verification

Torq-Cut® Setting Tool (Sold separately)

Torq-Cut® Self-Undercutting Anchor U.S. Patent 7,357,613

Material: ASTM A193 grade B7 or B7M rod with SAE J403 grade 1144 undercut expansion ring and expansion cone

Finish: Zinc plated

Codes: ICC-ES ESR-2705 (concrete); Florida FL 15731

Torq-Cut Setting Tool

The TCAST is the steel setting tool used to install the Torq-Cut anchor. It is used to drive the anchor into the pre-drilled hole and protect the threads on the Torq-Cut from being damaged by hammer blows.

Installation:

Caution: Oversized holes in the base material will make it difficult to set the anchor and will reduce the anchor's load capacity. Do not use an impact wrench to set or tighten the Torq-Cut anchor.

Installation Instructions: Pre-Set Version

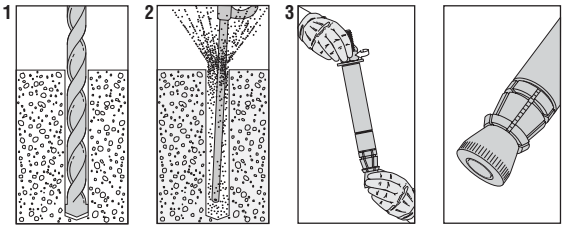
- Drill a hole in the base material to the specified embedment depth using the appropriate diameter carbide drill bit specified for each diameter.
- Blow the hole clean using compressed air.
- Assemble the anchor with nut and washer and finger tighten nut so all components are snug (spacer sleeve, expansion sleeve and cone). The bottom of the threaded rod should be flush with the bottom of the cone.
- Place the anchor into the drilled hole and use a hammer and setting tool to drive the anchor until the washer and nut are tight against the surface of the base material.
- Remove the nut and washer and install the fixture. Re-assemble the nut and washer over the fixture.
- Tighten to the required installation torque.

Installation Instructions: Through-Set Version

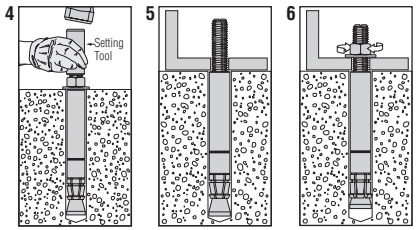
- Drill a hole in the base material to the specified embedment depth using the appropriate diameter carbide drill bit specified for each diameter.
- Blow the hole clean using compressed air.
- Assemble the anchor with nut and washer and finger tighten nut so all components are snug (spacer sleeve, expansion sleeve and cone). The bottom of the threaded rod should be flush with the bottom of the cone.
- Place the anchor through the fixture and into the drilled hole. Use a hammer and setting tool to drive the anchor until the washer and nut are tight against the fixture.
- Tighten to the required installation torque.

Installation Sequence

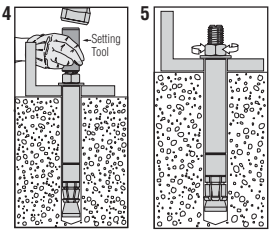
Steps 1, 2, 3 – Pre-Set and Through-Set Version



Steps 4, 5, 6 – Pre-Set Version



Steps 4, 5 – Through-Set Version



Torq-Cut Anchor Installation Data

Nominal Anchor Diameter (in.)	3/8	1/2	5/8	3/4
Drill Bit Size (in.)	5/8	7/8	1	1 1/4
Fixture Hole Diameter Range Pre-Set (in.)	7/16–1/2	9/16–3/4	11/16–7/8	13/16–1 1/8
Min. Fixture Hole Diameter Through-Set (in.)	11/16	15/16	1 1/16	1 5/16
Wrench Size (in.)	9/16	3/4	15/16	1 1/8
Setting Tool Required	TCAST37	TCAST50	TCAST62	TCAST75

Torq-Cut® Anchor Product Data, Pre-Set Version[1]

Size (in.)	Model No.	Drill Bit Dia. (in.)	Min. Drilled Hole Depth (in.)	Min. Effective Embedment Depth, h_{ef} (in.)	Max. Fixture Thickness (in.)	Min. Fixture Hole Dia. (in.)	Threaded Rod Length (in.)	Quantity	
								Box	Carton
⅜ x 6	TCAP370600	⅝	5½	4	¾	7⁄16	6	10	40
½ x 8¾	TCAP500834	⅞	7⅜	5¾	1¼	9⁄16	8¾	5	8
½ x 9½	TCAP500912	⅞	7⅜	5¾	2	9⁄16	9½	5	8
⅝ x 11½	TCAP621112	1	10	8	1½	11⁄16	11½	4	8
⅝ x 12½	TCAP621212	1	10	8	2½	11⁄16	12½	4	8
¾ x 14⅝	TCAP751458	1¼	12½	10¼	2	13⁄16	14⅝	4	8
¾ x 16⅝	TCAP751658	1¼	12½	10¼	4	13⁄16	16⅝	4	8

Torq-Cut® Anchor Product Data, Through-Set Version[1]

Size (in.)	Model No.	Drill Bit Dia. (in.)	Min. Drilled Hole Depth (in.)	Min. Effective Embedment Depth, h_{ef} (in.)	Max. Fixture Thickness (in.)	Min. Fixture Hole Dia. (in.)	Threaded Rod Length (in.)	Quantity	
								Box	Carton
⅜ x 6	TCAT370600	⅝	5½	4	¾	11⁄16	6	10	40
½ x 8¾	TCAT500834	⅞	7⅜	5¾	1¼	15⁄16	8¾	5	10
½ x 9½	TCAT500912	⅞	7⅜	5¾	2	15⁄16	9½	5	10
⅝ x 11½	TCAT621112	1	10	8	1½	1 1⁄16	11½	4	8
⅝ x 12½	TCAT621212	1	10	8	2½	1 1⁄16	12½	4	8
¾ x 14⅝	TCAT751458	1¼	12½	10¼	2	1 5⁄16	14⅝	4	8
¾ x 16⅝	TCAT751658	1¼	12½	10¼	4	1 5⁄16	16⅝	4	8

Torq-Cut® Anchor Material Specifications

Carbon Steel Component Materials					
Threaded Rod	Nut	Washer	Spacer Sleeve	Undercut Expansion Ring	Expansion Cone
ASTM A1931	SAE J995, Grade 8	ASTM F436, Type 1	SAE J403 Grade 1045 Steel	SAE J403 Grade 1045 Steel	SAE J403 Grade 1144 Steel
Zinc Plated ASTM B633 SC1	Commercial Zinc	Commercial Zinc	Zinc Plated ASTM B633 SC1	Zinc Plated ASTM B633 SC1	Zinc Plated ASTM B633 SC1

1. ⅜" TCA uses ASTM A193 Grade B7 rod. ½", ⅝" and ¾" TCA uses ASTM A193 Grade B7M rod.

Cold-Formed Steel Solutions

Simpson Strong-Tie continues to innovate solutions for commercial and mid-rise cold-formed steel construction. These products have been designed to offer superior performance while reducing overall installed cost for general purpose and structural CFS applications. For up-to-date information on these and new products, please visit ***www.strongtie.com/cfs***.

SCB Bypass Framing Slide-Clip Connector

The SCB slide-clip connector is a time-saving, high-performance slide-clip connector for bypass framing applications that simplifies design and detailing for the Designer and reduces field labor and material costs. Providing allowable anchorage loads for these connectors – with powder-actuated pins, screws, welds or Simpson Strong-Tie® Titen® concrete screws – eliminates the need to spend additional time designing the anchorage. For designs that have typically required two parts to accommodate large stand-offs, the SCB can take their place, thereby reducing field labor. The connector is manufactured in five different lengths to accommodate a variety of stand-off conditions and steel stud sizes.

FEATURES:

- Provides a full 1" of both upward and downward movement
- Clips that allow 1⅜" of upward and downward movement are available by special order. Contact Simpson Strong-Tie for details
- The precision-manufactured shouldered screws provided with the SCB connector are designed to prevent overdriving and to ensure the clip functions properly
- Strategically placed stiffeners, embossments and anchor holes maximize connector performance
- Simpson Strong-Tie® "No-Equal" stamps mark the center of the slots to help ensure correct shouldered-screw placement

MATERIAL: 54 mil (16 ga.)

FINISH: Galvanized (G90)

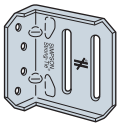
INSTALLATION:

- Use the specified type and number of anchors.
- Use the specified number of #14 shouldered screws (included). Install shouldered screws in the slots adjacent to the "No-Equal" stamp.
- Use a maximum of 1 screw per slot.

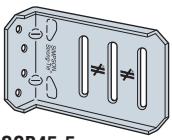
CODES: IAPMO UES ER-238; City of L.A. RR25943

ORDERING INFORMATION:

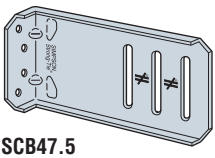
- SCB43.5-KT (Box of 25 connectors with 55 shouldered screws included)
- SCB45.5-KT (Box of 25 connectors with 83 shouldered screws included). SCB47.5-KT, SCB49.5-KT, and SCB411.5-KT similar.



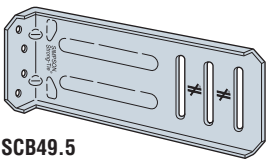
SCB43.5



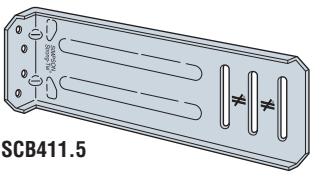
SCB45.5



SCB47.5

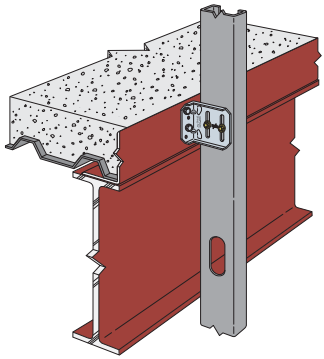


SCB49.5

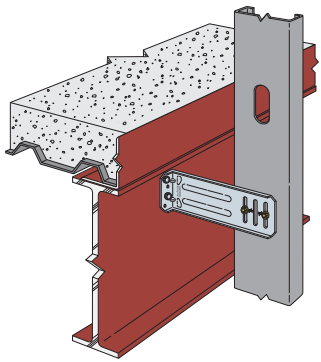


SCB411.5

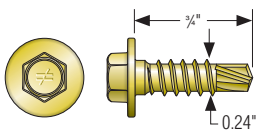
U.S. Patent Pending



Typical SCB Installation



SCB Installation at Fascia Beam

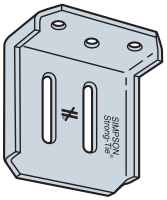


#14 Shouldered Screw

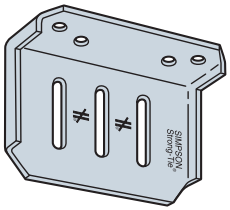
PDPAT

SCW Head-of-Wall Slide-Clip Connector

SCW slide-clip connectors are primarily used in head-of-wall applications that require vertical movement relative to the structure. The connector can also be used to strengthen window and door jambs for projects that utilize slip-track.



SCW3.25



SCW5.5

U.S. Patent Pending

FEATURES:

- Provides a full 1" of both upward and downward movement
- Clips that allow 1⅜" of upward and downward movement are available by special order. Contact Simpson Strong-Tie for details
- The precision-manufactured shouldered screws provided with the SCW connector are designed to prevent overdriving and to ensure the clip functions properly
- Anchor holes located to maximize performance
- Simpson Strong-Tie® "No-Equal" stamps mark the center of the slots to help ensure correct shouldered-screw placement

MATERIAL: 54 mil (16 ga.)

FINISH: Galvanized (G90)

INSTALLATION:

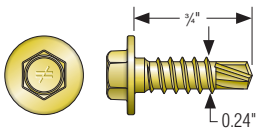
- Use the specified type and number of anchors.
- Use the specified number of #14 shouldered screws (included). Install shouldered screws in the slots adjacent to the "No-Equal" stamp.
- Use a maximum of 1 screw per slot.

CODES: IAPMO UES ER-238; City of L.A. RR25943

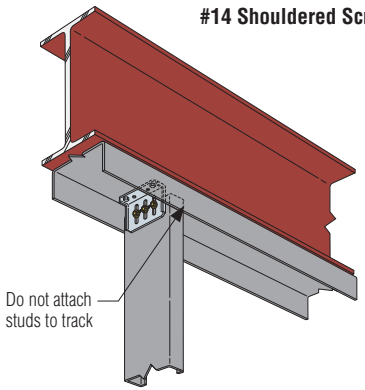
ORDERING INFORMATION:

- SCW3.25-KT (Box of 25 connectors with 55 shouldered screws included)
- SCW5.5-KT (Box of 25 connectors with 83 shouldered screws included)

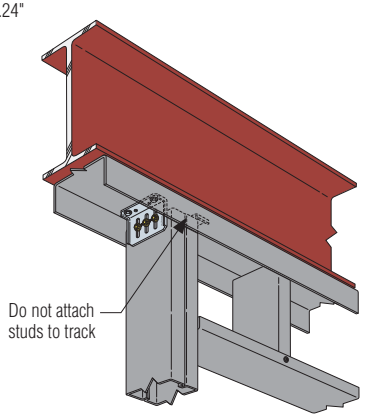
PDPAT



#14 Shouldered Screw



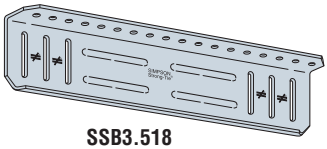
Typical SCW Installation at Stud



Typical SCW Installation at Window or Door Jamb

SSB Bypass Framing Slide-Clip Strut Connector

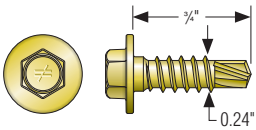
The SSB bypass framing slide clip is a versatile strut connector that is commonly used at the bottom of a steel beam to accommodate large stand-off conditions.



SSB3.518
U.S. Patent Pending

FEATURES:

- Provides a full 1" of both upward and downward movement
- Anchor holes are positioned along the entire length of the part, and slots are located at each end so that lefts and rights are not required
- Embossments and stiffeners increase axial strength
- The precision-manufactured shouldered screws provided with the SSB connector are designed to prevent overdriving and to ensure the clip functions properly
- Simpson Strong-Tie® "No-Equal" stamps mark the center of the slots to help ensure correct shouldered-screw placement



#14 Shouldered Screw

MATERIAL: 54 mil (16 ga.)

FINISH: Galvanized (G90)

PDPAT

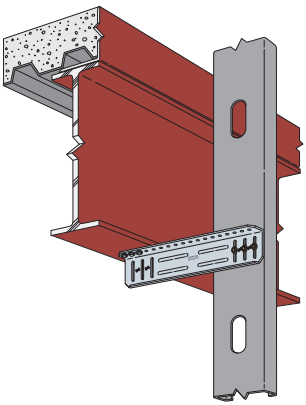
INSTALLATION:

- Use the specified type and number of anchors.
- Use the specified number of #14 shouldered screws (included). Install shouldered screws in the slots adjacent to the "No-Equal" stamp.
- Use a maximum of 1 screw per slot.

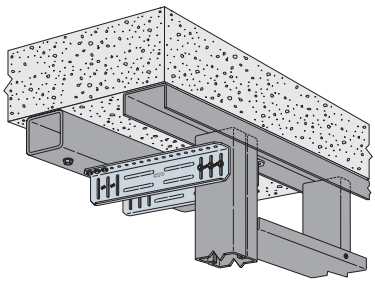
CODES: IAPMO UES ER-238; City of L.A. RR25943

ORDERING INFORMATION:

- SSB3.518-KT (Box of 25 connectors with 83 shouldered screws included)



Typical SSB3.518 Installation



SSB3.518 Installation to Reinforce a Window/Door Jamb with Slip Track

FCB Bypass Framing Fixed-Clip Connector

The FCB clip is an economical, high-performance fixed-clip connector that can be used for a variety of framing applications. It is rated for tension, compression and shear loads and offers the Designer the flexibility of specifying different screw and anchorage patterns that conform to desired load levels.

FEATURES:

- Rated for tension, compression and shear loads
- Provides design flexibility with varying screw and anchorage patterns that achieve different load levels
- Strategically placed stiffeners, embossments and anchor holes maximize connector performance

MATERIAL: 54 mil (16 ga.)

FINISH: Galvanized (G90)

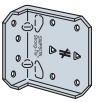
INSTALLATION:

- Use the specified type and number of anchors.
- Use the specified number of #12 self-drilling screws to CFS framing.

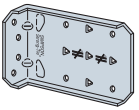
CODES: IAPMO UES ER-238; City of L.A. RR25943

ORDERING INFORMATION:

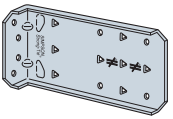
- FCB43.5-R25 (Box of 25 connectors , screws not included). FCB45.5-R25, FCB47.5-R25, FCB49.5-R25, and FCB411.5-R25 similar.



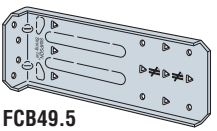
FCB43.5



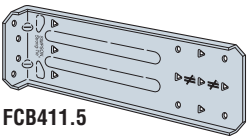
FCB45.5



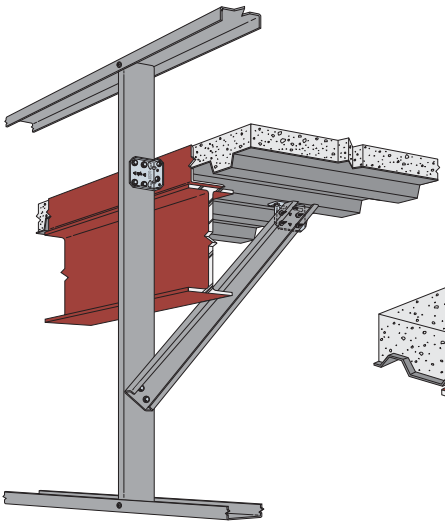
FCB47.5



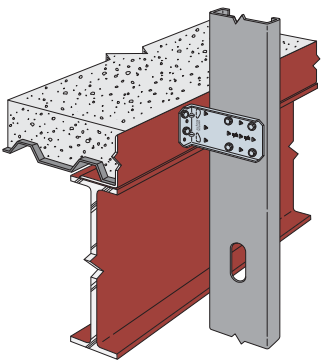
FCB49.5



FCB411.5



Typical FCB Installation at Sprandrel Studs and Kickers

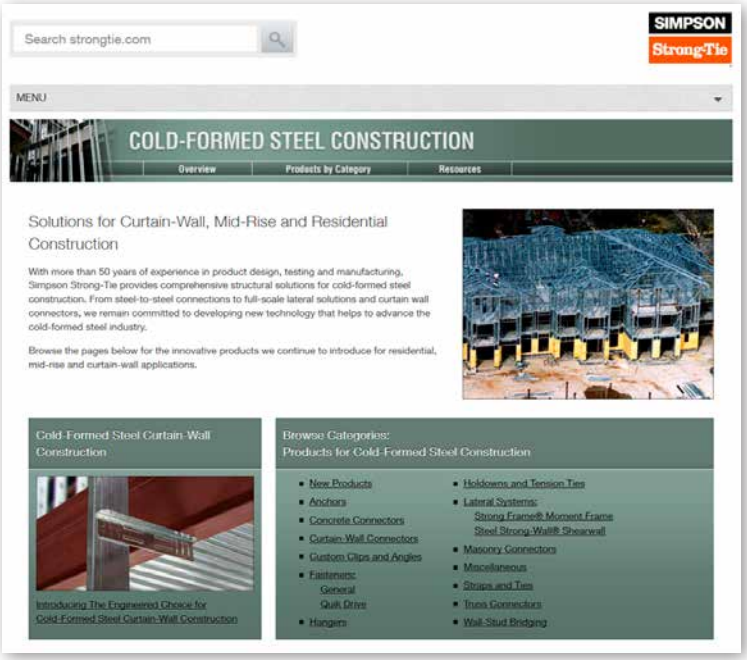


Typical FCB Installation at Bypass Framing

Allowable Anchorage Types

Allowable Anchorage Types

Anchorage Type	SCB	SCW	SSB	FCB
#12-14 Self-Drilling Screws	•	•	•	•
0.145" Simpson Strong-Tie® PDPT or 0.157" PDPAT Powder-Actuated Fasteners	•	•	•	•
¼"x1¾" Simpson Strong-Tie® Titen® Hex-Head Screws	•			•
Welded	•		•	•



Visit ***www.strongtie.com/cfs*** for more information about these and other cold-formed steel product solutions.

SUBH/MSUBH Wall Bridging Connectors

These innovative connectors can reduce labor cost and increase installation efficiency through patented design. The SUBH/MSUBH are the only bridging connectors fully tested as a system ensuring that published design capacities capture the influence of stud web depth and thickness.

FEATURES:

- Installed easily by a single installer
- Many applications require only one screw
- Tested to include stud-web strength and stiffness in the tabulated design values
- Design values ensure compliance with AISI S100 Sections D3.2.1 and D3.3 for axially and laterally loaded studs
- Flexible design solutions for web thicknesses of 33 mil (20 ga.) through 97 mil (12 ga.) and stud sizes from 3⅝" to 8"
- Compact profile allows standard 1⅝" studs to be sistered directly against adjacent studs
- MSUBH accommodates back-to-back built-up members ranging from 33 mil (20 ga.) to 54 mil (16 ga.)

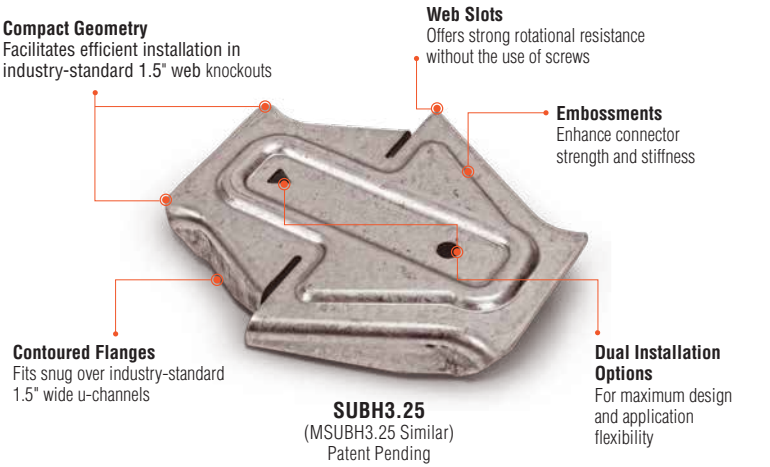
MATERIAL: SUBH3.25 – 43 mil (18 ga.) carbon steel; MSUBH3.25 – 68 mil (14 ga.) carbon steel

FINISH: Galvanized (G90)

CODES: IAPMO UES ER-124

ORDERING INFORMATION:

- SUBH3.25-R150 (Bucket of 150)
- MSUBH3.25-R100 (Bucket of 100)



DBC Drywall Bridging Connector

Patent pending design allows for 1 or 2 screw installation of the DBC, significantly reducing labor and material cost. The first and only connector load rated for ¾" u-channel, the DBC joins the SUBH and MSUBH as the only bridging connectors tested as a system, ensuring that published design capacities capture the influence of stud web depth and thickness.

DBC2.5
U.S. Patent Pending

FEATURES:

- Most applications require only a single screw
- Designed for ¾" u-channel to fit smaller web knockouts common to drywall studs
- Compatible with drywall stud depths of 3⅝" and 6" with 1½" wide knockouts

MATERIAL: 33 mil (20 ga.) carbon steel

FINISH: Galvanized (G90)

INSTALLATION:

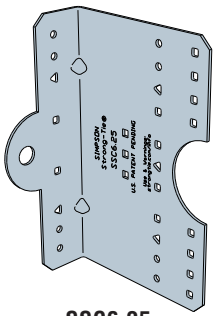
- Install drywall studs so that the web knockouts of adjacent studs line-up on a horizontal plane and that the ¾" keyhole of the web knockout is at the bottom
- Install sections of ¾" u-channel so that they fit snug into the ¾" keyholes with flanges facing down
- Feed the DBC2.5 through the web knockouts so that the connector slots engage the stud web and the connector flanges fit snug over the u-channel flanges
- Install all specified fasteners

CODES: Tested in accordance with ICC-ES AC261

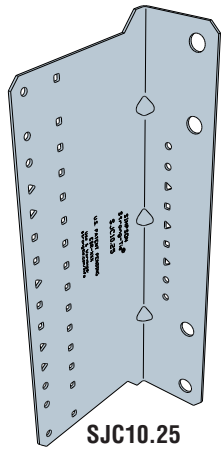
ORDERING INFORMATION:

- DBC2.5-R200 (Bucket of 200)

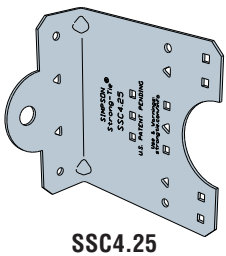
Simpson Strong-Tie continues to develop innovative, cost-reducing solutions for cold-formed steel (CFS) construction. The latest additions to the product line are the SFC steel framing connector, the SJC steel joist connector, and the SSC steel stud connector. Pre-punched holes and intuitive fastener hole patterns ensure that the structural needs of the Designer and the efficient installation goals of the contractor are both satisfied.



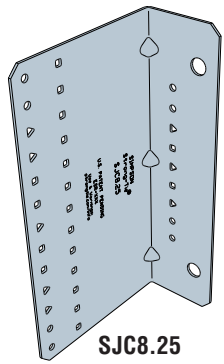
SSC6.25



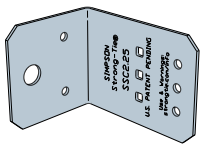
SJC10.25



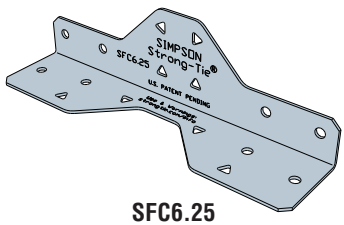
SSC4.25



SJC8.25

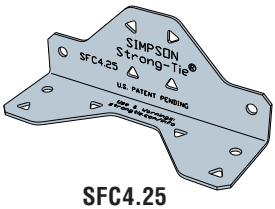


SSC2.25

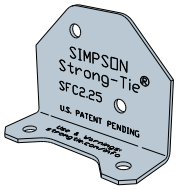


SFC6.25

Overview of Utility Clip Connectors



SFC4.25



SFC2.25

Product Category	Available Models	Sizes	Thicknesses	Typical Applications	General Recommendations
SSC	8	6.25" 4.25" 2.25"	54 mil (16 ga.), 68 mil (14 ga.), 97 mil (12 ga.)	Curtainwall headers and sills, load bearing headers, base of jamb, bypass framing, kneewalls, u-channel, joist framing, stud and joist blocking, rafter supports, jack trusses.	Use 6.25" clips with 8" studs and joists; 4.25" clips with 6" studs and joists; 2.25" clips with 3⅝" and 2½" studs.
SJC	4	10.25" 8.25"	68 mil (14 ga.), 97 mil (12 ga.)	Misc. joist and rafter framing, kickers, joist blocking, misc, framing to masonry and concrete.	Use 10.25" clips with 12" joists; 8.25" clips with 10" joists.
SFC	6	6.25" 4.25" 2.25"	43 mil (18 ga.), 54 mil (16 ga.)	Curtainwall headers and sills, bypass framing, u-channel, stud and joist blocking.	Use 6.25" clips with 8" studs and joists; 4.25" clips with 6" studs and joists; 2.25" clips with 3⅝" and 2½" studs.

Direct Fastening Solutions

Simpson Strong-Tie offers a full range of direct fastening tools and fasteners designed to maximize jobsite productivity and operator comfort in most applications. Single-shot and fully automatic gas and powder-actuated tool options efficiently drive our line of fasteners into concrete and steel. Free online tool certification available at ***www.strongtie.com/pat***.

GCN-MEP Gas-Actuated Concrete Nailer

The GCN-MEP gas-actuated concrete nailer is ideal for attaching light-duty fixtures to concrete, and metal deck for mechanical, electrical and plumbing (MEP) applications, including fastening conduit clips, ceiling clips, low-voltage cable and cable strap ties as well as affixing drywall track to concrete, steel, or lightweight concrete on metal deck as a magazine.

The gas-actuated GCN-MEP helps improve worker productivity through its complete portability without the need for electrical cords or pneumatic hoses.

Magazine sold separately (MEP-MAG1KT)

GCN-MEPKT or GCN-MEPMAGKT
(with magazine)

Features:

- Easy magazine attachment with no extra tools
- Power to drive .125" diameter pins
- Pin-depth control dial
- Easy nose piece change-out (for .25" and .300" headed fasteners) with no extra tools
- High-voltage spark for cleaner fuel combustion
- Comfortable, "sure-grip" rubber handle
- Battery charge indicator light
- Ladder hook

Specifications:

- Tool dimensions:
  Length – 15.3" (439mm), 17.3" with magazine
  Width – 4.2" (107mm)
  Height – 15.3" (389mm)
- Tool weight: 8.3 lbs (3.7kg)
- Suitable Fasteners:
  Length – ½" (12.7mm) to 1½" (38mm),
  Head Diameter – For .25" and .300" headed pins
  Shank Diameter – .106" to .125"
- Magazine capacity: 40 + 2 pins*
- Average number of shots per fuel cell: 1,200
- Average number of shots per battery charge: 3,300
- 6V NiMH batteries
- Average battery charge time: 2 hours
- Operates at temperatures between 20°F–120°F (-6°C–49°C)
- Average number of shots per second: 2

*When tool is down to its last two pins in the magazine, a lock-off occurs eliminating the possibility of firing with no pins.

Complementary Products:

GCN-MEP Pins and Assemblies
(see page 43)

GFC34 Fuel Cell
(see page 43)

GDP pins (with magazine installation)
(see page 45)

Replacement Parts

Model No.	Description
GCN-ADP012	Adaptor
GCN-CHG007	Charger (U.S.)
GCN-PPA020	Battery (U.S.)

GCN-MEP Gas-Actuated Concrete Nailer Kit

The GCN-MEPKT or GCN-MEPMAGKT kits include:

- GCN-MEP nailer or GCN-MEPMAG
- 2 batteries
- Battery charger
- Charger adaptor
- Allen wrenches
- Safety glasses and ear plugs
- Operator's manual/tool schematic
- Rugged tool box

GCN-MEP Gas-Actuated Pins and Assemblies for Mechanical, Electrical and Plumbing (MEP) Applications

New, pre-assembled MEP fasteners are available for use with the GCN-MEP concrete nailer designed for high-volume applications, such as affixing conduit clips, rod hangers, cable ties and drywall track. With their .300" heads, these versatile pins and assemblies can also be used with common powder-actuated tools when fastening into harder substrates (structural steel or extra hard concrete) when required.

Codes: ICC-ES ESR-2811; Florida FL 15730

GRH

GCC

GCL

GAC

GCT

GW

GTS

GTH

Mechanical, Electrical and Plumbing Pins

All single-shot pins are .125" diameter x 1" except where specified.

Model No.	Description	Pack Qty.	Compatible Gas-Actuated Nailer
GRH25-R100	¼" Rod hanger with pin	100	GCN-MEP, T3
GRH37-R100	⅜" Rod hanger with pin	100	GCN-MEP, T3
GCC50-R100	½" Conduit clip with pin	100	GCN-MEP, T3
GCC75-R100	¾" Conduit clip with pin	100	GCN-MEP, T3
GCC100-R100	1" Conduit clip with pin	100	GCN-MEP, T3
GCC125-R50	1" Conduit clip (13 gauge steel) with pin	50	GCN-MEP, T3
GCL50-R50	½" Conduit clamp with pin	50	GCN-MEP, T3
GCL75-R25	¾" Conduit clamp with pin	25	GCN-MEP, T3
GAC-R100	Angle clip with pin	100	GCN-MEP, T3
GCT-R50	Tie-strap holder with pin	50	GCN-MEP, T3
GW50-R200	½" Dome washer with .110"/.128" dia. x ½" length step-shank pin	200	GCN-MEP, T3
GW75-R200	½" Dome washer w/ .125 dia. x ¾" length pin	200	GCN-MEP, T3
GW100-R100	½" Dome washer with pin	100	GCN-MEP, T3
GTS4-5075-R200	¼" Threaded stud, ½" length ¼-20 thread, ¾" length shank (.127" dia.)	200	GCN-MEP, T3
GTH-R200	Tophat pin	200	GCN-MEP, T3

Fuel Cell

The GFC34 fuel cell is designed to operate with the GCN-MEP and with many major brand gas concrete-nailer tools, including the GCN150. The fuel cell provides 1,200 shots and can operate at temperatures between 20°–120°F (-6°–49°C). The fuel cells are offered Individually or in a 2-per-pack clamshell. Additionally, one fuel cell is included with each pack of 1,000 pins.

GFC Fuel Cell

Gas Fuel Cells for the GCN-MEP

Model No.	Description	Pack Qty.	Packs/ Carton	Compatible with these Tools
GFC34	34-gram fuel cells	12	—	Simpson Strong-Tie® GCN-MEP and GCN-150 Others: TrakFast® TF1100, Trak-It® C3
GFC34-RC2	(2) 34-gram fuel cells	2	6	

GCN150 Gas-Actuated Concrete Nailer

The GCN150 gas-actuated concrete nailer is a portable fastening tool for attaching light-duty fixtures such as drywall track, furring strips, hat track and angle track to concrete, steel, CMU and metal deck. The GCN150 has a portable gas fuel supply that does not require electrical cords or hoses. The GCN150 sets up quickly and offers maximum productivity. With a 500-shot-per-hour capacity and a pin jam release door, the GCN150 makes fastening pins fast and easy. Additional attributes include 2-step pin loading into the magazine, light and well-balanced weight, a battery indicator light and a sure-grip rubber handle pad.

Features:

- Fast: 40-pin magazine and 1,200-shot fuel cell for reduced loading time
- Easy to use: Automatic piston reset
- Easy open jam release door
- Portable: No hoses, cords or external energy source required
- Convenient: Simple two-step pin loading and open-blade guide-jam release
- Easy-load fuel compartment
- When tool is down to last two pins in the pin magazine, a "lock off" occurs eliminating the possibility of firing with no pins.
- Ladder hook

Easy open jam release door

Specifications:

- Tool dimensions: Length – 17.3", Width – 4.2", Height – 15.3"
- Weight: 8.3 lbs
- Magazine capacity: 40+2
- Average number of fastens per fuel cell: 1,200
- Average number of fastens per battery charge: 3,300
- Average battery charge time: 2 hours
- Fastener type: Length – ½" to 1½"
- Diameter – .102" to .109"

GCN150KT

Key Fastening Applications:

- Drywall track to concrete, steel, CMU or metal deck
- Furring strips to concrete, steel or CMU
- Plywood to concrete, steel or CMU
- Angle track to concrete, steel or metal deck

Tool is Sold in Rugged Tool Box and Includes:

- 2 Batteries
- Battery charger
- Charger adaptor
- Safety glasses
- Ear protection
- Operators manual
- Tool schematic
- Tool cleaning instructions

Replacement Parts:

Model	Description
GCN-ADP012	Adaptor
GCN-CHG007	Charger (U.S.)
GCN-PPA020	Battery (U.S.)

Complementary Products

GDP Pins (see page 45)

PETG Boot and Extension Pole (see page 47)

GFC34 Fuel Cell (see page 43)

GDP Pins

GDP concrete pins are designed to work with the GCN150 and GCN-MEP (with magazine-attached) gas-actuated concrete nailers as well as with most major-brand gas concrete-nailer tools. The patented 10-fastener strip is designed with break-away plastic. The pins are designed for use in A36 and A572 steel, concrete and CMU block.

Codes: ICC-ES ESR-2811; Florida FL15730; City of L.A. RR25837

GDP
(U.S. Patent 605,016)

.106 Diameter Shank Drive Pins for the GCN150

Model No.	Length (in.)	Qty. Pins/Pack +1 Fuel Cell	Packs/ Carton	Compatible with these Tools
GDP-50KT	½	1,000	5	Simpson Strong-Tie GCN-MEP, GCN-MEPMAG, GCN150 Others: TF1100, C3
GDP-62KT	⅝	1,000	5	
GDP-75KT	¾	1,000	5	
GDP-100KT	1	1,000	5	
GDP-125KT	1¼	1,000	5	
GDP-150KT	1½	1,000	5	

GDPS Pins

The new GDPS pins are also designed to work in the GCN150 and GCN-MEPMAG gas-actuated nailer tools for installation into A36 and A572 structural steel. The step-shank pin, with a smaller-diameter tip, facilitates easier penetration into the steel, while the larger diameter upper shank provides more shear resistance and successful installation.

GDPS

.118/.102 Diameter Shank Drive Pins for the GCN150

Model No.	Length (in.)	Qty. Pins/Pack + 1 fuel cell	Packs/ Carton	Compatible Tools	
				Simpson Strong-Tie	Others
GDPS-50KT	½	1,000	5	GCN150 GCN-MEPMAG	TF1100, C3
GDPS-62KT	⅝	1,000	5		
GDPS-75KT	¾	1,000	5		

GWL-100 Lathing Washer and GMR-1 Magnetic Ring

The new GWL-100 lathing washer is used with the GCN150 tool and attaches lath to the wall surface for overlaying scratch coats, brown coats and stucco. The washers are held onto the nose of the tool with the new GMR-1 magnetic ring and are attached to the substrate (including concrete and CMU) with GDP pins, which fasten through the washer. No extra tools are needed to install the magnetic ring to the nosepiece of the tool.

GWL-100

Lathing Washer and Magnetic Ring

Model No.	Description	Pack Qty.	Carton Qty.
GWL-100	Lathing Washer, 1" Diameter	1,000	5,000
GMR-1	Magnetic Ring for GCN150	10	900

Lathing Washer and Magnetic Rings are sold separately.

GMR-1

Spiral Knurl Gas Pins

GDPSK gas pins are designed for attaching plywood and OSB to cold-formed steel studs. The spiral knurl provides a positive lock and resists back out. Installed with the GCN150 concrete nailer or GCN-MEPMAG, the GDPSK-138 gas pin provided faster installation and set up times, which contributes to lower labor costs. The hardened pins quickly and cleanly pierce the cold-form steel and leave the pin head flush with the wood fixture. The 1⅜" length pin can be used for ½"–¾" thick plywood, and 14–22 gauge steel.

GDPSK

Spiral Knurl Gas Pins for the GCN150

Model No.	Length (in.)	Qty. Pins/Pack + 1 fuel cell	Packs/ Carton	Compatible with these Tools
GDPSK-138KT	1⅜	1,000	5	Simpson Strong-Tie: GCN150, GCN-MEPMAG Others: TF1100, C3

Extension Pole Tools

Advantages:

- Modular lengths – 2 ft., 6 ft., 8 ft.
- Easy jobsite storage
- Eliminates need for scaffolding
- Rugged and durable design

Extension Pole Tool for PTP-27L and PTP-27S

Model	Description	Length (ft.)
PET-6PAKT	Complete 6 ft. tool, with boot, handle and 1 extension	6
PET-8PAKT	Complete 8 ft. tool, with boot, handle and 2 extensions	8
PETH2	Handle	2
PETBPA	Tool boot for PTP tool series	N/A
PETS2	Pole extension	2
PETS4	Pole extension	4

Extension Pole Tool for PT-27

Model	Description	Length (ft.)
PET-6SMKT	Complete 6 ft. tool, with boot, handle and 1 extension	6
PET-8SMKT	Complete 8 ft. tool, with boot, handle and 2 extensions	8
PETH2	Handle	2
PETBSM	Tool boot for standard and modular tools	N/A
PETS2	Pole extension	2
PETS4	Pole extension	4

Extension Poles for GCN-MEP, GCN150

Model	Description	Length (ft.)
PETG-6-KT	Complete 6 ft. tool, with boot, handle and 1 extension	6
PETG-8-KT	Complete 8 ft. tool, with boot, handle and 2 extensions	8
PETH2	Handle	2
PETG	Boot	N/A
PETS2	Pole extension	2
PETS4	Pole extension	4

Tool Application Matrix Powder-Actuated Fastening Systems

This matrix matches Simpson Strong-Tie® powder-actuated tools with the trades that would typically use each tool. The selection is based upon the features of the tool matching the needs of the trade.

	PREMIUM TOOLS			
	PTP-27L (Page 50)	**PTP-27LMAGR** (Page 50)	**PTP-27S** (Page 52)	**PTP-27SMAGR** (Page 52)
				
Features	• Automatic • Adjustable Power • Low Recoil/Noise • 2½" Pin Capacity (4" Pin with Washer)	• Fully Automatic • 10-Fastener Magazine • Adjustable Power • Low Recoil/Noise • 2⅞" Pin Capacity	• Automatic • Adjustable Power • Low Recoil/Noise • Drywall Track Tool • 1⅝" Pin Capacity	• Fully Automatic • Rotating Fastener Magazine • 10-Fastener Magazine • Adjustable Power • Low Recoil/Noise • 1¼" Pin Capacity
Drywall	Good	Good	Best	Best
Electrical	Better		Better	
General	Best	Best		
Framer	Best	Best		
Plumbing/ Fire Sprinkler				
Acoustical/ Overhead	Good		Best	
Remodeling	Better	Better		
Carpentry	Better	Better		
Flooring	Better	Better	Good	Good
Glazing			Better	
Hvac	Better		Best	
Rental	Better			

Tool Application Matrix Powder-Actuated Fastening Systems

This matrix matches Simpson Strong-Tie® powder-actuated tools with the trades that would typically use each tool. The selection is based upon the features of the tool matching the needs of the trade.

	HEAVY-DUTY TOOL	GENERAL-PURPOSE TOOLS			
	PT-27HD (Page 54)	**PT-27** (Page 55)	**PT-22** (Page 56)	**PT-22H** (Page 57)	**PT-22P** (Page 58)
					
Features	• Heavy Duty • Single .27 Caliber Shot - Long • Reliable Design • ⅜" Threaded Stud Sprinkler Tool with Stop Spall	• Semi-Automatic • Versatile • Reliable Professional Grade Tool • 2½" Pin Capacity (4" Pin with Washer)	• Single Shot • Economical Professional-Grade Tool • 3" Pin Capacity (4" Pin with Washer)	• Single Shot • Hammer Activated • Medium Duty • 3" Pin Capacity	• Single Shot • Versatile, Professional-Grade Tool • 1½" Pin Capacity • 2" Pin with Washer
Drywall		Good			Best
Electrical		Good	Good	Good	Better
General		Better	Good		
Framer		Good	Good		
Plumbing/ Fire Sprinkler	Best				Good
Acoustical/ Overhead		Better	Good		Better
Remodeling		Better	Best	Best	Good
Carpentry		Best	Better	Better	
Flooring	Best				
Glazing		Good	Good		Better
Hvac		Better			
Rental					

PTP-27L and PTP-27LMAGR Premium Tools

The PTP-27L and the PTP-27LMAGR are powder-actuated fastening tools designed to provide versatility and ease of use on the job site. Both tools deliver productive fastening with automatic piston reset, which enables the user to simply load and shoot. The PTP-27L is a single-shot tool with a longer barrel that can be easily affixed with a fastener magazine.
The PTP-27LMAGR is a fully automatic tool with fastener magazine that can be quickly changed to a single-shot tool.

PTP-27L

Adjustable power increases versatility

PTP-27LMAGR

Features:

- Adjustable power for fastening versatility: a 1–1½ power level range from a single strip
- Easy disassembly for cleaning and maintenance
- No manual resetting of piston required
- Operator comfort: cushioned grip, reduced recoil and sound-dampening muffler for quiet operation

Key Fastening Applications:

- Sill plate installation
- Washered-pin installation (PTP-27L only)
- Insulation fastening (PTP-27L only)
- Forming work

Specifications:

- Fastener Length:
  PTP-27L: ½" – 2½" (3" or 4" washered)
  PTP-27LMAGR: ⅝" – 2⅞"
- Fastener Type: .300" or 8mm diameter
- Firing Action:
  PTP-27L: Automatic
  PTP-27LMAGR: Fully automatic
- Load Caliber: .27 strip loads, brown through purple (Levels 2–6)
- Length: 17¾" (PTP-27L), 19½" (PTP-27LMAGR)
- Weight: PTP-27L – 6.5 lbs., PTP-27LMAGR – 8.8 lbs.

The full line of Simpson Strong-Tie® Powder Loads and Fasteners begins on page 59.

Available Kit Combinations:

PTP-27L: Single-shot configuration with accessories

PTP-LMAGR: Parts to convert PTP-27L into magazine configuration

PTP-27LMAGR: Magazine configuration with accessories

PTP-LCONKT: Parts to convert PTP-27LMAGR into a single-shot configuration

PTP-27LMAGRKT: Combination kit; includes tool and components for both single-shot and magazine configurations

Tool is Sold in a Rugged Tool Box Complete with:

- Operator's manual
- Spall suppressor
- Tools for disassembly
- Safety glasses / ear plugs
- Tool lubricant
- Cleaning brushes
- Operator's exam and caution sign
- Tool box also sold separately
- Gloves

Quick-disconnect baseplate makes it easy to convert the PTP-27LMAGR from a magazine to a single-shot tool.

Complementary Products:

Extension pole tool for the PTP-27L available in 6' and 8' lengths

PET-6PAKT – 6' Tool and PET-8PAKT – 8' Tool

PETBPA

Extension Pole Tool (for the PTP-27L) - See page 47 for details.

Common Repair Parts - PTP-27L

Description	Model No.
Baseplate	PTP-274800
Nosepiece	PTP-273820
Piston	PTP-273320
Piston Disc	PTP-273306
Rubber Returner	PTP-274305

Common Repair Parts - PTP-27LMAGR

Description	Model No.
Magazine (Complete)	PTP-LMAGR
Nosepiece	PTP-276820
Nosepiece Screw	PTP-275826
Piston	PTP-276320
Piston Disc	PTP-273306
Rubber Returner	PTP-274305

Complete tool schematics, tool repair, maintenance kits and parts list are available at ***www.strongtie.com***.

PTP-27S and PTP-27SMAGR Premium Tools

The PTP-27S and the PTP-27SMAGR are powder-actuated fastening tools designed to provide versatility and ease of use on the job site. Both tools deliver productive fastening with automatic piston reset, which enables the user to simply load and shoot. The PTP-27S is a single-shot tool with a longer barrel that can be easily affixed with a fastener magazine. The PTP-27SMAGR is a fully automatic tool with fastener magazine that can be quickly changed to a single-shot tool.

PTP-27S

PTP-27SMAGR

Adjustable power increases versatility

Features:

- Adjustable power for fastening versatility: 1–1 ½ power level range from a single strip
- Operator comfort from cushioned grip, reduced recoil and sound-dampening muffler for quiet operation
- No manual resetting of piston required
- Easy disassembly for cleaning and maintenance

Key Fastening Applications:

PTP-27S:

- Conduit clips
- Ceiling clips
- Drywall track
- Metal Decking

PTP-27SMAGR:

- Drywall track
- Hat channel
- HVAC duct straps

The full line of Simpson Strong-Tie® Powder Loads and Fasteners begins on page 59.

Specifications:

- Fastener Length:
  PTP-27S: ½"–1 ⅝"
  PTP-27SMAGR: ½"–1 ¼"
- Fastener Type: .300" or 8mm diameter
- Firing Action:
  PTP-27S: Automatic
  PTP-27SMAGR: Fully automatic
- Load Caliber: .27 strip loads, brown through red (Levels 2–6)
- Length: 16 ¾" (PTP-27S), 17 ½" (PTP-27SMAGR)
- Weight: PTP-27S – 6.25 lbs., PTP-27SMAGR – 8.1 lbs.

Available Kit Combinations:

PTP-27S: Single-shot configuration with accessories

PTP-SMAGR: Parts to convert PTP-27L into magazine configuration

PTP-27SMAGR: Magazine configuration with accessories

PTP-SCONKT: Parts to convert PTP-27LMAGR into a single-shot configuration

PTP-27SMAGRKT: Combination kit; includes tool and components for both single-shot and magazine configurations

Tool is Sold in a Rugged Tool Box Containing:

- Operator's manual
- Spall suppressor
- Tools for disassembly
- Safety glasses / ear plugs
- Tool lubricant
- Cleaning brushes
- Operator's exam and caution sign
- Tool box also sold separately
- Gloves

Quick-disconnect baseplate makes it easy to convert the PTP-27SMAGR from a magazine to a single shot tool.

Rotating magazine allows for installation flexibility.

Collated pins for fully automatic fastening and quick loading.

Complementary Products:

PET-6PAKT – 6' Tool and PET-8PAKT – 8' Tool

PETBPA

Extension Pole Tool (for the PTP-27S) - See page 47 for details.

Common Repair Parts - PTP-27S

Description	Model No.
Baseplate	PTP-273800
Nosepiece	PTP-273820
Piston	PTP-273320
Piston Disc	PTP-273306
Rubber Returner	PTP-273305

Common Repair Parts - PTP-27SMAGR

Description	Model No.
Magazine Body (Complete)	PTP-SMAGR
Nosepiece	PTP-275800
Nosepiece Screw	PTP-275826
Piston	PTP-273320
Piston Disc	PTP-273306
Rubber Returner	PTP-273305

Complete tool schematics, tool repair, maintenance kits and parts list are available at ***www.strongtie.com***.

PT-27HD ¼" and ⅜" Heavy-Duty Stud Driver

Features:

- Low recoil when setting ⅜" fasteners into steel or hard concrete
- Consistent and reliable performance
- Easy disassembly for cleaning and maintenance

PT-27HD

Specifications:

- Fastener Length: ¾" thru 3"
- Fastener Types: ⅜" heavy duty drive pins, .177" shank pins, ¼"-20 threaded studs and ⅜"-16 threaded studs
- Firing Action: Single shot
- Load Caliber: .27 long single loads, green through purple (Levels 3–6)
- Length: 14¼"
- Weight: 8 lbs., 13 oz.

Key Fastening Applications:

- ⅜" sprinkler fastenings
- Heavy duty fastening in concrete strengths up to 8,000 psi and structural steel

Tool Is Sold In A Rugged Tool Box Complete With:

- Operator's manual
- Spall suppressor
- 8mm and 10mm fastener guides
- 8mm and 10mm pistons
- Small baseplate
- Stabilizer
- Ramrod
- Tools for disassembly
- Safety glasses / ear plugs
- Tool lubricant
- Cleaning brushes
- Operator's exam and caution sign
- 2 extra stop rings

The full line of Simpson Strong-Tie® Powder Loads and Fasteners begins on page 59.

Common Repair Parts - PT-27HD

Description	Model No.
8mm Piston	PTHD-P8
8mm Fastener Guide	PTHD-G8
10mm Piston	PTHD-P10
10mm Fastener Guide	PTHD-G10
Stop Ring	PTHD-SR

The PT-27 is a semi-automatic and fast cycling fastening tool that is engineered for continuous use, high reliability and low maintenance. This versatile tool fires a variety of fastener types and lengths.

Key Fastening Applications:

- Acoustical ceilings
- Electrical applications
- Framing members
- Drywall track
- Water proofing material and/or lathing

Specifications:

- Fastener Length: ½" – 2½" (3" or 4" washered)
- Fastener Type: .300" or 8mm headed fasteners or ¼"-20 threaded studs
- Firing Action: Semi-automatic
- Load Caliber: .27 strip loads, brown through red (Levels 2–5)
- Length: 13½"
- Weight: 5 lbs., 4 oz.

Tool is sold in a rugged tool box complete with:

- Operator's manual
- Spall suppressor
- Tools for disassembly
- Safety glasses / ear plugs
- Tool lubricant
- Cleaning brushes
- Operator's exam and caution sign

PT-27

The full line of Simpson Strong-Tie® Powder Loads and Fasteners begins on page 59.

Common Repair Parts – PT-27

Description	Model No.
Annular Spring	PT-301014
Ball Bearing (6mm)	PT-301013
Barrel	PT-301006
Baseplate	PT-301009
Piston – Concave (includes ring)	PT-301217
Piston – Flat (includes ring)	PT-301903
Piston Ring	PT-301208
Piston Stop	PT-301012
Shear Clip	PT-301011

1. For tool repair and maintenance kits and complete tool schematics and parts list, visit ***www.strongtie.com***.

Complementary Products:

PET-6SMKT – 6' Tool and PET-8SMKT – 8' Tool

PETBSM

Extension Pole Tool (for the PT-27) - See page 47 for details.

The PT-22 is a powder-actuated tool that uses .22 caliber, has single-shot firing action and is engineered for continuous use, high reliability and low maintenance.

PT-22

Key Fastening Applications:

- Furring strips
- Framing pins
- Electrical boxes
- Ceiling clips

Specifications:

- Fastener Length: ½" – 3" (3" and 4" washered)
- Fastener Type: .300" or 8mm headed fasteners or ¼"-20 threaded studs
- Firing Action: Single shot
- Load Caliber: .22 single loads, gray through yellow (Levels 1–4). Note: Not for use with 22 caliber straight wall loads
- Length: 13⅞"
- Weight: 4.4 lbs.

Tool is sold in a rugged tool box complete with:

- Operator's manual
- Spall suppressor
- Tools for disassembly
- Safety glasses / ear plugs
- Cleaning brushes
- Operator's exam and caution sign

*These items not supplied with the PT-22-RB retail package.

The PT-22 is sold individually in a tool box with accessories or in a retail package (see below).

The full line of Simpson Strong-Tie® Powder Loads and Fasteners begins on page 59.

PT-22A-RB

PT-22 Retail Package Product Data

Description	Model No.	Qty. of Tools Per Retail Package	Qty. of Retail Packages Per Carton
.22 Caliber, Single-Shot Trigger-Activated Tool	PT-22-RB	1	2

Common Repair Parts

Description	Model No.
Nosepiece	PTM-DC106
Piston Buffer	PTM-01114
Piston Reset Cap	PTM-031081
Piston Reset Pin	PTM-011072
Piston Reset Spring	PTM-031223
Piston with Ring	PT-DC112

1. Model PT-DC108 for tools with a serial number below 5000.
2. Model PT-DC107 for tools with a serial number below 5000.
3. Model PT-DC122 for tools with a serial number below 5000.
4. See page 67 for tool repair and maintenance kits. Complete tool schematics and parts list available at ***www.strongtie.com***.

The PT-22H is a hammer-activated tool engineered for low maintenance and economy. The tool offers four levels of power: Gray through yellow loads (levels 1–4).

PT-22H

Key Fastening Applications:

- Remodeling
- Maintenance
- Electricians
- Telecommunications

Specifications:

- Fastener Length: ½"–3" (4" washed)
- Fastener Type: .300" or 8mm headed fasteners or ¼"-20 threaded studs
- Firing Action: Single shot, hammer activated
- Load Caliber: .22 single "A" crimp loads, gray through yellow (Levels 1–4). Note: Not for use with .22 caliber straight wall loads
- Length: 14¼"
- Weight: 2 lbs., 12 oz.

PT-22H Retail Package Product Data

Description	Model No.	Qty. of Tools Per Retail Package	Qty. of Retail Packages Per Carton
.22 Caliber, Single-Shot Hammer-Activated Tool	PT-22H-RB	1	4

The PT-22H-RB comes packaged in a retail clamshell ready for merchandising.

PT-22P Powder-Actuated Tool

The PT-22P is a single-shot fastening tool engineered for continuous use, high reliability and low maintenance. The all-aluminum body of the PT-22P also provides rugged durability.

PT-22P

Key Fastening Applications:

- Drywall track
- Furring strips
- Framing pins
- Electrical boxes
- Ceiling clips

Specifications:

- Fastener Length: ½"–1½"
- Fastener Type: .300" or 8mm headed fasteners or ¼"-20 threaded studs
- Firing Action: Single shot
- Load Caliber: .22 single loads, gray through yellow (Levels 1–4). Note: Not for use with 22 caliber straight wall loads
- Length: 14"
- Weight: 4 lbs. 7 oz.

The PT-22P is sold individually in a tool box with accessories.

Tool is Sold in a Rugged Tool Box Complete with:

- Operator's manual
- Spall suppressor
- Tools for disassembly
- Safety glasses / ear plugs
- Cleaning brushes
- Operator's exam and caution sign
- One additional piston

Common Repair Parts

Description	Model No.
Nosepiece	PT-22P-01
Stop Pin Cover	PT-22P-17
Barrel Stop Pin	PT-22P-20
Barrel Stop Pin Spring	PT-22P-21
Piston with Ring	PT-22P-02

.22 Caliber "A" Crimp Loads – Single Shot

Description	Model	Pack Qty.	Carton Qty.	Compatible Tools	
				Simpson	Others
.22 Cal. - Brown (Level 2)	P22AC2	100	10,000	PT-22 PT-22GS PT-22H	721, U-2000, DX-37E, DX72E, 4170 and model 70, System 3 and most low-velocity, single-shot tools
	P22AC2A	100	10,000		
.22 Cal. - Green (Level 3)	P22AC3	100	10,000		
	P22AC3A	100	10,000		
.22 Cal. - Yellow (Level 4)	P22AC4	100	10,000		
	P22AC4A	100	10,000		

P22AC

.22 Caliber Straight Wall Loads – Single Shot

Description	Model	Pack Qty.	Carton Qty.	Compatible Tools
.22 Cal. - Yellow (Level 4)	P22LRSC4	100	10,000	PT-27HD, Ladd Tools, and some special application tools
.22 Cal. - Red (Level 5)	P22LRSC5	100	10,000	
.22 Cal. - Purple (Level 6)	P22LRSC6	100	10,000	
.22 Cal. - Gray (Level 7)	P7LRSC	100	10,000	

Note: Not for use with Simpson Strong-Tie PT-22, PT-22GS, or PT-22H tools.

P22LRSC

.25 Caliber Plastic 10-Shot Strip Loads

Description	Model	Pack Qty.	Carton Qty.	Compatible Tools
.25 Cal. - Green (Level 3)	P25SL3	100	10,000	DX35, R355
.25 Cal. - Green BULK PACK	P25SL3M	1,000	5,000	
.25 Cal. - Yellow (Level 4)	P25SL4	100	10,000	
.25 Cal. - Yellow BULK PACK	P25SL4M	1,000	5,000	
.25 Cal. - Red (Level 5)	P25SL5	100	10,000	
.25 Cal. - Red BULK PACK	P25SL5M	1,000	5,000	

P25SL

.27 Caliber Single-Shot Loads – Long

Description	Model	Pack Qty.	Carton Qty.
.27 Cal. - Green (Level 3)	P27LVL3	100	10,000
.27 Cal. - Yellow (Level 4)	P27LVL4	100	10,000
.27 Cal. - Red (Level 5)	P27LVL5	100	10,000
.27 Cal. - Purple (Level 6)	P27LVL6	100	10,000

P27LVL

.27 Caliber Plastic, 10-Shot Strip Loads

Description	Model	Pack Qty.	Carton Qty.	Compatible Tools	
				Simpson Strong-Tie	Others
.27 Cal. - Brown (Level 2)	P27SL2	100	10,000	PTP-27L, PTP-27MAGR, PTP-27S, PTP-27SMAGR, PT-27	DX-350, DX-351, DX-36, DX-A40 (except PT27SL2), DX-A41 (except PT27SL2 and PT27SL3), DX-460, DX-450, DX-451, System 1H, P-36B, A-40B, A-41B, Cobra and most .27 caliber-clone tools
	P27SL2A	100	10,000		
.27 Cal. - Green (Level 3)	P27SL3	100	10,000		
	P27SL3A	100	10,000		
.27 Cal. - Green BULK PACK	P27SL3M	1,000	5,000		
.27 Cal. - Yellow (Level 4)	P27SL4	100	10,000		
	P27SL4A	100	10,000		
.27 Cal. - Yellow BULK PACK	P27SL4M	1,000	5,000		
.27 Cal. - Red (Level 5)	P27SL5	100	10,000		
	P27SL5A	100	10,000		
.27 Cal. - Red BULK PACK	P27SL5M	1,000	5,000		
.27 Cal. - Purple (Level 6)	P27SL6	100	10,000		DX-450, DX-451, DX-A41

Note: An "A" in a part number denotes imported load. No "A" indicates a domestic load.

P27SL

PDPA Drive Pins

- Manufactured with tight tolerances for superior performance
- Code-listed per ICC-ES ESR-2138; City of L.A. RR25469; Florida FL 15730

.300" Headed Fasteners with .157" Shank Diameter

Length (in.)	Model No.	Description	Pack Qty.	Carton Qty.	Compatible Tools	
					Simpson Strong-Tie	Others
½	PDPA-50	.157 x ½"	100	1,000	PTP-27L, PTP-27S, PT-27, PT-27HD, PT-22, PT-22GS, PT-22P, PT-22H	721, D-60, U-2000 and most other low-velocity tools.
½ knurled	PDPA-50K	.157 x ½" knurl	100	1,000		
⅝ knurled	PDPA-62K	.157 x ⅝" knurl	100	1,000		
¾	PDPA-75	.157 x ¾"	100	1,000		
1	PDPA-100	.157 x 1"	100	1,000		
1 ¼	PDPA-125	.157 x 1 ¼"	100	1,000		
1 ½	PDPA-150	.157 x 1 ½"	100	1,000		
1 ⅞	PDPA-187	.157 x 1 ⅞"	100	1,000		
2	PDPA-200	.157 x 2"	100	1,000		
2 ½	PDPA-250	.157 x 2 ½"	100	1,000		
2 ⅞	PDPA-287	.157 x 2 ⅞"	100	1,000		

PDPA

This model available in mechanically galvanized finish (PDPA-287MG)

.300" Headed Fasteners with .157" Shank Diameter and ¾" Metal Washers

Length (in.)	Model No.	Description	Pack Qty.	Carton Qty.	Compatible Tools	
					Simpson Strong-Tie	Others
½	PDPAW-50	.157 x ½", w/ ¾" washer	100	1,000	PTP-27L, PTP-27S, PT-27, PT-22P, PT-22, PT-22GS, PT-22H	721, D-60, U-2000, System 1, System 3 and most other low-velocity tools.
½ knurled	PDPAW-50K	.157 x ½" knurl, w/ ¾" washer	100	1,000		
⅝ knurled	PDPAW-62K	.157 x ⅝" knurl, w/ ¾" washer	100	1,000		
¾	PDPAW-75	.157 x ¾", w/ ¾" washer	100	1,000		
1	PDPAW-100	.157 x 1", w/ ¾" washer	100	1,000		
1 ¼	PDPAW-125	.157 x 1 ¼", w/ ¾" washer	100	1,000		
1 ½	PDPAW-150	.157 x 1 ½", w/ ¾" washer	100	1,000		
1 ⅞	PDPAW-187	.157 x 1 ⅞", w/ ¾" washer	100	1,000		
2	PDPAW-200	.157 x 2", w/ ¾" washer	100	1,000		
2 ½	PDPAW-250	.157 x 2 ½", w/ ¾" washer	100	1,000		
2 ⅞	PDPAW-287	.157 x 2 ⅞", w/ ¾" washer	100	1,000		

PDPAW

.300" Headed Fasteners with .157" Shank Diameter and 1" Metal Washers

Length (in.)	Model No.	Description	Pack Qty.	Carton Qty.	Compatible Tools	
					Simpson Strong-Tie	Others
½	PDPAWL-50	.157 x ½", w/ 1" washer	100	1,000	PTP-27L, PTP-27S, PT-27, PT-22P, PT-22, PT-22GS, PT-22H	721, D-60, U-2000, System 1, System 3 and most other low-velocity tools.
½ knurled	PDPAWL-50K	.157 x ½" knurl, w/ 1" washer	100	1,000		
⅝ knurled	PDPAWL-62K	.157 x ⅝" knurl, w/ 1" washer	100	1,000		
¾	PDPAWL-75	.157 x ¾", w/ 1" washer	100	1,000		
1	PDPAWL-100	.157 x 1", w/ 1" washer	100	1,000		
1 ¼	PDPAWL-125	.157 x 1 ¼", w/ 1" washer	100	1,000		
1 ½	PDPAWL-150	.157 x 1 ½", w/ 1" washer	100	1,000		
1 ⅞	PDPAWL-187	.157 x 1 ⅞", w/ 1" washer	100	1,000		
2	PDPAWL-200	.157 x 2", w/ 1" washer	100	1,000		
2 ½	PDPAWL-250	.157 x 2 ½", w/ 1" washer	100	1,000		
2 ⅞	PDPAWL-287	.157 x 2 ⅞", w/ 1" washer	100	1,000		

PDPAWL

.300" Headed Fasteners with .157" Shank Diameter 10 Pin Collation

Length (in.)	Model No.	Description	Pack Qty.	Carton Qty.	Compatible Tools	
					Simpson Strong-Tie	Others
½	PDPAS-50	.157 x ½"	100	1,000	PTP-27L PTP-27S PT-27 PT22, PT-22GS PT-22P PT-22H	721, D-60, U-2000 and most other low-velocity tools.
½ knurled	PDPAS-50K	.157 x ½" knurl	100	1,000		
⅝ knurled	PDPAS-62K	.157 x ⅝" knurl	100	1,000		
¾	PDPAS-75	.157 x ¾"	100	1,000		
1	PDPAS-100	.157 x 1"	100	1,000		
1 ¼	PDPAS-125	.157 x 1 ¼"	100	1,000		
1 ½	PDPAS-150	.157 x 1 ½"	100	1,000		
1 ⅞	PDPAS-187	.157 x 1 ⅞"	100	1,000		
2	PDPAS-200	.157 x 2"	100	1,000		
2 ½	PDPAS-250	.157 x 2 ½"	100	1,000		
2 ⅞	PDPAS-287	.157 x 2 ⅞"	100	1,000		

PDPAS

.300" Headed Tophat Fasteners with .157" Shank Diameter

Length (in.)	Model No.	Description	Pack Qty.	Carton Qty.	Compatible Tools	
					Simpson Strong-Tie	Others
½ knurled	PDPAT-50K	.157 x ½" knurl	100	1,000	PTP-27L PTP-27S PT-27 PT-27HD PT-22 PT-22GS PT-22P PT-22H	721, D-60, U-2000 and most other low-velocity tools.
⅝ knurled	PDPAT-62K	.157 x ⅝" knurl	100	1,000		
¾	PDPAT-75	.157 x ¾"	100	1,000		
1	PDPAT-100	.157 x 1"	100	1,000		

PDPAT

Pre-Assembled Ceiling Clips – .300" Headed Fasteners with .157" Shank Diameter

Length (in.)	Model No.	Description	Pack Qty.	Carton Qty.	Compatible Tools	
					Simpson Strong-Tie	Others
1 1⁄16	PCLDPA-106	Ceiling Clip with 1 1⁄16" Pin	100	1,000	PTP-27L PTP-27S PT-27 PT22, PT-22GS PT-22P PT-22H	DX-350 System 1 721 and most other tools.
1 5⁄16	PCLDPA-131	Ceiling Clip with 1 5⁄16" Pin	100	1,000		
1 1⁄16	PECLDPA-106	Compact Ceiling Clip with 1 1⁄16" Pin	100	1,000		
1 5⁄16	PECLDPA-131	Compact Ceiling Clip with 1 5⁄16" Pin	100	1,000		

PCLDPA

PECLDPA

Threaded Rod Hangers – .300" Headed Fasteners with .157" Shank Diameter

Length (in.)	Model No.	Description	Pack Qty.	Carton Qty.	Compatible Tools	
					Simpson Strong-Tie	Others
1 5⁄16, ¼ - 20 Threaded Rod Hanger	PTRHA4-131	.157 x 1 5⁄16"	50	500	PTP-27L PTP-27S PT-27 PT-22P PT-22 PT-22GS PT-22H	DX-351 DX-350 DX-36 DX-35 DX-A40
1 5⁄16, ⅜ - 16 Threaded Rod Hanger	PTRHA3-131	.157 x 1 5⁄16"	50	500		

PTRHA3

.300" Headed Fasteners with .145" Shank Diameter

Length (in.)	Model No.	Pack Qty.	Carton Qty.	Compatible Tools	
				Simpson Strong-Tie	Others
2½	PDP-250	100	1,000	PTP-27L PTP-27S PT-22 PT-22GS PT-22H	721, D-60, U-2000, System 1, System 3 and most other low-velocity tools.

PDP

.300" Headed Fasteners with .145" Shank Diameter – Mechanically Galvanized

Length (in.)	Model No.	Pack Qty.	Carton Qty.	Compatible Tools	
				Simpson Strong-Tie	Others
3	PDP-300MG	100	1,000	PTP-27L* PTP-27S** PT-27* PT-22P PT-22 PT-22GS PT-22H	721**, D-60, U-2000, System 1, System 3 and most other low-velocity tools.

Mechanical Galvanizing meets ASTM B695, Class 65, Type 1.
*Up to 2¼", **Up to 1¼"

PDPMG

Type 316 Stainless Steel .300" Headed Fasteners with .145" Shank Diameter

Length (in.)	Model No.	Pack Qty.	Carton Qty.	Compatible Tools	
				Simpson Strong-Tie	Others
½ Knurled	PDP-50KSS	100	1,000	PTP-27* PTP-27L* PTP-27S** PT-27* PT-22 PT-22GS PT-22H	721**, D-60, U-2000, System 1, System 3 and most other low-velocity tools.
⅝ Knurled	PDP-62KSS	100	1,000		
¾	PDP-75SS	100	1,000		
1	PDP-100SS	100	1,000		
1¼	PDP-125SS	100	1,000		
1½	PDP-150SS	100	1,000		
1¾	PDP-175SS	100	1,000		
2	PDP-200SS	100	1,000		
2½	PDP-250SS	100	1,000		
3	PDP-300SS	100	1,000		

PDPSS

.300" Headed Fasteners with .145" Shank Diameter and 1" Metal Washers

Length (in.)	Model No.	Pack Qty.	Carton Qty.	Compatible Tools	
				Simpson Strong-Tie	Others
2 ½	PDPWL-250	100	1,000	PTP-27L PT-27 PT-22P PT-22 PT-22GS PT-22H	D-60, U-2000, System 1, System 3 and most other low-velocity tools.
2⅞	PDPWL-287MG*	100	1,000		
3	PDPWL-300	100	1,000		
3	PDPWL-300MG*	100	1,000		
3	PDPWL-300M	—	1,000		
4	PDPWL-400	100	1,000		

*"MG" designates mechanically galvanized finish.
Complies with ASTM B695, Class 65, Type 1.

PDPWL

Type 316 Stainless Steel .300" Headed Fasteners with .145" Shank Diameter and 1" Metal Washers*

Length (in.)	Model No.	Pack Qty.	Carton Qty.	Compatible Tools	
				Simpson Strong-Tie	Others
1	PDPWL-100SS	100	1,000	PTP-27L PTP-27S** PT-27 PT-22P PT-22 PT-22GS PT-22H	721**, D-60, U-2000, System 1, System 3 and most other low-velocity tools.
1 ¼	PDPWL-125SS	100	1,000		
1 ½	PDPWL-150SS	100	1,000		
2	PDPWL-200SS	100	1,000		
2 ½	PDPWL-250SS	100	1,000		
3	PDPWL-300SS	100	1,000		
4	PDPWL-400SS	100	1,000		

*Washers are Type 304 Stainless Steel, **Up to 2"

PDPWL-SS

.300" Headed Fasteners with .145" Shank Diameter and 1 7/16" Metal Washers

Length (in.)	Model No.	Pack Qty.	Carton Qty.	Compatible Tools	
				Simpson Strong-Tie	Others
1	PINW-100	50	500	PTP-27L PT-27 PT-22P PT-22 PT-22GS PT-22H	721, D-60, U-2000, System 1, System 3 and most other low-velocity tools.
1 ¼	PINW-125	50	500		
1 ½	PINW-150	50	500		
2 ¼	PINW-225	50	500		
2 ½	PINW-250	50	500		
3	PINW-300	50	500		

PINW

.300" Headed Fasteners with .145" Shank Diameter and 1⅜" Plastic White Washers

Length (in.)	Model No.	Pack Qty.	Carton Qty.	Compatible Tools	
				Simpson Strong-Tie	Others
1	PINWP-100W	50	500	PTP-27L PT-27 PT-22P PT-22 PT-22GS PT-22H	721*, D-60, U-2000, System 1, System 3 and most other low-velocity tools.
1 ¼	PINWP-125W	50	500		
1 ½	PINWP-150W	50	500		
1 ¾	PINWP-175W	50	500		
2	PINWP-200W	50	500		
2 ½	PINWP-250W	50	500		
3	PINWP-300W	50	500		

*Up to 2 ½"

PINWP

Highway Basket Clips – .300" Headed Fasteners with .145" Shank Diameter

Description	Model No.	Pack Qty.	Carton Qty.	Compatible Tools	
				Simpson Strong-Tie	Others
Clip with 1½" Pin	PHBC-150	100	1,000	PTP-27L, PT-27 PT-22P, PT-22 PT-22GS PT-22H	DX-A41, Autofast
Clip with 2" Pin	PHBC-200	100	1,000		
Clip with 2½" Pin	PHBC-250	50	1,000		

PHBC

Pre-Assembled BX Cable Straps and Conduit Straps – .300" Headed Fasteners with .145" Shank Diameter

Description	Model No.	Pack Qty.	Carton Qty.	Compatible Tools	
				Simpson Strong-Tie	Others
BX Cable Strap with 1" Pin	PBXDP-100	100	1,000	PTP-27L PTP-27S PT-27 PT-22P PT-22 PT-22GS PT-22H	D-60, 721, System 1, System 3, DX-350 and most other tools.
Conduit Clip ½" EMT with 1" Pin	PCC50-DP100	100	1,000		
Conduit Clip ¾" EMT with 1" Pin	PCC75-DP100	50	500		
Conduit Clip 1" EMT with 1" Pin	PCC100-DP100	50	500		

PCC

PBXDP

¼" – 20 Threaded Studs*

Length (in.)	Model No.	Pack Qty.	Carton Qty.	Compatible Tools	
				Simpson Strong-Tie	Others
¼ - 20 Knurled (T-½, S-½)	PSLV4-5050K	100	1,000	PTP-27 PTP-27L PT-27 PT-22 PT-22GS PT-22H	Most L.V. piston tools.
¼ - 20 (T-½, S-¾)	PSLV4-5075	100	1,000		
¼ - 20 (T-½, S-1)	PSLV4-50100	100	1,000		
¼ - 20 (T-½, S-1 ¼)	PSLV4-50125	100	1,000		
¼ - 20 (T-¾, S-¾)	PSLV4-7575	100	1,000		
¼ - 20 Knurled (T-¾, S-½)	PSLV4-7550K	100	1,000		
¼ - 20 (T-¾, S-1)	PSLV4-75100	100	1,000		
¼ - 20 (T-¾, S-1 ¼)	PSLV4-75125	100	1,000		
¼ - 20 (T-1, S-1)	PSLV4-100100	100	1,000		
¼ - 20 Knurled (T-1 ¼, S-½)	PSLV4-12550K	100	1,000		
¼ - 20 (T-1 ¼, S-1 ¼)	PSLV4-125125	100	1,000		

PSLV4

Fasteners for Simpson Strong-Tie® Powder-Actuated Tools

⅜" – 16 Threaded Studs* (Factory Mutual Listing-see below)

Length (in.)	Model No.	Pack Qty.	Carton Qty.	Compatible Tools	
				Simpson Strong-Tie	Others
⅜ - 16 Knurled (T-1 ¼, S-¾)	PSLV3-12575K	100	1,000	PT-27HD	Most other ⅜" barrel tools.
⅜ - 16 (T-1 ¼, S-1)	PSLV3-125100	100	1,000		
⅜ - 16 (T-1 ¼, S-1 ¼)	PSLV3-125125**	100	1,000		

PSLV3

*Shank diameter is .205". NOTE: T = Thread Length, S = Shank Length.
**Factory Mutual Listing 3031724

Metric Fasteners for Simpson Strong-Tie® Powder-Actuated Tools

8MM Headed Fasteners with 3.68MM Shank Diameter

Length (in.)	Model No.	Pack Qty.	Carton Qty.	Compatible Tools	
				Simpson Strong-Tie	Others
½ Knurled	PHN-14K	100	1,000	PTP-27L PTP-27S** PT-27 PT-22P** PT-22 PT-22GS PT-22H*	DX-350 DX-36 DX-400E DX-A40 DX-460 DX-A41 System 1 DX-351 and 8mm tools.
⅝ Knurled	PHN-16K	100	1,000		
¾ Knurled	PHN-19K	100	1,000		
⅞	PHN-22	100	1,000		
1	PHN-27	100	1,000		
1 ¼	PHN-32	100	1,000		
1 ½	PHN-37	100	1,000		
1 ⅝	PHN-42	100	1,000		
1 ⅞	PHN-47	100	1,000		
2	PHN-52	100	1,000		
2 ¼	PHN-57	100	1,000		
2 ½	PHN-62	100	1,000		
2 ⅞	PHN-72	100	1,000		

PHN

*Up to 2½",
**Up to 1 ½"

6MM Headed Fasteners with 3.68MM Shank Diameter and 12MM Washers

Length (in.)	Model No.	Pack Qty.	Carton Qty.	Compatible Tools
⅞	PHK-22	100	1,000	DX-100L DX-300 DX-400B DX-450 DX-460 DX-451 and 12mm tools.
1	PHK-27	100	1,000	
1¼	PHK-32	100	1,000	
1½	PHK-37	100	1,000	
1⅝	PHK-42	100	1,000	
2	PHK-52	100	1,000	
2½	PHK-62	100	1,000	
2⅞	PHK-72	100	1,000	

PHK

8MM Headed Fasteners with 3.68MM Shank Diameter and 1" Metal Washers

Length (in.)	Model No.	Pack Qty.	Carton Qty.	Compatible Tools	
				Simpson Strong-Tie	Others
1	PHNW-27	100	1,000	PTP-27L PTP-27S* PT-27 PT-22P PT-22 PT-22GS PT-22H	DX-350 DX-36 DX-400E DX-A40 DX-A41 DX-460 System1 DX-351 and 8mm tools.
1¼	PHNW-32	100	1,000		
1½	PHNW-37	100	1,000		
1⅝	PHNW-42	100	1,000		
1⅞	PHNW-47	100	1,000		
2	PHNW-52	100	1,000		
2¼	PHNW-57	100	1,000		
2½	PHNW-62	100	1,000		
2⅞	PHNW-72	100	1,000		

*Up to 2"

PHNW

8MM Headed Tophat Fasteners with 3.68MM Shank Diameter

Length (in.)	Model No.	Pack Qty.	Carton Qty.	Compatible Tools	
				Simpson Strong-Tie	Others
⅝ Knurled	PHNT-16K	100	1,000	PTP-27 PTP-27L PTP-27S PT-27 PT-22P PT-22 PT-22GS PT-22H	DX-35 DX-351 and most 8mm tools.
¾ Knurled	PHNT-19K	100	1,000		
⅞	PHNT-22	100	1,000		
1	PHNT-27	100	1,000		

PHNT

Concrete Forming Pin – .187" Headed with .145" Shank Diameter

Length (in.)	Model No.	Pack Qty.	Carton Qty.	Compatible Tools	
				Simpson Strong-Tie	Others
3/16 x 2 1/2 Concrete Forming Pin	PKP-250	100	1,000	PTP-27L, PT-27 PT-22P, PT-22 PT-22GS, PT-22H	DX-Series and 8mm tools.

NOTE: Lengths in inches are for reference only and may not be exact.

PKP

Miscellaneous

¼" Headed Hammer Drive Fastener with ⅜" Metal Washer

Length (in.)	Model No.	Pack Qty.	Carton Qty.	Compatible Tools	
				Simpson Strong-Tie	Others
¾	PHD-75	100	1,000	PHT-38	HT-38, R-260, R-375, XL-143 and other hammer drive tools.
1	PHD-100	100	1,000		
1 ¼	PHD-125	100	1,000		

PHD

Manual Hammer Tool
(not for use with powder loads)

PHT-38

Warning: Do not use powder loads with this tool. This is a hammer drive tool only. Use of powder loads with this tool may result in injury or death.

Powder-Actuated Tool Repair and Maintenance Kits

Tool	Kit Model No.	Description	Contents
PT-27	PT-27PK1	Normal wear part replacement kit	5 Shear Clips (Part No. PT-301011)
			1 Annular Spring (Part No. PT-301014)
			1 Piston Stop (Part No. PT-301012)
			3 Ball Bearings (Part No. PT-301013)
			1 Piston (Part No. PT-301903)
			2 Piston Rings (Part No. PT-301208)
			1 Nosepiece (Part No. PT-301010)
All	PT-MK1	Tool cleaning kit	1 Cleaning Brush - Wire (Part No. BRUSH 125)
			1 Cleaning Brush ¾" Diameter (Part No. BRUSH 25)
			1 Cleaning Brush ¼" Diameter (Part No. BRUSH 75)
			1 PAT Tool Lubricant - 4 oz. spray bottle (Part No. PT-MTL4.0)
			(1) ⅛" Hex Wrench (Part No. MW-18)
			(1) 3/16" Hex Wrench (Part No. MW-316)
			(1) 5mm Hex Wrench (Part No. MW-5)
All	PT-MTL2.0	Tool lubricant	2 oz. spray bottle

General Purpose Anchoring

From rebar dowelling on a high-traffic infrastructure retrofit project to do-it-yourself projects, Simpson Strong-Tie offers a wide variety of anchoring products to satisfy virtually any need. Our line of anchoring adhesives and mechanical anchors provide solutions for most construction materials and loading conditions.

AT is a high-strength, acrylic-based anchoring adhesive. AT is formulated for use as a high-strength, anchor-grouting material in a wide range of temperature conditions. It is a two-part system with the resin and hardener being simultaneously dispensed and mixed through the mixing nozzle.

Features:

- Code-listed under the current IBC/IRC for URM (red brick) per ICC-ES ESR-1958
- Cure times: 24 hours at 0°F, 1 hour at 60°F
- Non-sag gel formulation ideal for horizontal, vertical and most overhead applications
- Easy hole-cleaning procedure – no power brushing required
- Suitable for use in damp or wet anchor sites
- When properly mixed, adhesive will be a uniform gray color
- Available in 12.5 oz. and 30 oz., cartridges for application versatility
- Made in the USA

Applications:

- Threaded rod anchoring and rebar doweling into concrete and masonry
- Threaded rod anchoring and rebar doweling into URM (red brick)
- Multiple DOT listings, refer to ***www.strongtie.com/DOT*** for current approvals

Codes/Standards: ICC-ES ESR-1958 (URM); Florida FL 14832; ASTM C 881 (Type I and IV, Grade 3, Classes A, B, and C—except AT is a non-epoxy product formulated for fast cure time); NSF/ANSI Standard 61 (11 in^2/1000 gal)

Installation Instructions: See pages 166–168.

Shelf Life: 12 months from date of manufacture in unopened cartridge.

Storage Conditions: For best results store between 32°F – 80°F. Partially used cartridges can be stored for a limited time by leaving nozzle in place. To re-use, attach new nozzle.

How Many Cartridges Do You Need?
See pages 169–170 or get the App at ***www.strongtie.com/anchorapps***.

The performance of this product results from its unique formulation which is proprietary to Simpson Strong-Tie. The product may also be protected by one or more of U.S. Pats. 5,643,994; 5965,635; 6,228,207, licensed from ITW.

When the concrete temperature is at or below freezing, ensure any holes drilled in advance are free of frost or ice.

AT Adhesive
1 mixing nozzle included with each cartridge

AT Adhesive Cartridge Systems

Model No.	Capacity (ounces)	Carton Quantity
AT13	12.5	10
AT30	30	5

Cure Schedule

Base Material Temperature		Cure Time (hrs.)
°F	°C	
0	-18	24
25	-4	8
40	4	4
60	16	1
70	21	30 min.
100	38	20 min.

For water-saturated concrete (including damp and water-filled holes), the cure times must be doubled.

UPDATED 3/1/14

(This page has been updated since printing)

Complementary Products

AT13 Adhesive
12.5 oz. Cartridge

- **AMN19Q** – Adhesive mixing nozzle (page 121) (1 included)

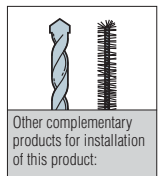
- **ADT813S** – Manual dispensing tool for 12.5 oz. cartridges (page 120)

AT30 Adhesive
30 oz. Cartridge

- **AMN19Q** – Adhesive mixing nozzle (page 121) (1 included)

- **ADT30S** – Manual dispensing tool for 30 oz. cartridges (page 120)

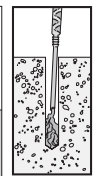
- **ADTA30P** – Pneumatic dispensing tool for 30 oz. acrylic adhesive dispensing cartridges (page 120)



Other complementary products for installation of this product:

Drill Bits: pages 128–141

Adhesive Accessories: pages 118–127



Installation instructions: pages 166–168

General Purpose

UPDATED 3/1/14

SET® Anchoring Adhesive

SET® is a high-strength, non-shrink epoxy-based adhesive for anchoring and doweling threaded rod or rebar. Resin and hardener are dispensed and mixed simultaneously through the mixing nozzle.

Features:

- Code-listed under the current IBC/IRC for URM (red brick) per ICC-ES ESR-1772
- Cure times: 24 hours at 65°F, 72 hours at 40°F
- Easy hole-cleaning procedure—no power brushing required
- Suitable for use in damp or wet anchor sites
- When properly mixed, adhesive will be a uniform gray color
- Available in 1.7 oz., 22 oz., and 56 oz., cartridges for application versatility
- Made in the USA

Applications:

- Threaded rod anchoring and rebar doweling into concrete and masonry
- Threaded rod anchoring and rebar doweling into URM (red brick)
- Pick-proof sealant around doors, windows and fixtures
- Paste-over for crack injection preparation
- Bonding hardened concrete to hardened concrete
- CalTrans and multiple DOT listings, refer to ***www.strongtie.com/DOT*** for current approvals

Codes: ICC-ES ESR-1772 (URM); City of Los Angeles RR25279; Florida FL 15730.5; ASTM C 881 (Type I, II and IV, Grade 3, Classes B and C); NSF/ANSI Standard 61 (216 in^2/1000 gal) – except SET1.7KTA

Installation Instructions: See pages 166–168.

Shelf Life: 24 months from date of manufacture in unopened side-by-side cartridge.

Storage Conditions: For best results store between 45°F–90°F. To store partially used cartridges, leave hardened nozzle in place. To re-use attach new nozzle.

How Many Cartridges Do You Need?
See pages 171–174 or get the App at ***www.strongtie.com/anchorapps***.

Contact Simpson Strong-Tie at 800-999-5099 for bulk options.

SET® Adhesive

SET1.7KTA

SET1.7KTA is not suitable for screen tube installations.

SET Cartridge System

Model No.	Capacity ounces	Carton Quantity
SET1.7KTA	1.7	12
SET22	22	10
SET56	56	6

Cure Schedule

Base Material Temperature		Cure Time (hrs.)
°F	°C	
40	4	72
65	18	24
85	29	20
90	32	16

For water-saturated concrete (including damp and water-filled holes), the cure times must be doubled.

Complementary Products

SET22 Adhesive
22 oz. Cartridge

- **EMN22i** – Epoxy adhesive mixing nozzle (page 121)

- **EDT22S** – Manual dispensing tool for 22 oz. cartridges (page 119)

- **EDT22CKT** – Battery-powered dispensing tool for 22 oz. cartridges (page 119)

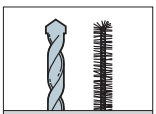
- **EDTA22P** – Pneumatic dispensing tool for 22 oz. cartridges (page 119)

SET56 Adhesive
56 oz. Cartridge

- **EMN50** – High-flow epoxy adhesive mixing nozzle (page 121)

- **EMN22i** – Epoxy adhesive mixing nozzle (page 121)

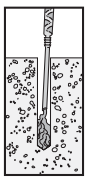
- **EDTA56P** – Pneumatic dispensing tool for 56 oz. cartridges (page 119)



Other complementary products for installation of this product:

Drill Bits: pages 128–141

Adhesive Accessories: pages 118–127



Installation instructions: pages 166–168

General Purpose

EDOT™ Anchoring Adhesive

Formulated specifically for transportation projects, EDOT™ is a two-component, high-solids epoxy system. It is designed for use as a high-strength, non-shrink anchor grouting material providing an economical and high-strength solution for transportation applications. Visit ***www.strongtie.com/dot*** for specific state DOT approvals.

Features:

- Meets ASTM C 881 and AASHTO M235 specifications for Type I, II, IV and V, Grade 3, Class C
- Cure times: 24 hours at 60°F, 72 hours at 40°F
- Easy hole-cleaning procedure—no power brushing required
- Suitable for use in damp or wet anchor sites
- When properly mixed, adhesive will be a uniform tan color
- Available in 22 oz. and 56 oz., cartridges for application versatility
- Available in 1, 10, and 100 gallon bulk kits
- Made in the USA

Applications:

- Threaded rod anchoring and rebar doweling into concrete
- Multiple DOT listings, refer to ***www.strongtie.com/DOT*** for current approvals

Installation Instructions: See pages 166–168. For installations in damp holes, see page 167 for details.

Shelf Life: 24 months from date of manufacture in unopened container.

Storage Conditions: For best results, store between 45°F–90°F. To store partially used cartridges, leave hardened nozzle in place. To re-use, attach new nozzle.

How Many Cartridges Do You Need?
See pages 171–174 or get the App at ***www.strongtie.com/anchorapps***.

EDOT™ Adhesive

EDOT Package Systems

Model No.	Capacity	Carton Quantity
EDOT22	22 ounces	10
EDOT56	56 ounces	6
EDOT1KT	1 gallon kit	1 kit
EDOT10KT	10 gallon kit	1 kit
EDOT100KT	100 gallon kit	1 kit

Cure Schedule

Base Material Temperature		Cure Time
°F	°C	
40	4	72 hrs
60	16	24 hrs
80	27	24 hrs
100	38	24 hrs

Pot Life for 1 Gallon Mixed

Adhesive Temperature		Pot Life time (min)
°F	°C	
60	16	60
70	21	35
80	27	25
90	32	15
100	38	10

Complementary Products

EDOT22 Adhesive
22 oz. Cartridge

EDOT56 Adhesive
56 oz. Cartridge

EDOT1KT
1 Gallon Kit

- **EMN22i** – Epoxy adhesive mixing nozzle (page 121)

- **EMN50** – High-flow epoxy adhesive mixing nozzle (page 121)

- **EDT22S** – Manual dispensing tool for 22 oz. cartridges (page 119)

- **EMN22i** – Standard epoxy adhesive mixing nozzle (page 121)

EDOT10KT
10 Gallon Kit

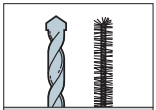
- **EDT22CKT** – Battery-powered dispensing tool for 22 oz. cartridges (page 119)

- **EDTA56P** – Pneumatic dispensing tool for 56 oz. cartridges (page 119)

- For bulk applications, use the EMN37A bulk mixing nozzle

A 100-gallon kit (EDOT100KT) is also available. Contact Simpson Strong-Tie for more information.

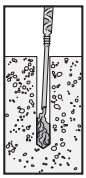
- **EDTA22P** – Pneumatic dispensing tool for 22 oz. cartridges (page 119)



Other complementary products for installation of this product:

Drill Bits: pages 128–141

Adhesive Accessories: pages 118–127



Installation instructions: pages 166–168

General Purpose

Titen HD® Rod Coupler Threaded Rod Anchors for Concrete Foundation

The Titen HD® rod coupler anchor is designed to be used in conjunction with a single- or multi-story rod tie-down system. This anchor provides a fast and simple way to attach threaded rod to a concrete stem wall or thickened slab footing. Unlike adhesive anchors, the installation requires no special tool, cure time or secondary setting process – just drill a hole and drive the anchor.

Titen HD®
Rod Coupler
U.S. Patent
5,674,035 & 6,623,228

Features:

- The serrated cutting teeth and patented thread design enable the Titen HD rod coupler to be installed quickly and easily. Less installation time translates to lower installed cost
- The specialized heat treating process creates tip hardness to facilitate cutting while the body remain ductile
- Compatible with threaded rods in ⅜" and ½" diameters

Material: Carbon steel, heat treated

Finish: Zinc plated

Installation Instructions:

Caution: Oversized holes in the base material will reduce or eliminate the mechanical interlock of the threads with base material and will reduce the anchor's load capacity. Use a Titen HD® Rod Coupler one time only. Installing the anchor multiple times may result in excessive thread wear and reduce load capacity.

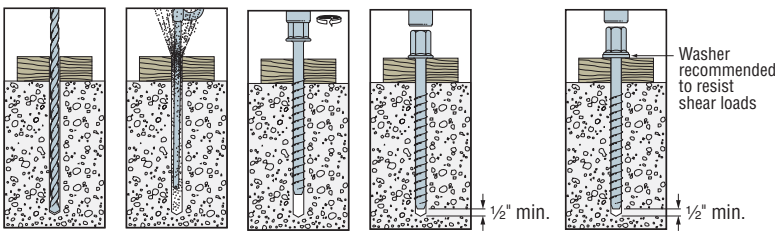
- Drill a hole using the specified diameter carbide bit into the base material to a depth of at least ½" deeper than the required embedment.
- Blow the hole clean of dust and debris using compressed air. Overhead application need not be blown clean.
- Tighten the anchor with appropriate size socket until the head sits flush against base material.

Titen HD Rod Coupler Product Data

Size (in.)	Model No.	Drill Bit Diameter (in.)	Wrench Size (in.)	Quantity	
				Box	Carton
⅜ x 6¾[1]	THD37634RC	⅜	9⁄16	50	100
½ x 9¾[1]	THD50934RC	½	¾	20	40

1. Length is measured from the underside of the coupler.

Installation Sequence



Titen HD® Mini Screw Anchor for Concrete and Masonry

The Titen HD® Mini is an anchor for concrete and masonry. Similar to the larger Titen HD® screw anchor (page 20), the Titen HD® Mini anchor provides an easy solution for jobs that call for smaller anchors and in situations where minimum edge distance and reduced anchor spacing is a concern. The Titen HD Mini can be installed much more easily and quickly than traditional expansion anchors due to the anchor's patented cutting teeth and thread design and the elimination of secondary setting steps.

U.S. Patent 5,674,035 & 6,623,228

Features:

- Specialized heat-treating process creates tip hardness to facilitate cutting while the body remains ductile
- Less spacing and edge distance required since the anchor does not exert expansion forces
- No special installation tools required – holes can be drilled with rotary hammer or hammer drill with ANSI size bit. Anchors are installed with standard size sockets
- Less installation time translates to lower installed cost
- Removable, ideal for temporary anchorage

Material: Carbon steel, heat treated

Finish: Zinc plated

Installation:

Caution: Oversized holes in the base material will reduce or eliminate the mechanical interlock of the threads with base material and will reduce the anchor's load capacity. Use a Titen HD Mini screw anchor one time only. Installing the anchor multiple times may result in excessive thread wear and reduce load capacity.

Titen HD® Mini Anchor Product Data

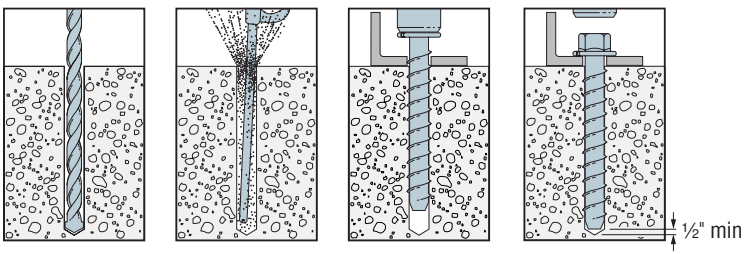
Size	Model No.	Drill Bit Dia (in.)	Wrench Size (in.)	Quantity	
				Box	Ctn.
¼" x 1¾"	THD25134H	¼	⅜	100	500
¼" x 2¼"	THD25214H	¼	⅜	50	250
¼" x 3"	THD25300H	¼	⅜	50	250
⅜" x 1¾"	THD37134H	⅜	9⁄16	50	250
⅜" x 2½"	THD37212H	⅜	9⁄16	50	200

- 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 plus ½" minimum to allow the thread tapping dust to settle and blow it clean using compressed air. Overhead installations need not be blown clean. Alternatively, drill the hole deep enough to accommodate embedment depth and dust from drilling and tapping.
- Insert the anchor through the fixture and into the hole.
- Important: Install with an applied torque of 15 ft.-lbs. for the ¼" Titen HD Mini and 25 ft-lbs for the ⅜" Titen HD Mini using a torque wrench, driver drill, hammer drill or cordless ¼" impact driver with a maximum permitted torque rating of 100 ft.-lb.

Hole Dimensions

Diameter (in.)	Wrench Size (in.)	Fixture Hole (in.)
¼	⅜	⅜ to 7⁄16
⅜	9⁄16	½ to 9⁄16

Installation Sequence



Wedge-All® Wedge Anchors

The Wedge-All® wedge anchor is a non-bottom-bearing, wedge-style expansion anchor for use in solid concrete or grout-filled concrete masonry. Threaded studs are set by tightening the nut and are code-listed for grout-filled masonry applications only. The tie-wire version is set with the claw end of a hammer and is not code-listed.

Wedge-All® Anchor

Tie-Wire Anchor
(Zinc plate only)

Features:

- One-piece, wrap-around clip that ensures uniform holding capacity that increases as tension is applied
- Threaded end is chamfered for ease of starting nut
- Most sizes feature full thread for added versatility
- Threaded stud version is available in eight diameters and multiple lengths

Codes: ICC-ES ESR-1396 (CMU); City of L.A. RR24682; Factory Mutual 3017082 and 3031136; Florida FL 15730; Underwriters Laboratories File Ex3605; Meets requirements of Federal Specifications A-A-1923A, Type 4. The Tie-Wire anchor is not code listed.

Material: Carbon and stainless steel

Finish: Carbon steel anchors are available in zinc plated or mechanically galvanized

Installation:

- Holes in metal fixtures to be mounted should exceed nominal anchor diameter by 1⁄16" for 1⁄4" through 5⁄8" diameter anchors and by 1⁄8" for all other diameters.
- Do not use an impact wrench to set or tighten the Wedge-All.

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

Threaded studs:

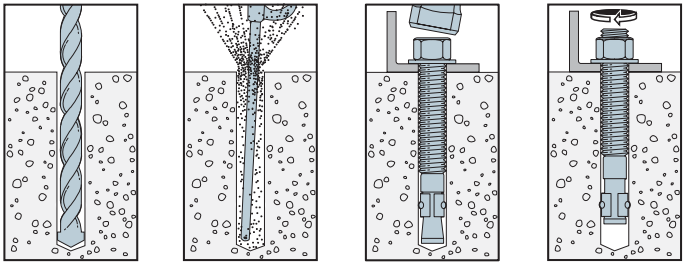
- Drill a hole in the base material using a carbide drill bit the same diameter as the nominal diameter of the anchor to be installed. Drill the hole to the specified embedment depth and blow it clean using compressed air. Overhead installations need not be blown clean. Alternatively, drill the hole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

Tie-Wire:

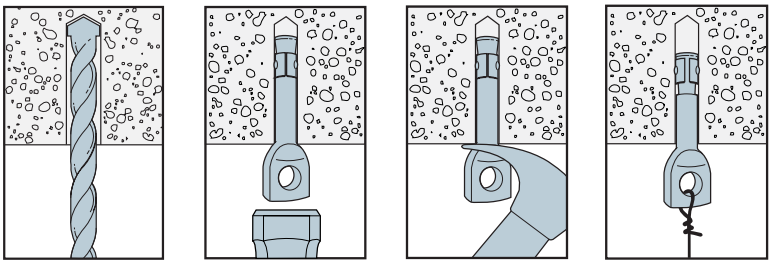
- Drill a hole at least 1 1⁄2" deep using a 1⁄4" diameter carbide tipped bit.
- Drive the anchor into the hole until the head is seated against the base material.
- Set the anchor by prying/pulling the head with the claw end of the hammer.

For additional suggested specifications, see the Simpson Strong-Tie® *Anchoring and Fastening Systems for Concrete and Masonry* catalog.

Wedge-All® Anchor Installation Sequence



Tie-Wire Anchor Installation Sequence



Wedge-All® Anchor Installation Data

Wedge-All Dia. (in.)	¼	⅜	½	⅝	¾	⅞	1	1¼
Bit Size (in.)	¼	⅜	½	⅝	¾	⅞	1	1¼
Min. Fixture Hole (in.)	5⁄16	7⁄16	9⁄16	11⁄16	⅞	1	1⅛	1⅜
Wrench Size (in.)	7⁄16	9⁄16	¾	15⁄16	1⅛	1 5⁄16	1½	1⅞

Wedge-All® Anchor Product Data
Carbon Steel: Zinc Plated and Mechanically Galvanized

Size (in.)	Carbon Steel Model No.	Mechanically Galvanized Model No.	Drill Bit Dia. (in.)	Thread Length (in.)	Quantity	
					Box	Carton
¼ x 1½	TWD251124	—	¼	Hole dia. is 9/32	100	500
⅜ x 2¼	WA37214	WA37214MG	⅜	1⅛	50	250
⅜ x 2¾	WA37234	WA37234MG		1⅝	50	250
⅜ x 3	WA37300	WA37300MG		1⅞	50	250
⅜ x 3½	WA37312	WA37312MG		2½	50	250
⅜ x 3¾	WA37334	WA37334MG		2⅝	50	250
⅜ x 5	WA37500	WA37500MG		3⅞	50	200
⅜ x 7	WA37700	WA37700MG		5⅞	50	200
½ x 2¾	WA50234	WA50234MG	½	1 5/16	25	125
½ x 3¾	WA50334	WA50334MG		2 5/16	25	125
½ x 4¼	WA50414	WA50414MG		2 13/16	25	100
½ x 5½	WA50512	WA50512MG		4 1/16	25	100
½ x 7	WA50700	WA50700MG		4 9/16	25	100
½ x 8½	WA50812	WA50812MG		6	25	50
½ x 10	WA50100	WA50100MG		6	25	50
½ x 12	WA50120	WA50120MG		6	25	50
⅝ x 3½	WA62312	WA62312MG	⅝	1⅞	20	80
⅝ x 4½	WA62412	WA62412MG		2⅞	20	80
⅝ x 5	WA62500	WA62500MG		3⅜	20	80
⅝ x 6	WA62600	WA62600MG		4⅜	20	80
⅝ x 7	WA62700	WA62700MG		5⅜	20	80
⅝ x 8½	WA62812	WA62812MG		6	20	40
⅝ x 10	WA62100	WA62100MG		6	10	20
⅝ x 12	WA62120	WA62120MG		6	10	20
¾ x 4¼	WA75414	WA75414MG	¾	2⅜	10	40
¾ x 4¾	WA75434	WA75434MG		2⅞	10	40
¾ x 5½	WA75512	WA75512MG		3⅝	10	40
¾ x 6¼	WA75614	WA75614MG		4⅜	10	40
¾ x 7	WA75700	WA75700MG		5⅛	10	40
¾ x 8½	WA75812	WA75812MG		6	10	20
¾ x 10	WA75100	WA75100MG		6	10	20
¾ x 12	WA75120	WA75120MG		6	5	10
⅞ x 6	WA87600	WA87600MG	⅞	2⅛	5	20
⅞ x 8	WA87800	WA87800MG		2⅛	5	10
⅞ x 10	WA87100	WA87100MG		2⅛	5	10
⅞ x 12	WA87120	WA87120MG		2⅛	5	10
1 x 6	WA16000	WA16000MG	1	2¼	5	20
1 x 9	WA19000	WA19000MG		2¼	5	10
1 x 12	WA11200	WA11200MG		2¼	5	10
1¼ x 9	WA12590	—	1¼	2¾	5	10
1¼ x 12	WA12512	—		2¾	5	10

1. The published length is the overall length of the anchor. Allow one anchor diameter for the nut and washer thickness plus the fixture thickness when selecting the minimum length.
2. Special lengths are available on request. Load values are valid as long as minimum embedment depths are satisfied.
3. Tie-Wire Wedge-All® anchor, overall length is 2".
4. Bulk packaged Wedge-All® anchors available, call Simpson Strong-Tie® for details.

Material Specifications

Carbon Steel - Zinc Plated			
Component Materials			
Anchor Body	Nut	Washer	Clip
Material Meets minimum 70,000 psi tensile strength	Carbon Steel ASTM A563, Grade A	Carbon Steel	Carbon Steel

Material Specifications

Carbon Steel - Mechanically Galvanized[1]			
Component Materials			
Anchor Body	Nut	Washer	Clip
Material Meets minimum 70,000 psi tensile strength	Carbon Steel ASTM A563, Grade A	Carbon Steel	Carbon Steel

1. Mechanical Galvanizing meets ASTM B695, Class 55, Type 1.

Wedge-All® Anchor Product Data - Stainless Steel

Size (in.)	304/303 Stainless Model No.[1]	316 Stainless Model No.[2]	Drill Bit Dia. (in.)	Thread Length (in.)	Standard Quantity	
					Box	Carton
⅜ x 2¼	WA372144**SS**	WA372146**SS**	⅜	1⅛	50	250
⅜ x 2¾	WA372344**SS**	WA372346**SS**		1⅝	50	250
⅜ x 3	WA373004**SS**	WA373006**SS**		1⅞	50	250
⅜ x 3½	WA373124**SS**	WA373126**SS**		2½	50	250
⅜ x 3¾	WA373344**SS**	WA373346**SS**		2⅝	50	250
⅜ x 5	WA375004**SS**	WA375006**SS**		3⅞	50	200
⅜ x 7	WA377004**SS**	WA377006**SS**		5⅞	50	200
½ x 2¾	WA502344**SS**	WA502346**SS**	½	1 5⁄16	25	125
½ x 3¾	WA503344**SS**	WA503346**SS**		2 5⁄16	25	125
½ x 4¼	WA504144**SS**	WA504146**SS**		2 13⁄16	25	100
½ x 5½	WA505124**SS**	WA505126**SS**		4 1⁄16	25	100
½ x 7	WA507004**SS**	WA507006**SS**		5 9⁄16	25	100
½ x 8½	WA50812**SS**	WA508123**SS**		2	25	50
½ x 10	WA50100**SS**	WA501003**SS**		2	25	50
½ x 12	WA50120**SS**	WA501203**SS**		2	25	50
⅝ x 3½	WA623124**SS**	WA623126**SS**	⅝	1⅞	20	80
⅝ x 4½	WA624124**SS**	WA624126**SS**		2⅞	20	80
⅝ x 5	WA625004**SS**	WA625006**SS**		3⅜	20	80
⅝ x 6	WA626004**SS**	WA626006**SS**		4⅜	20	80
⅝ x 7	WA627004**SS**	WA627006**SS**		5⅜	20	80
⅝ x 8½	WA62812**SS**	WA628123**SS**		2	20	40
⅝ x 10	WA62100**SS**	WA621003**SS**		2	10	20
⅝ x 12	WA62120**SS**	WA621203**SS**		2	10	20
¾ x 4¼	WA754144**SS**	WA754146**SS**	¾	2⅜	10	40
¾ x 4¾	WA754344**SS**	WA754346**SS**		2⅞	10	40
¾ x 5½	WA755124**SS**	WA755126**SS**		3⅝	10	40
¾ x 6¼	WA756144**SS**	WA756146**SS**		4⅜	10	40
¾ x 7	WA757004**SS**	WA757006**SS**		5⅛	10	40
¾ x 8½	WA75812**SS**	WA758123**SS**		2¼	10	20
¾ x 10	WA75100**SS**	WA751003**SS**		2¼	10	20
¾ x 12	WA75120**SS**	WA751203**SS**		2¼	5	10
⅞ x 6	WA87600**SS**	WA876003**SS**	⅞	2⅛	5	20
⅞ x 8	WA87800**SS**	WA878003**SS**		2⅛	5	10
⅞ x 10	WA87100**SS**	WA871003**SS**		2⅛	5	10
⅞ x 12	WA87120**SS**	—		2⅛	5	10
1 x 6	WA160003**SS**	WA160003**SS**	1	2¼	5	20
1 x 9	WA190003**SS**	WA190003**SS**		2¼	5	10
1 x 12	WA112003**SS**	WA112003**SS**		2¼	5	10

1. Anchors with the "SS" suffix in the model number are manufactured from type 303 stainless steel, the remaining anchors (with the "4SS" suffix) are manufactured from type 304 stainless steel. 303 stainless anchors may require extra lead time, call factory for details. Types 303 and 304 stainless steel perform equally well in certain corrosive environments.
2. Anchors with the "3SS" suffix in the model number may require extra lead time. Call Simpson Strong-Tie for details.
3. These package quantities available in type 303 stainless steel only.
4. The published length is the overall length of the anchor. Allow one anchor diameter for the nut and washer thickness plus the fixture thickness when selecting a length.
5. Special lengths are available on request. Load values are valid as long as minimum embedment depths are satisfied.

Material Specifications

304/303 Stainless Steel[1]			
Component Materials			
Anchor Body	Nut	Washer	Clip
Type 303 and 304 Stainless Steel	Type 18-8 Stainless Steel	Type 18-8 Stainless Steel	Type 304 or 316 Stainless Steel

1. Type 303 and 304 stainless steels perform equally well in certain corrosive environments. Larger sizes are manufactured from type 303.

Material Specifications

316 Stainless Steel[1]			
Component Materials			
Anchor Body	Nut	Washer	Clip
Type 316 Stainless Steel	Type 316 Stainless Steel	Type 316 Stainless Steel	Type 304 or 316 Stainless Steel

1. Type 316 stainless steel provides the greatest degree of corrosion resistance offered by Simpson Strong-Tie®.

Sleeve-All® sleeve anchors are pre-assembled expanding sleeve anchors for use in all types of solid base materials. These anchors are available in acorn, hex, rod coupler or flat-head styles for a wide range of applications.

Material: Carbon and stainless steel

Finish: Zinc plated (carbon steel)

Codes: Factory Mutual 3017082, 3026805 and 3029959, ⅜"–¾" dia.; Underwriters Laboratories File Ex3605, ⅜"–¾" dia. Meets requirements of Federal Specifications A-A-1922A. The load tables include values based upon results from the most recent testing and may not reflect those in the current code reports. Where code jurisdictions apply, consult the current reports for applicable load values.

Acorn

Hex

Flat
(Phillips Head)

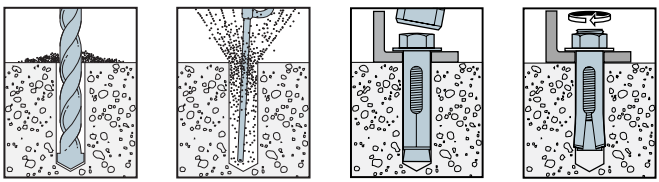
Rod Coupler

Installation:

Caution: Oversized holes 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 embedment depth and dust from drilling.
- Place the anchor in the fixture and drive into the hole until the washer and nut are tight against fixture.
- Tighten to required installation torque.

Sleeve-All Anchor Installation Sequence



Material Specifications

Anchor Component	Zinc Plated Carbon Steel	304 Stainless Steel
Anchor Body	Material meets minimum 50,000 psi tensile	Type 304
Sleeve	SAE J403, Grade 1008 Cold Rolled Steel	Type 304
Nut	Commercial Grade, meets requirements of ASTM A563 Grade A	Type 304
Washer	SAE J403, Grade 1008/1010 Cold Rolled Steel	Type 304

Sleeve-All® Anchor Installation Data

Sleeve-All Dia. (in.)	¼	5⁄16	⅜	½	⅝	¾
Bit Size (in.)	¼	5⁄16	⅜	½	⅝	¾
Wrench Size[1] (in.)	⅜	7⁄16	½	9⁄16	¾	15⁄16
Wrench Size for Coupler Nut (in.)			½	⅝	¾	–

1. Applies to Acorn and Hex head configurations only.

Sleeve-All® Anchor Product Data–Zinc-Plated Carbon Steel

Size (in.)	Model No.	Head Style	Bolt Diameter – Threads per inch	Max. Fixture Thickness (in.)	Quantity	
					Box	Carton
¼ x 1 ⅜	SL25138A	Acorn Head	⅜–24	¼	100	500
¼ x 2 ¼	SL25214A			1 ⅛	100	500
⅝ x 1 ½*	SL31112H	Hex Head	¼–20	⅜	100	500
⅝ x 2 ½	SL31212H			1 1⁄16	50	250
⅜ x 1 ⅞	SL37178H		⅝–18	⅜	50	250
⅜ x 3	SL37300H			1 ½	50	200
⅜ x 4	SL37400H			2 ¼	50	200
½ x 2 ¼*	SL50214H		⅜–16	½	50	200
½ x 3	SL50300H			¾	25	100
½ x 4	SL50400H			1 ¾	25	100
½ x 6	SL50600H			3 ⅜	20	80
⅝ x 2 ¼*	SL62214H		½–13	½	25	100
⅝ x 3	SL62300H			¾	20	80
⅝ x 4 ¼	SL62414H			1 ½	10	40
⅝ x 6	SL62600H			3 ¼	10	40
¾ x 2 ½*	SL75212H		⅝–11	½	10	40
¾ x 4 ¼	SL75414H			⅞	10	40
¾ x 6 ¼	SL75614H			2 ⅞	5	20
¼ x 2	SL25200PF	Phillips Flat Head	⅜–24	⅞	100	500
¼ x 3	SL25300PF			1 ⅞	50	250
⅝ x 2 ½	SL31212PF		¼–20	1 1⁄16	50	250
⅝ x 3 ½	SL31312PF			2 1⁄16	50	250
⅜ x 2 ¾	SL37234PF		⅝–18	1 ¼	50	200
⅜ x 4	SL37400PF			2 ½	50	200
⅜ x 5	SL37500PF			3 ½	50	200
⅜ x 6	SL37600PF			4 ½	50	200

*These models do not meet minimum embedment requirements for rated load values.

Sleeve-All® Anchor Product Data – Stainless Steel

Size (in.)	Model No.	Head Style	Bolt Diameter – Threads per inch	Max. Fixture Thickness (in.)	Quantity	
					Box	Carton
¼ x 2 ¼	SL2514PFSS	Philips Flat Head	⅜–24	1 ⅛	100	500
⅜ x 1 ⅞	SL37178HSS	Hex Head	⅝–18	⅜	50	250
⅜ x 3	SL37300HSS			1 ½	50	200
½ x 3	SL50300HSS		⅜–16	¾	25	100
½ x 4	SL50400HSS			1 ¾	25	100

Sleeve-All® Anchor (with rod coupler) Product Data – Zinc-Plated Carbon Steel

Size (in.)	Model No.	Accepts Rod Dia. (in.)	Wrench Size	Quantity	
				Box	Carton
⅜ x 1 ⅞	SL37178C	⅜	½	50	200
½ x 2 ¼	SL50214C	½	⅝	25	100
⅝ x 2 ¼	SL62214C	⅝	¾	20	80

Drop-In Internally Threaded Expansion Shell Anchor

Drop-in anchors are internally threaded drop-in expansion anchors for use in flush-mount applications in solid base materials.

Drop-In

Lipped Drop-In

Short Drop-In

Coil-Thread Drop-In

Features:

- Lip at the top of the anchor body keeps the top of the anchor flush with the concrete
- Available in coil-threaded versions for ½" and ¾" coil-threaded rod
- Eliminates the need for precisely drilled hole depths and enables an easier flush installation, consistent embedment and uniform rod lengths
- Minimum thread engagement should be equal to the nominal diameter of the threaded insert

Codes: Drop-In: City of L.A. RR24682; Factory Mutual 3017082; Underwriters Laboratories File Ex3605. The product meets requirements of Federal Specifications A-A-55614, Type I. Short Drop-In: Factory Mutual 3017082 & Underwriters Laboratories File Ex3605.

Material: Carbon and stainless steel (DIA37S available in zinc-plated, carbon steel only)

Finish: Carbon steel: Zinc plated

Installation:

- Drill a hole in the base material using the appropriate diameter carbide drill bit as specified in the Drop-In Anchor Setting Tool Product Data table.
- Drill the hole to the specified embedment depth plus ⅛" for flush mounting.
- Blow the hole clean using compressed air. Overhead installations need not be blown clean.

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

- Insert designated anchor into hole. Tap with hammer until flush against surface.
- 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.

For additional suggested specifications, please see the Anchoring and Fastening Systems for Concrete and Masonry catalog.

Short Drop-In

Drop-in anchors are internally threaded, deformation-controlled expansion anchors with a pre-assembled expander plug, suitable for flush mounting in solid base materials. A ½" diameter Short Drop-In anchor complements the existing ⅜" diameter offering for solid and hollow concrete applications.

Features:

- Short length enables shallow embedment that helps avoid drilling into rebar or pre-stressed or post-tensioned cables.
- Lipped edge enables consistent embedment that contributes to uniform rod lengths and installation into deep and bottomless holes
- Lipped edge eliminates the need for precisely drilled hole depths
- Each box includes a setting tool compatible with the anchor to ensure consistent installation

Material: Carbon steel

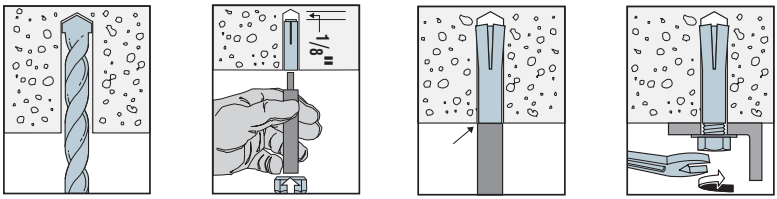
Finish: Zinc plated

Material Specifications

Anchor Component	Component Material		
	Zinc Plated Carbon Steel	Type 303 Stainless Steel	Type 316 Stainless Steel
Anchor Body	Meets minimum 70,000 psi tensile	AISI 303. Meets chemical requirements of ASTM A-582	Type 316
Expander Plug	Meets minimum 50,000 psi tensile	AISI 303	Type 316
Thread	UNC 2B/Coil-thread	UNC 2B	UNC 2B

Note: DIA37S, DIA50C and DIA75C are not available in stainless steel.

Installation Sequence (Short Drop-In anchor similar)



Drop-In Anchor Product Data - Carbon and Stainless Steel

Rod Size (in.)	Carbon Steel Model No.	303 Stainless Model No.	316 Stainless Model No.	Drill Bit Diameter (in.)	Bolt Threads (per in.)	Body Length (in.)	Thread Length (in.)	Quantity	
								Box	Ctn.
¼	DIA25	DIA25**SS**	DIA25**6SS**	⅜	20	1	⅜	100	500
⅜	DIA37	DIA37**SS**	DIA37**6SS**	½	16	1½	⅝	50	250
½	DIA50	DIA50**SS**	DIA50**6SS**	⅝	13	2	¾	50	200
⅝	DIA62	DIA62**SS**	—	⅞	11	2½	1	25	100
¾	DIA75	DIA75**SS**	—	1	10	3⅛	1¼	20	80

Drop-In Anchor

Lipped Drop-In Anchor Product Data

Rod Size (in.)	Carbon Steel Model No.	Drill Bit Diameter (in.)	Bolt Threads (per in.)	Body Length (in.)	Thread Length (in.)	Quantity	
						Box	Carton
¼	DIAL25	⅜	20	1	⅜	100	500
⅜	DIAL37	½	16	1½	⅝	50	250
½	DIAL50	⅝	13	2	¾	50	200

Lipped Drop-In Anchor

Short Drop-In Anchor Product Data

Rod Size (in.)	Carbon Steel Model No.	Drill Bit Diameter (in.)	Bolt Threads (per in.)	Body Length (in.)	Thread Length (in.)	Quantity	
						Box	Carton
⅜	DIA37S[1]	½	16	¾	¾	100	500
½	DIA50S[1]	⅝	13	1	1 ¼	50	200

1. A dedicated setting tool is included with each box of the DIA37S and DIA50S.

Short Drop-In Anchor

Coil-Thread Drop-In Anchor Product Data

Rod Size (in.)	Carbon Steel Model No.	Drill Bit Diameter (in.)	Bolt Threads (per in.)	Body Length (in.)	Thread Length (in.)	Quantity	
						Box	Carton
½	DIA50C[1]	⅝	6	2	¼	50	200
¾	DIA75C[1]	1	5	3 ⅛	5⁄16	20	80

1. DIA50C and DIA75C accept ½" and ¾" coil-thread rod, respectively.

Coil-Thread Drop-In Anchor

Drop-In Anchor Setting Tool Product Data

Model No.	For Use With	Box Qty.
DIAST25	DIA25, DIAL25	10
DIAST37	DIA37, DIAL37	10
DIAST50	DIA50, DIA50C, DIAL50	10
DIAST62	DIA62	5
DIAST75	DIA75, DIA75C	5

1. Setting Tools sold separately except for DIA37S and DIA50S.
2. Setting Tools for use with carbon and stainless steel Drop-In anchors.

Standard Setting Tool

Complimentary Product:

MDPL050DIAS, MDPL062DIAS – Fixed-Depth Drill Bits for the ⅜" and ½" Short Drop-In Anchors

Blue Banger Hanger® internally-threaded inserts are cast into the underside of the concrete deck after being fastened to the top of wood forms or metal deck. Once the concrete has cured, the anchor provides an attachment point for threaded rod used to hang electrical, mechanical and plumbing utilities. Available in versions for metal decks, wood forms and roof decks, the Blue Banger Hanger insert is the only pre-pour insert to offer the patented multi-thread design which allows one size insert to handle multiple diameters of threaded rod.

Blue Banger Hanger®
Metal Deck Insert (BBMD)
U.S. Patent 6,240,697B1

Features:

- Quick and easy installation saves time and money with no assembly required
- Patented multi-thread design enables each hanger to accept multiple diameters of threaded rod. Three sizes of hangers can handle all applications, reducing contractor and distributor inventories
- Multi-thread design enables threaded rod size to be changed after the anchor is in the concrete
- Machined steel insert with large flanged head provides high tension and shear loads for overhead attachments
- Positive attachment to form keeps the hanger vertical and in the correct position
- Internal threads eliminate the cost of rod couplers
- Head stamped with the Simpson Strong-Tie® "≠" symbol for easy identification before the concrete pour

Blue Banger Hanger®
Roof Deck Insert (BBRD)
U.S. Patent 6,240,697B1

Material: Carbon steel

Finish: Yellow-zinc dichromate

Codes: Factory Mutual 3024378 (except roof deck insert); Underwriters Laboratories File EX3605 (except roof deck insert)

Blue Banger Hanger®
Wood Form Insert (BBWF)
U.S. Patent 6,240,697B1

Patented multi-thread design allows one product to handle up to three rod diameters.

Blue Banger Hanger Product Data

Hanger Type	For Rod Diameter (in.)	Deck Hole Diameter (in.)	Model No.	Carton Qty.
Metal Deck Insert	¼, ⅜, ½	13⁄16–⅞	BBMD2550	100
	⅜, ½, ⅝	1 ⅛–1 3⁄16	BBMD3762	50
	⅝, ¾	1 3⁄16–1 ¼	BBMD6275	50
Roof Deck Insert	¼, ⅜, ½	⅞	BBRD2550	50
Wood Form Insert	¼, ⅜, ½	N/A	BBWF2550	200
	⅜, ½, ⅝		BBWF3762	150
	⅝, ¾		BBWF6275	150

Multiple rod diameters are easily accommodated with the Blue Banger Hanger®.

Blue Banger Hanger® Metal-Deck Insert

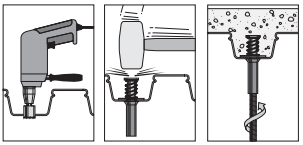
Features:

- 3" plastic sleeve keeps internal threads clean.
- Extended length of the sleeve allows easy location of the insert even with fireproofing on the underside of the deck. Also provides guidance to align threaded rod with the internal threads.
- Installed height of 2" allows the insert to be used on top of, or between, deck ribs. Compression spring keeps the insert perpendicular to the deck, even if it is bumped or stepped on after installation.
- Multi-thread design: Each insert accepts 2–3 rod diameters.

Installation:

- Drill a hole in the metal deck using the appropriate diameter bit as referenced in the table.
- Insert the hanger into the hole and strike the top so that the plastic sleeve is forced through the hole and expands against the bottom side of the deck. The anchor can also be installed by stepping on it.

Metal-Deck
Insert Installation Sequence



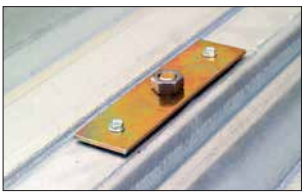
Blue Banger Hanger® Metal-Roof Deck Insert

Features:

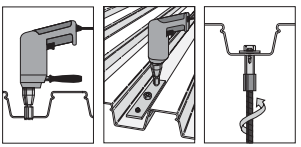
- Low profile design doesn't interfere with roofing material
- Plastic sleeve allows for easy identification and keeps internal threads clean.
- Positive attachment to the roof deck prevents spinning and keeps the hanger in position.
- Pre-staked screws allow quick installation.
- Multi-thread design: The insert accepts 3 rod diameters.

Installation:

- Drill a hole in the metal deck using the appropriate diameter bit as referenced in the table.
- Insert the hanger into the hole and fasten to the deck with the two pre-staked, self-drilling sheet metal screws provided.



Metal-Roof Deck
Insert Installation Sequence



Blue Banger Hanger® Wood-Form Insert

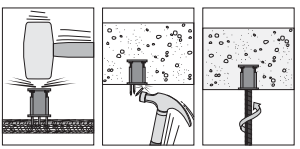
Features:

- Blue plastic ring acts as an insert locator when forms are removed.
- Plastic ring creates a countersunk recess to keep internal threads clean from concrete residue.
- Nails snap off with the swipe of a hammer after the forms are removed.
- Multi-thread design: Each insert accepts 2–3 rod diameters.

Installation:

- Strike the top of the hanger and drive the 3 mounting nails into the forming material until the bottom of the hanger is flush with the plywood. The hanger should be sitting 90° perpendicular to the forming material.
- Once concrete is hardened, and forms are stripped, strike the mounting nails to break them off.

Wood-Form
Insert Installation Sequence



Easy-Set Pin-Drive Expansion Anchor

The Easy-Set is a pin-drive expansion anchor for fastening applications into concrete and grout-filled block. Integrated nut and washer helps keep track of parts.

Material: Anchor body – Hot-rolled steel; Pin – Hot-wrought carbon steel

Finish: Yellow zinc dichromate coating

Installation: Note: Hole in fixture to be mounted must be at least 1⁄16" greater than the anchor diameter.

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

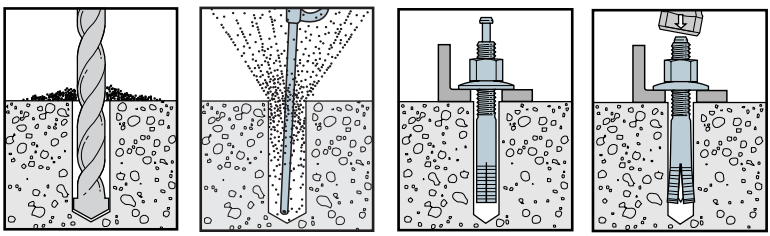
- Drill a hole in the base material using a carbide drill bit the same diameter as the nominal diameter of the anchor to be installed.
- Drill the hole to the specified embedment depth plus ¼" to allow for pin extension and blow it clean using compressed air. Overhead installations need not be blown clean. Alternatively, drill the hole deep enough to accommodate embedment depth and dust from drilling.
- Adjust the nut for required embedment. Place the anchor through the fixture and into the hole.
- Hammer the center pin until the bottom of the head is flush with the top of the anchor.

Easy-Set (EZAC)

EZAC Product Data

Size (in.)	Model No.	Min. Thread Length (in.)	Box Qty.	Carton Qty.
⅜ x 2⅜	EZAC37238	1	50	250
⅜ x 3½	EZAC37312	1⅛	50	250
⅜ x 4¾	EZAC37434	1½	50	200
½ x 2¾	EZAC50234	1	25	125
½ x 3½	EZAC50312	1⅛	25	125
½ x 4¾	EZAC50434	1½	25	100
½ x 6	EZAC50600	2	25	100
⅝ x 4	EZAC62400	1⅝	15	60
⅝ x 4¾	EZAC62434	1⅝	15	60
⅝ x 6	EZAC62600	2	15	60

Installation Sequence



Titen® screws are hardened screws for attaching all types of components to concrete and masonry. These fasteners are commonly used in applications such as attaching electrical boxes, light fixtures or window frames into concrete or masonry base materials.

Features:

- Available in 3⁄16" and ¼" diameter sizes
- Available in hex and Phillips head designs in two colors
- Titen drill bits included with each box
- Warning: Industry studies show that hardened fasteners can experience performance problems in wet or corrosive environments. Accordingly, use these products in dry, interior and non-corrosive environments only.

Material: Heat-treated carbon steel

Finish: Zinc plated with a baked on ceramic coating

Codes: Florida FL 2355

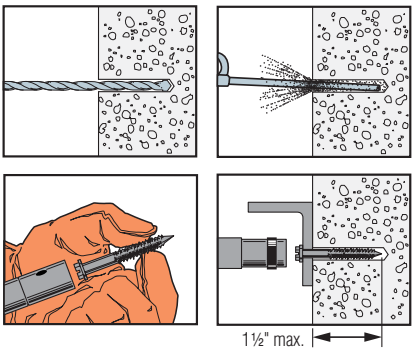
Titen® Phillips Flat Head Screw (PF)

Titen® Hex Head Screw (H)

Installation:

Caution: Industry studies show that hardened fasteners can experience performance problems in wet or corrosive environments. Steps must be taken to prevent inadvertent sustained loads above the listed allowable loads. Overtightening and bending moments can initiate cracks detrimental to the hardened screw's performance. Use the Simpson Strong-Tie installation tool kit as it has a bit that is designed to reduce the potential for overtightening the screw.

Installation Sequence



- 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 ½" to allow the thread tapping dust to settle and blow it clean using compressed air. Overhead installations need not be blown clean. Alternatively, drill the hole deep enough to accommodate embedment depth and dust from drilling and tapping.
- Position fixture, insert screw and tighten using drill and installation tool fitted with a hex socket or Phillips bit. Preservative-treated wood applications: Suitable for use in non-ammonia formulations of CCA, ACQ-C, ACQ-D, CA-B, BX/DOT and zinc borate. Use in dry, interior environments only.
- Use caution not to damage ceramic barrier coating during installation. Recommendations are based on testing and experience at time of publication and may change. Simpson Strong-Tie cannot provide estimates on service life of screws. Contact Simpson Strong-Tie for additional information.

Titen® Phillips head screw available in white and standard blue

General Purpose

Standard Blue Titen® Product Data (3/16" diameter)

Size (in.)	Simpson Strong-Tie Model No.[1]	Bit Diameter (in.)	Quantity	
			Box[2]	Carton[3]
3/16 x 1 1/4	TTN18114H	5/32	100	1600
3/16 x 1 3/4	TTN18134H			500
3/16 x 2 1/4	TTN18214H			500
3/16 x 2 3/4	TTN18234H			500
3/16 x 3 1/4	TTN18314H			400
3/16 x 3 3/4	TTN18334H			400
3/16 x 4	TTN18400H			400
3/16 x 1 1/4	TTN18114PF			1600
3/16 x 1 3/4	TTN18134PF			500
3/16 x 2 1/4	TTN18214PF			500
3/16 x 2 3/4	TTN18234PF			500
3/16 x 3 1/4	TTN18314PF			400
3/16 x 3 3/4	TTN18334PF			400
3/16 x 4	TTN18400PF			400

1. H Suffix: Hex Head, PF Suffix: Phillips Flat Head.
2. One drill bit is included in each box.
3. Cartons consist of boxes of 100.

Standard Blue Titen® Product Data (1/4" diameter)

Size (in.)	Simpson Strong-Tie Model No.[1]	Bit Diameter (in.)	Quantity	
			Box[2]	Carton[3]
1/4 x 1 1/4	TTN25114H	3/16	100	1600
1/4 x 1 3/4	TTN25134H			500
1/4 x 2 1/4	TTN25214H			500
1/4 x 2 3/4	TTN25234H			500
1/4 x 3 1/4	TTN25314H			400
1/4 x 3 3/4	TTN25334H			400
1/4 x 4	TTN25400H			400
1/4 x 5	TTN25500H			400
1/4 x 6	TTN25600H			400
1/4 x 1 1/4	TTN25114PF			1600
1/4 x 1 3/4	TTN25134PF			500
1/4 x 2 1/4	TTN25214PF			500
1/4 x 2 3/4	TTN25234PF			500
1/4 x 3 1/4	TTN25314PF			400
1/4 x 3 3/4	TTN25334PF			400
1/4 x 4	TTN25400PF			400
1/4 x 5	TTN25500PF			400
1/4 x 6	TTN25600PF			400

1. H Suffix: Hex Head, PF Suffix: Phillips Flat Head.
2. One drill bit is included in each box.
3. Cartons consist of boxes of 100.

White Titen® Product Data (Phillips Flat Head)

Size (in.)	Simpson Strong-Tie Model No.	Bit Diameter (in.)	Quantity	
			Box[1]	Carton[2]
3/16 x 1 1/4	TTNW18114PF	5/32	100	1600
3/16 x 1 3/4	TTNW18134PF			500
3/16 x 2 1/4	TTNW18214PF			500
3/16 x 2 3/4	TTNW18234PF			500
3/16 x 3 1/4	TTNW18314PF			400
3/16 x 3 3/4	TTNW18334PF			400
1/4 x 1 1/4	TTNW25114PF	3/16	100	1600
1/4 x 1 3/4	TTNW25134PF			500
1/4 x 2 1/4	TTNW25214PF			500
1/4 x 2 3/4	TTNW25234PF			500
1/4 x 3 1/4	TTNW25314PF			400
1/4 x 3 3/4	TTNW25334PF			400

1. One drill bit is included in each box.
2. Cartons consist of boxes of 100.

Stainless-steel Titen® screws are light-duty fasteners ideal for attaching various types of components to concrete and masonry, such as fastening electrical boxes or light fixtures. These screws offer the versatility of our standard Titen screws with enhanced corrosion protection. Available in hex and Phillips head, the Titen screws are designed for use with appropriately-sized drill bits that are included with each box.

Titen® Stainless-Steel Phillips-Head Screw (PFSS)

Titen® Stainless-Steel Hex-Head Screw (HSS)

Features:

- Suitable for concrete, brick, grout-filled CMU and hollow-block applications
- Suitable for some preservative-treated wood applications
- Available in lengths from 1¼"–4"

Material: Heat-treated type 410 stainless steel

Finish: Zinc plated with a protective overcoat

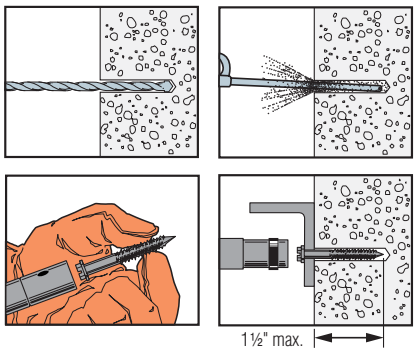
Installation:

Caution: Industry studies show that hardened fasteners can experience performance problems in wet or corrosive environments. Steps must be taken to prevent inadvertent sustained loads above the listed allowable loads. Overtightening and bending moments can initiate cracks detrimental to the hardened screw's performance. Use the Simpson Strong-Tie installation tool kit as it has a bit that is designed to reduce the potential for overtightening the screw.

Caution: Oversized holes in the base material will reduce or eliminate the mechanical interlock of the threads with the base material and will reduce the anchor's load capacity.

- 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 ½" to enable the thread tapping dust to settle and blow it clean using compressed air. Overhead installations need not be blown clean. Alternatively, drill the hole deep enough to accommodate embedment depth and dust from drilling and tapping.
- Position fixture, insert screw and tighten using drill and Titen screw installation tool fitted with a hex socket or Phillips bit.

Installation Sequence



Preservative-treated wood applications: Suitable for use in non-ammonia formulations of CCA, ACQ-C, ACQ-D, CA-B, SBX/DOT and zinc borate. Acceptable for use in exterior environments. Use caution not to damage coating during installation. The 410 stainless-steel Titen with top coat provides "medium" corrosion protection. Recommendations are based on testing and experience at time of publication and may change. Simpson Strong-Tie cannot provide estimates on service life of screws. Contact Simpson Strong-Tie for additional information.

410 Stainless-Steel Titen® Product Data

Size (in.)	Head Style	Simpson Strong-Tie Model No.	Bit Dia. (in.)	Quantity	
				Box	Carton
¼ x 1 ¼	Hex Head	TTN25114HSS	3/16	100	1600
¼ x 1 ¾		TTN25134HSS		100	500
¼ x 2 ¼		TTN25214HSS		100	500
¼ x 2 ¾		TTN25234HSS		100	500
¼ x 3 ¼		TTN25314HSS		100	400
¼ x 3 ¾		TTN25334HSS		100	400
¼ x 4		TTN25400HSS		100	400
¼ x 1 ¼	Phillips Flat Head	TTN25114PFSS		100	1600
¼ x 1 ¾		TTN25134PFSS		100	500
¼ x 2 ¼		TTN25214PFSS		100	500
¼ x 2 ¾		TTN25234PFSS		100	500
¼ x 3 ¼		TTN25314PFSS		100	400
¼ x 3 ¾		TTN25334PFSS		100	400
¼ x 4		TTN25400PFSS		100	400

1. One drill bit is included in each box

Complementary Products

Titen® Screw – Installation Tool

The Simpson Strong-Tie® Titen® screw installation kit makes installation of Titen screws quick and easy. Accessories are compatible with a standard three-jaw style chuck, and the sockets have been designed to prevent over-torquing, which can lead to fastener failure. Comes packaged in a rugged plastic box ideal for storage of the installation kit and Titen screws.

Titen® Screw Installation Kit (Model TTNT01)

Eight piece kit includes:

- Drill bit holder
- 5¾" sleeve
- ¼" and 5/16" hex sockets
- Phillips bit socket
- #2 and #3 Phillips bits
- Allen wrench

Titen® Installation Tool

Model No.	Quantity	
	Box	Carton
TTNT01	1	24

Titen® Screw – Drill Bits

The same bits that come included with boxes of Titen screws are also available separately. They work with the Titen Installation Tool as well as drills with a standard three-jaw style chuck.

Titen® Screw Drill Bit

Titen® Drill Bits

Size (in.)	Model No.	Use With		Quantity	
		Screw	Length	Box	Carton
5/32 x 3 ½	MDB15312	3/16" dia.	To 1 ¾	12	48
5/32 x 4 ½	MDB15412		To 3 ¼		
5/32 x 5 ½	MDB15512		To 4		
3/16 x 3 ½	MDB18312	¼" dia.	To 1 ¾		
3/16 x 4 ½	MDB18412		To 3 ¼		
3/16 x 5 ½	MDB18512		To 4		

Complementary Products (cont.)

Titen® Screw – SDS-Plus Drill Bit/Driver

This SDS-Plus shank bit works with the Titen Installation Tool to allow pre-drilling and installation of Titen screws using a rotohammer.
Rotohammer must be in rotation-only mode before driving screws.

Titen® Screw Drill Bit / Driver

Titen® Drill Bit/Driver Product Data

Size (in.)	Model No.	For Screw Dia. (in.)	Drilling Depth (in.)	Overall Length (in.)
5/32 x 5	MDBP15500H	3/16	2 1/4	5
5/32 x 6	MDBP15600H		3 1/4	6
5/32 x 7	MDBP15700H		4 1/4	7
3/16 x 5	MDBP18500H	1/4	2 1/4	5
3/16 x 6	MDBP18600H		3 1/4	6
3/16 x 7	MDBP18700H		4 1/4	7

1. Titen Drivers are sold individually.

Special hex adaptor (included with the Titen Screw Installation Kit) allows the Titen Installation Tool to slide over the bit and lock in, ready to drive screws.

Crimp Multi-Purpose Anchors

The Crimp anchor is a multi-purpose expansion anchor for use in concrete and grout-filled block. The pre-formed curvature along the shaft creates an expansion mechanism that secures the anchor in place and eliminates the need for a secondary setting procedure.

Features:

- Available in carbon steel in four head styles
- Designed to handle different applications that include fastening wood or light-gauge steel, attaching concrete formwork, hanging overhead support for sprinkler pipes or suspended ceiling panels
- Curved design helps speed up anchor installation and reduce the overall cost

Warning: Industry studies show that hardened fasteners can experience performance problems in wet or corrosive environments. Accordingly, with the exception of the duplex anchor, use these products in dry, interior and non-corrosive environments only.

Finish: Zinc plated and mechanically galvanized

Codes: Factory Mutual 3031136 for the ⅜" rod coupler version

Installation:

- Drill a hole using the specified diameter carbide bit into the base material to a depth of at least ½" deeper than the required embedment.
- Blow the hole clean of dust and debris using compressed air. Overhead application need not be blown clean. Where a fixture is used, drive the anchor through the fixture into the hole until the head sits flush against the fixture.
- Be sure the anchor is driven to the required embedment depth. The rod coupler and tie-wire models should be driven in until the head is seated against the surface of the base material.

Mushroom Head

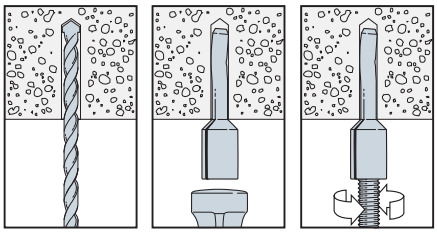
Rod Coupler

Tie-Wire

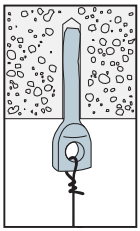
Duplex

Crimp Anchor Installation Sequence

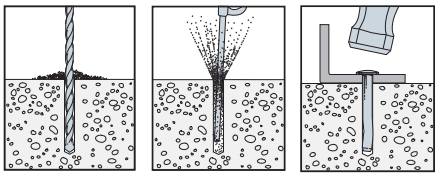
Rod Coupler

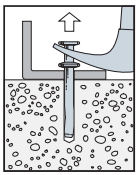


Tie-Wire



Mushroom Head





Duplex-head anchor may be removed with a claw hammer

Crimp Anchor Product Data

Size	Model No.	Head Style/ Finish	Drill Bit Dia. (in)	Min. Fixture Hole Size	Min. Embed. (in.)	Quantity	
						Box	Carton
3/16" x 1 1/4	CD18114M	Mushroom Head – Zinc Plated	3/16	1/4	7/8	100	1600
3/16" x 2	CD18200M				1 1/4	100	500
1/4" x 1	CD25100M		1/4	5/16	7/8	100	1600
1/4" x 1 1/4	CD25114M				7/8	100	1600
1/4" x 1 1/2	CD25112M				1 1/4	100	1600
1/4" x 2	CD25200M				1 1/4	100	500
1/4" x 2 1/2	CD25212M				1 1/4	100	500
1/4" x 3	CD25300M				1 1/4	100	500
3/8" x 2	CD37200M		3/8	7/16	1 3/4	25	125
3/8" x 3	CD37300M				1 3/4	25	125
1/4" x 3	CD25300MG	Mushroom Head – Mechanically Galvanized	1/4	5/16	1 1/4	100	500
1/4" Rod Coupler	CD25114RC	Rod Coupler – Zinc Plated	3/16	N/A	1 1/4	100	500
3/8" Rod Coupler	CD37112RC		1/4	N/A	1 1/2	50	250
1/4" Tie Wire	CD25118T	Tie Wire – Zinc Plated	1/4	N/A	1 1/8	100	500
1/4" Duplex	CD25234D	Duplex Head – Zinc Plated	1/4	5/16	1 1/4	100	500

1. Mechanical galvanizing meets ASTM B695, Class 55, Type 1. Intended for some preservative-treated wood sill plate applications. Not for use in other corrosive or outdoor environments.

MSD/CSD/DSD Split-Drive Anchors

The Split-Drive anchor is a one-piece expansion anchor that can be installed in concrete, grout-filled block and stone. The split-type expansion mechanism on the working end compresses and exerts force against the walls of the hole as the anchor is driven into the hole.

CSD (Countersunk) **MSD** (Mushroom) **DSD** (Duplex)

Warning for CSD and MSD only: Industry studies show that hardened fasteners can experience performance problems in wet or corrosive environments. Accordingly, use these products in dry, interior and non-corrosive environments only.

Features:

- Available in mushroom, countersunk and duplex-head styles
- DSD anchor can be removed with a claw hammer for temporary applications

Material: Heat-treated carbon steel

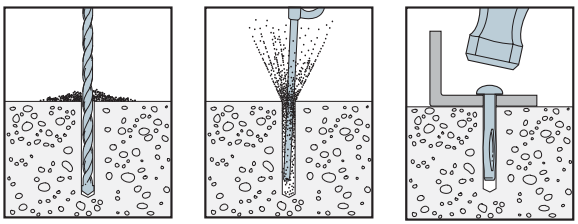
Finish: Zinc plated and mechanically galvanized

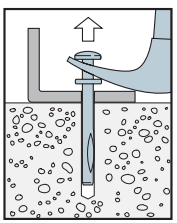
Installation:

Caution: Oversized holes in the base material will reduce the anchor's load capacity. For CSD and MSD, embedment depths greater than 1½" may cause bending during installation.

- Drill a hole in the base material using a ¼" diameter carbide-tipped drill. Drill the hole to the specified embedment depth and blow it clean using compressed air. Alternatively, drill the hole deep enough to accommodate embedment depth and dust from drilling. Overhead installations need not be blown clean.
- Position fixture and insert Split-Drive anchor through fixture hole. For CSD and MSD, ⅜" diameter fixture hole is recommended for hard fixtures such as steel. For DSD, 5⁄16" diameter fixture hole is recommended.
- Drive anchor until head is flush against fixture.

Installation Sequence





DSD anchor may be removed with a claw hammer

MSD/CSD/DSD Product Data

Size (in.)	Model No.	Head Style/ Finish	Drill Bit Dia. (in.)	Quantity	
				Box	Carton
¼ x 1½	MSD25112	Mushroom Head - Zinc Plated	¼	100	500
¼ x 2	MSD25200			100	500
¼ x 2½	MSD25212			100	500
¼ x 3	MSD25300			100	400
¼ x 3½	MSD25312			100	400
¼ x 4	MSD25400			100	400
¼ x 1½	CSD25112	Countersunk Head - Zinc Plated	¼	100	500
¼ x 2	CSD25200			100	500
¼ x 2½	CSD25212			100	500
¼ x 3	CSD25300			100	400
¼ x 3½	CSD25312			100	400
¼ x 4	CSD25400			100	400
¼ x 3	CSD25300MG	Countersunk Head - Mechanically Galvanized1	¼	100	400
¼ x 4	CSD25400MG			100	400
¼ x 3	DSD25300	Duplex Head - Zinc Plated	¼	100	400

1. Mechanical galvanizing meets ASTM B695, Class 55, Type 1. Intended for some preservative-treated wood sill plate applications. Not for use in other corrosive or outdoor environments.

Nailon™ Pin Drive Anchor

Zinc Nailon™ anchors are low cost anchors for light-duty applications under static loads. The anchor is not designed for overhead applications and is not recommended for eccentric tension (prying) loading.

Features:

- Available with carbon and stainless-steel pins. The pin and head configuration make this anchor tamper-resistant.

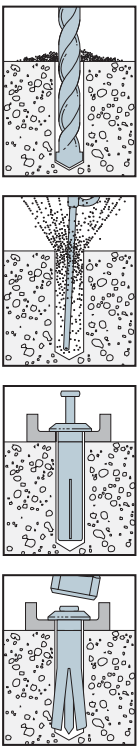
Material: Body – Die cast zinc alloy; Pin – Carbon and type-304 stainless steel (Type 304)

Codes: Meets Federal Specification A-A-1925A, Type 1

Zinc Nailon™ Anchor
(Mushroom)

Installation Instruction and Sequence:

- 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 plus ⅛" for pin extension and blow it clean using compressed air. Alternatively, drill the hole deep enough to accommodate embedment depth and dust from drilling.
- Position fixture, insert Nailon anchor.
- Tap with hammer until flush with fixture; then drive pin until flush with top of head.



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

Caution: Not for use in overhead applications.

Caution: These anchors are not recommended for eccentric tension (prying) loading. Capacity can be greatly reduced in such applications.

Zinc Nailon™ (Mushroom Head) Product Data in Normal-Weight Concrete

Size (in.)	Carbon Steel Pin Model No.	Stainless Steel Pin Model No.	Drill Bit Dia. (in.)	Embed. Depth (in.)	Quantity		
					Box	Carton	Bulk
3/16 x 7/8	ZN18078	—	3/16	3/4	100	1600	1000
1/4 x 3/4	ZN25034	ZN25034SS	1/4	5/8	100	1600	
1/4 x 1	ZN25100	ZN25100SS		7/8	100	500	
1/4 x 1 1/4	ZN25114	ZN25114SS		1	100	500	
1/4 x 1 1/2	ZN25112	ZN25112SS		1 1/4	100	500	
1/4 x 2	ZN25200	ZN25200SS		1 1/2	100	400	
1/4 x 2 1/2	ZN25212	ZN25212SS		2	100	400	
1/4 x 3	ZN25300	ZN25300SS		2 1/2	100	400	

1. Bulk Nailon anchors come packed in a single carton of 1,000. To order add a "B" onto the end of the model number. Example: ZN25100B. Not available with stainless-steel pins.

The lag screw expansion shield is a die-cast, zinc-alloy expansion shield for anchoring lag screws in a variety of base materials, including concrete, concrete block, brick and mortar joints. Radial ribs provide additional holding power in softer material.

Material: Die cast Zamac 3 Alloy

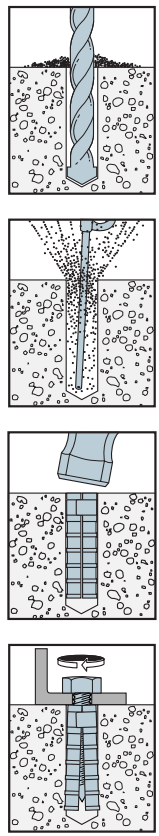
Installation:

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

- 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 ⅛" for flush mounting and blow it clean using compressed air. Alternatively, drill the hole deep enough to accommodate embedment depth and dust from drilling. Overhead installations need not be blown clean.
- Insert anchor into hole. Tap with hammer until flush with surface of base material.
- Position fixture; insert screw and tighten.

LSES

Installation Sequence



LSES Product Data in Normal-Weight Concrete

Size (in.)	Model No.	Drill Bit Dia. (in.)	Embed. Depth (in.)	Quantity	
				Box	Carton
¼ Short	LSES25S	½	1	100	500
5⁄16 Short	LSES31S	½	1 ¼	100	500
⅜ Short	LSES37S	⅝	1 ¾	50	250
½ Short	LSES50S	¾	2	25	125
¼ Long	LSES25L	½	1 ½	50	250
5⁄16 Long	LSES31L	½	1 ¾	50	250
⅜ Long	LSES37L	⅝	2 ½	50	200
½ Long	LSES50L	¾	3	25	100

1. The minimum concrete thickness is 1½ times the embedment depth.
2. Screw is not included.

The DMSA is a corrosion-resistant, die-cast machine bolt anchor with dual expansion cones to provide higher loads and more reliable performance in base materials of questionable strength.

Material: Die cast Zamac 3 alloy

Codes: DMSA Meets Federal Specifications A-A-1923A, Type 3, except DMSA25 and DMSA31.

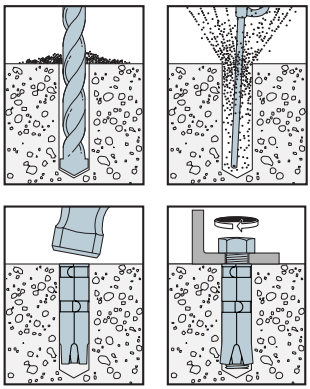
Installation:

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

- 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 ⅛" for flush mounting. Blow the hole clean using compressed air. Overhead installations need not be blown clean. Alternatively, drill the hole deep enough to accommodate embedment depth and dust from drilling.
- Insert anchor into hole. Tap with hammer until flush with surface.
- Position fixture, insert screw and tighten. The bolt must engage a minimum of ⅔ of the anchor threads.

DMSA

Installation Sequence



DMSA Product Data

Bolt (Dia.–Threads per inch)	Model No.	Drill Bit Dia. (in.)	Embed. Depth (in.)	Quantity	
				Box	Carton
¼ - 20	DMSA25	½	1½	100	500
5/16 - 18	DMSA31	⅝	1¾	100	400
⅜ - 16	DMSA37	⅝	2¼	50	200
½ - 13	DMSA50	⅞	2¾	25	100

1. Machine bolt is not included.

Sure Wall Drywall Anchor

Sure Wall anchors are self-drilling drywall anchors and provide excellent holding value and greater capacity than screws alone. The standard Sure Wall cuts threads into drywall, greatly increasing the bearing surface and strength of the fastening.

Sure Wall Nylon

Sure Wall Zinc

Features:

- Self-Drilling: Only a screwdriver needed for installation in gypsum board drywall
- Standard Sure Wall can be used as a fastener in fixtures with sufficiently large holes
- All designs maximize the load-carrying capacity of gypsum drywall
- Available with or without screws

Material:

- Die-cast zinc or reinforced nylon

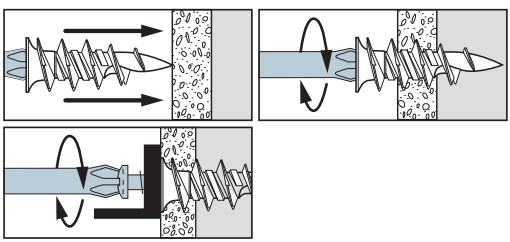
Sure Wall Product Data - Packaged with Screws

Screw Size	Model No.	Style	Quantity		Applications
			Box	Carton	
#6 x 1	SWN06S-R100	Nylon	100	500	⅜", ½" Drywall, Ceiling Tile
#8 x 1¼	SWN08LS-R100	Nylon	100	500	⅜", ½" Drywall, Ceiling Tile
#6 x 1	SWZ06S-R100	Zinc	100	500	⅜", ½" Drywall, Ceiling Tile, Plaster, Pegboard
#8 x 1¼	SWZ08LS-R100	Zinc	100	500	⅜", ½", ⅝" Drywall, Plaster

Sure Wall Product Data - Packaged without Screws

Screw Size	Model No.	Style	Quantity		Applications
			Box	Carton	
#6 x 1	SWN06-R100	Nylon	100	500	⅜", ½" Drywall, Ceiling Tile
#8 x 1¼	SWN08L-R100	Nylon	100	500	⅜", ½" Drywall, Ceiling Tile
#6 x 1	SWZ06-R100	Zinc	100	500	⅜", ½" Drywall, Ceiling Tile, Plaster, Pegboard
#8 x 1¼	SWZ08L-R100	Zinc	100	500	⅜", ½", ⅝" Drywall, Plaster

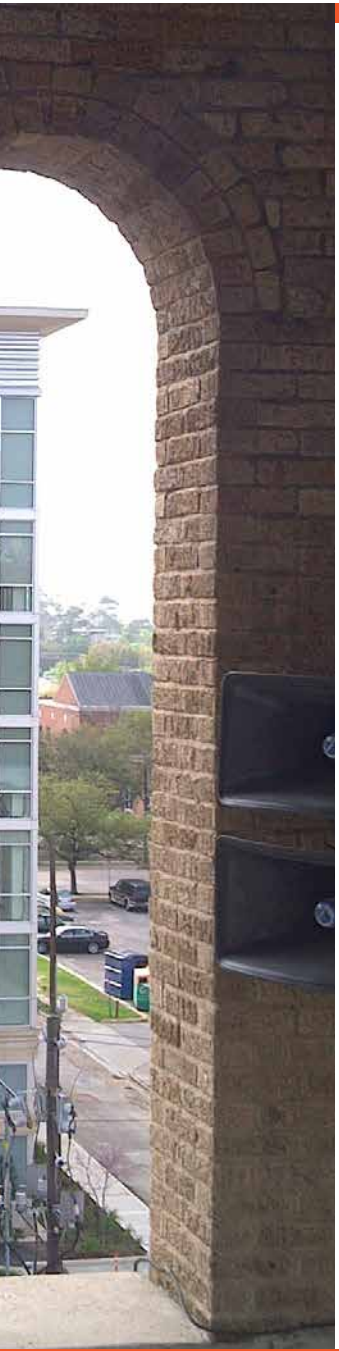
Standard Sure Wall Installation Sequence (Nylon or Zinc)



High-Powered Tools

Innovative mobile and desktop apps put the technical resources of Simpson Strong-Tie at your fingertips! Visit ***www.strongtie.com/software*** to view and download our latest releases.

Restoration Solutions



Simpson Strong-Tie has expanded our line of products designed for structural and architectural rehabilitation of concrete and masonry.

ETI injection epoxies are two-component, high-solids formulations that are dispensed through a static mixing nozzle using a manual, battery or pneumatic dispensing tool. ETI injection epoxies are specially designed formulations for the injection of cracks in concrete. Properly installed, they provide a repair that is both waterproof and high strength (structural).

ETI-SLV **ETI-LV** **ETI-GV**

Features:

- Chemically bonds with the concrete to provide a structural repair
- Seals the crack from moisture, protecting rebar in the concrete from corrosion and flooring from moisture damage
- All viscosities formulated for maximum penetration under pressure
- Side-by-side cartridge dispensing provides reliable mixing and ratio control when used with the Simpson Strong-Tie® Opti-Mix® static mixing nozzle (included)
- Eliminates the need for expensive bulk dispensing equipment
- Formulations can be dispensed using a manual or pneumatic dispensing tool (ETI-LV requires the use of the Opti-Mix nozzle, model EMNO22, which is included with the cartridge)
- Final color of product: ETI-SLV: Dark Purple/Black; ETI-LV: Amber; ETI-GV: Gray
- Suitable for pressure injection or gravity-feed applications
- Non-shrink material resistant to oils, salts and mild chemicals

Applications:

ETI-SLV Super-Low Viscosity epoxy

- Meets the requirements of ASTM C881, Type I and IV, Grade 1, Class B
- Super-low viscosity (350 cps) for repair of hairline cracks and those up to ¼" in width
- Penetrates the smallest cracks.
- Suitable for structural repairs.

ETI-LV Low-Viscosity Injection Epoxy

- Meets the requirements of ASTM C881, Type I, IV and V, Grade 1, Classes B and C
- For repair of fine to medium-width cracks that are 1/64" – ¼" in width
- Low surface tension allows the material to effectively penetrate narrow cracks
- Suitable for structural repairs
- Approved under NSF/ANSI standard 61

ETI-GV Gel-Viscosity Injection Epoxy

- Meets the requirements of ASTM C881, Type I and IV, Grade 3, Classes B and C
- Gel viscosity epoxy for repair of medium cracks 3/32" – ¼" in width
- Decreases in viscosity under pressure for easier dispensing
- Suitable for structural repairs

Application Considerations:

- ETI injection epoxies are suitable for repairing non-moving cracks in concrete walls, floors, slabs, columns and beams.
- ETI can be used to inject cracks in damp or wet conditions (non-seeping or non-leaking conditions only) with excellent results.
- Apply to concrete 40°F or above. For best results, warm material to 60°F or above prior to application.

Shelf Life: 2 years in unopened cartridge

Storage Conditions: For best results, store between 45°–90°F

Injection Instructions: See pages 177–180.

ETI Cartridge System

Model No.	Capacity ounces (cubic in.)	Carton Quantity
ETISLV	16.5 (29.8)	10
ETILV22	22 (39.7)	
ETIGV22		

Complementary Products

ETI-SLV Injection Epoxy 16.5 oz. Cartridge

- **EMNO22 Opti-Mix®** – Mixing nozzle (included; page 114)

- **EDT22S** – Manual dispensing tool for 22 oz. cartridges (page 119) (Conversion parts for 2:1 ratio dispensing are included; required for ETI-SLV)

ETI-LV Injection Epoxy 22 oz. Cartridge

- **EMNO22 Opti-Mix®** – Mixing nozzle (included; page 114)

- **EDT22S** – Manual dispensing tool for 22 oz. cartridges (page 119)

- **EDT22CKT** – Battery-powered dispensing tool for 22 oz. cartridges (page 119)

- **EDTA22P** – Pneumatic dispensing tool for 22 oz. cartridges (page 119)

ETI-GV Injection Epoxy 22 oz. Cartridge

- **EMNO22 Opti-Mix®** – Mixing nozzle (included; page 114) **or EMN22i** – Nozzle (for gravity-feed applications; page 121)

- **EDT22S** – Manual dispensing tool for 22 oz. cartridges (page 119)

- **EDT22CKT** – Battery-powered dispensing tool for 22 oz. cartridges (page 119)

- **EDTA22P** – Pneumatic dispensing tool for 22 oz. cartridges (page 119)

IMPORTANT –
See pages 177–180 for injection instructions

Crack-Pac® Injection Epoxy

The Crack-Pac® injection epoxy is designed to repair cracks in concrete ranging from 1⁄64" to ¼" wide in concrete walls, floors, slabs, columns and beams. The mixed adhesive has the viscosity of a light oil and a low-surface tension, which allows it to penetrate fine to medium-width cracks in dry, damp or wet conditions with excellent results. Resin is contained in the cartridge and hardener is contained in the nozzle.

Crack-Pac® Injection Epoxy (ETIPAC10)
Dispensing Systems: U.S. Patents 6,737,000 and 6,896,001 B2

Features:

- Dispenses with a standard caulking tool, no special dispensing tool needed
- Clean and easy mixing; no additional tools required
- Seals the crack from moisture, protecting rebar in the concrete from corrosion and flooring from moisture damage
- Chemically bonds with the concrete to restore strength
- Resistant to oils, salts and mild chemicals
- Non-shrink

Application Considerations:

- Suitable for repair of cracks ranging from 1⁄64"–¼" wide in concrete walls, floors, slabs, columns and beams
- Can be used to inject cracks in dry, damp or wet conditions with excellent results. Not for use in actively leaking cracks.
- In order for components to mix properly, the resin and hardener must be conditioned to 60°–80°F before mixing

Shelf Life: 24 months from date of manufacture, unopened

Storage Conditions: For best results, store between 45°F–95°F

Injection Instructions: See pages 177-180.

Crack-Pac® Kit (ETIPAC10KT)

Crack-Pac® Kit Components

Crack-Pac® Cartridge System

Model No.	Capacity ounces	Carton Quantity
ETIPAC10	9	12
ETIPAC10KT	18	2 (kits)

Complementary Products
Crack-Pac® injection epoxy is also available in the Crack-Pac Injection Kit. (ETIPAC10KT). The kit includes everything needed to pressure inject approximately 8 lineal feet of cracks:

- 2 Crack-Pac cartridge/nozzle sets
- 12 E-Z-Click™ injection ports
- 2 E-Z-Click injection fittings with 12" tubing
- 1 pint of ETR paste-over epoxy (8 oz. of resin + 8 oz. of hardener)
- 4 disposable wood paste-over applicators
- 1 pair latex gloves
- Installation video

Complementary Products

Crack-Pac® Injection Epoxy 9 oz. Cartridge

CDT10S
Manual dispensing tool for acrylic adhesive dispensing cartridges (page 119)

IMPORTANT – See pages 177–180 for injection instructions

Crack-Pac® Flex-H_2O™ Polyurethane Crack Sealer

The Crack-Pac® Flex-H_2O™ polyurethane injection resin seals leaking cracks, voids or fractures from 1⁄32" to ¼" wide in concrete or solid masonry. Designed to perform in applications where water is seeping or mildly leaking from the crack, the polyurethane is packaged in the cartridge and an accelerator is packaged in the nozzle. When the resin encounters water as it is injected into the crack, it becomes an expanding foam that provides a flexible seal in leaking and non-leaking cracks.

Crack-Pac® Flex-H_2O™ Crack Sealer
Dispensing System: U.S. Patents 6,737,000 and 6,896,001 B2

Features:

- Can be dispensed with a standard caulking tool
- Can also be used on dry cracks if water is introduced to affected area
- Can be used with a reduced amount or without accelerator to slow down reaction time
- Expands to fill voids and seal the affected area
- Fast reacting – reaction begins within 1 minute after exposure to moisture; expansion may be completed within 3 minutes (depending on the amount of moisture and the ambient temperature).
- 20:1 expansion ratio (unrestricted rise) means less material needed

Application Considerations:

- Suitable for sealing cracks ranging from 1⁄32"–¼" wide in concrete and solid masonry.
- Suitable for repair of cracks in dry, damp and wet conditions with excellent results. Designed to perform in applications where water is seeping or mildly leaking from the crack.
- In order for components to mix properly, the resin and hardener must be conditioned to 60°F–90°F before mixing

Shelf Life: 12 months from the date of manufacture, unopened

Usage Temperature: 60°F–90°F

Storage Conditions: For best results, store in a dry area between 45°F–90°F. Product is very moisture sensitive.

Installation Instructions:
See pages 177–180.

Crack-Pac® Flex-H_2O™ Cartridge System

Model No.	Capacity ounces	Carton Quantity
CPFH09	9	12
CPFH09KT	18	2 (kits)

Crack-Pac® Flex-H_2O™ Bulk Packaging

Model No.	Description	Capacity
FHO5*	Flex-H_2O Resin	5 Gallons
	Flex-H_2O Catalyst	16 Ounces

*For standard reaction time, use a 30:1 resin: catalyst ratio. For a faster reaction time, add more catalyst, for a slower reaction time, use less.

Complementary Products

Crack-Pac® Flex-H2O™ Kit (CPFH09KT)

Crack-Pac® Flex-H2O™ Kit Components

- 2 Crack-Pac Flex-H_2O cartridge/nozzle sets
- 12 E-Z-Click™ injection ports
- 2 E-Z-Click injection fittings with 12" tubing
- 1 pint of ETR paste-over epoxy (8 oz. of resin + 8 oz. of hardener)
- 4 disposable wood paste-over applicators
- 1 pair latex gloves

Accessories: See page 113 for information on mixing nozzles and page 114 for crack repair accessories.

Additional Components Needed for Crack Repair

Condition	Paste-Over Material	Ports
Dry Crack	ETR, CIP or CIP-F*	EIP-EZA Flush-Mount
Wet Crack		
Seeping Crack	Hydraulic Cement	
Mildly Leaking Crack		EIPX-EZ Drill-In

*CIP-F requires EIP-EZA port.

IMPORTANT – See pages 177–180 for injection instructions

EMN022 – Opti-Mix® Mixing Nozzle

The Opti-Mix® static mixing nozzle is specifically designed for crack injection epoxies and ensures thorough mixing of epoxy components:

For use with both low-viscosity and gel-viscosity ETI formulations. Flow regulators ensure that resin and hardener flow at equal rates and prevent mixed epoxy from flowing back out of the nozzle into the cartridge. This ensures thorough mixing and prevents mixed product from curing in the neck of the cartridge, causing blockage. Testing shows that mixing with the Opti-Mix nozzle is 4 times more consistent than a standard spiral mixing nozzle.

E-Z-Click™ Injection System

The E-Z-Click injection system is comprised of a specially designed fitting and ports that take the mess out of your repair project while allowing you to work faster. The E-Z-Click injection fitting installs onto the end of the Opti-Mix mixing nozzle and clicks onto the E-Z-Click™ ports during injection.

- Positive connection eliminates messy leakage, minimizing waste and clean-up.
- No drilling of ports: E-Z-Click ports perform while pasted to the surface of the concrete. No drilling required for most applications.
- Disconnect the fitting from the E-Z-Click port and the epoxy stops flowing, no leaky mess.
- After injecting, pull the head of the E-Z-Click port out to close it and prevent leakage.
- One person can work faster without having to hold the tube on the port.

ETR Epoxy Paste-Over

Ideal for pasting over the surface of cracks and attaching ports for pressure injection. The non-sag paste consistency enables paste-up on horizontal, vertical and overhead applications. Fast cure time means shorter time between paste-over and injection. Packaged as a kit in separate 8 oz. canisters which are mixed manually to yield 16 ounces of epoxy. Also ideal for small concrete repairs and miscellaneous patching. Each kit contains enough material to cover approximately 8 lineal feet of cracks.

CIP Paste-Over

CIP is a fast-curing, two-part epoxy paste-over material. It is used to seal cracks and to secure injection ports over concrete prior to epoxy or urethane foam injection repair. CIP sets up rigid and can either be left on the concrete or ground or chiseled off at the completion of a crack injection job.

CIP-F Paste-Over

CIP-F is a flexible, peelable and fast-curing polyurea paste-over material. It is used to temporarily seal cracks and to secure injection ports over concrete prior to epoxy or urethane foam injection repair. CIP-F can be peeled off at the completion of a crack injection job by pulling on starter tabs placed under the lead edge surface at the time of application or by prying under the paste-over.

Cure Schedule – ETR and CIP

Base Material Temperature		Cure Time
°F	°C	
40	4	24 hrs.
60	16	2 hrs.
80	27	1 hr.
100	38	1 hr.

Cure Schedule - CIP-F

Base Material Temperature		Cure Time
°F	°C	
40	4	3 hrs.
72	22	1 hr.

Crack Repair Accessories

Opti-Mix® Mixing Nozzle

E-Z-Click™ Ports and Injection Fitting

ETR16

E-Z-Click™ Injection Fitting

EIP-EZA Flush Mount Port

EIPX-EZ Corner Mount/ Drilled-In Port

Crack Injection Paste-Over in Cartridge Delivery System

Model No.	Capacity ounces	Carton Quantity
CIP	22	10
CIP-F	22	10

CIP

CIP-F

Crack Repair Accessories Product Data

Description	Model No.	Package Qty.	Carton Qty. (ea.)
6 Opti-Mix mixing nozzles for ETI epoxies (6½" long, ⅜" square). Includes retaining nuts.[1]	EMNO22-RP6	6	30 (5 Packs)
100 E-Z-Click flush mount injection ports and 1 E-Z-Click injection fitting	EIP-EZA	—	100
20 E-Z-Click flush mount injection ports and 1 E-Z-Click injection fitting (compatible with all Simpson Strong-Tie paste-overs)	EIP-EZAKT	—	5 Kits
20 E-Z-Click corner mount/drilled-in injection ports[2]	EIPX-EZ-RP20	20	100 (5 Packs)
20 E-Z-Click corner mount/drilled-in injection ports and 1 E-Z-Click injection fitting[2]	EIPX-EZKT	—	5 Kits
E-Z-Click injection fitting	EIF-EZ	1	10
ETR Kit containing 1 8-oz. canister of resin and 1 8-oz. canister of hardener	ETR16	—	4 Kits

1. Use only an appropriate an Simpson Strong-Tie® mixing nozzle in accordance with Simpson Strong-Tie instructions. Modification or improper use of mixing nozzle may impair epoxy performance. EIPX intended for use as a surface mount port in corners and a drilled-in port on flat surfaces. All accessories compatible with ETI-SLV, ETI-LV and ETI-GV epoxies.

Detailed information on the full line of Simpson Strong-Tie® manual and pneumatic dispensing tools is available on pages 119–120.

Heli-Tie™ Helical Wall Tie

The stainless-steel Heli-Tie™ wall-tie is used to anchor building façades to structural members or to stabilize multiple-wythe brick walls. The helical tie design enables it to be driven quickly and easily into a predrilled pilot hole (or embedded into mortar joints in new construction). As it is driven, the fins of the tie undercut the masonry to provide an expansion-free anchorage that will withstand tension and compression loads.

The Heli-Tie wall tie is installed using a proprietary setting tool that is used with an SDS-Plus shank rotohammer to drive and countersink the tie. Heli-Tie wall ties perform in concrete and masonry as well as wood and steel studs.

Features:

- Installs quickly and easily
- Provides an inconspicuous repair that helps preserve a building's appearance
- Fractionally sized anchor - no metric drill bits required
- Patented manufacturing process enables easier driving and better interlock with the substrate

Material: Type 304 stainless steel (type 316 available by special order, contact Simpson Strong-Tie for details)

Installation:

- Drill pilot hole through the façade material and to the specified embedment depth + 1" in the backup material using appropriate drill bit(s). Drill should be in rotation only mode when drilling into soft masonry or into hollow backing material.
- Position blue end of the Heli-Tie™ fastener in the installation tool and insert the tie into the pilot hole.
- With the SDS-PLUS rotohammer in rotation and hammer mode, drive the tie until the tip of the installation tool enters the exterior surface of the masonry and countersinks the tie below the surface.

Heli-Tie
Helical Wall Tie
U.S. Patent 7,269,987

Heli-Tie™ Product Data

Size (in.)	Model No.	Drill Bit Dia. (in.)	Quantity	
			Box	Carton
⅜ x 7	HELI37700A	7/32 or ¼	100	400
⅜ x 8	HELI37800A		100	400
⅜ x 9	HELI37900A		100	400
⅜ x 10	HELI371000A		150	300
⅜ x 11	HELI371100A		150	300
⅜ x 12	HELI371200A		150	300

Special-order lengths available, contact Simpson Strong-Tie for details.

Heli-Tie™ Helical Stitching Tie

Restoration or repair of damaged brick and masonry structures presents a unique challenge to contractors and Designers. The Simpson Strong-Tie® Heli-Tie® helical stitching tie provides a unique solution to the preservation and repair effort. Made of type 304 stainless steel, the ¼" diameter x 40" long tie is installed into the bed joint of damaged or cracked masonry courses using Simpson Strong-Tie FX-263 Rapid-Hardening Vertical/ Overhead Repair Mortar.

HELIST254000

Features:

- Helical design distributes loads uniformly over a large surface area
- Installs into the mortar joint to provide an inconspicuous repair and preserve the appearance of the structure
- Type 304 stainless steel offers superior corrosion resistance to original reinforcement
- Patented manufacturing process results in consistent, uniform helix configuration (U.S. Patent 7,269,987)
- Batch number printed on each tie for easy identification and inspection

Product Information:

HELIST254000: ¼" x 40" stitching tie

Material: Type 304 stainless steel

Ordering Information: Sold in tubes of 10

Installation Instructions:

- Chase bed joint 20" on either side of the affected area to a depth of approximately 1¼" with a rotary grinding wheel. Vertical spacing of installation sites should be 12" for red brick or "every other course" for concrete masonry units.
- Clear bed joint of all loose debris.
- Mix FX-263 Rapid-Hardening Vertical/Overhead Repair Mortar per product instructions and place into the prepared bed joint, filling approximately two-thirds the depth of the void.
- Embed the tie at one-half the depth of the void. Trowel displaced grout to fully encapsulate the tie.
- Fill any remaining void and vertical cracks with FX-263 or repair mortar to conceal repair site.

Visit www.strongtie.com/videolibrary for an installation animation of the Heli-Tie® Helical Stitching Tie!

Complementary Products

HELITOOL37A – Heli-Tie™ Fastener Installation Tool

Required to correctly install the Heli-Tie wall ties, this tool speeds up installation and automatically countersinks the tie into the façade material. The one-piece design with no moving parts, improves longevity and prevents the Heli-Tie fasteners from jamming. Installation tools sold separately.

HELITOOL37A

HELITEST37A – Heli-Tie™ Wall Tie Tension Tester

Recommended equipment for on-site testing to accurately determine load values in any specific structure, the Heli-Tie wall tie tension tester features a key specifically designed to grip the Heli-Tie fastener and provide accurate results. Replacement test keys sold separately.

HELITEST37A

Anchoring Adhesive Accessories

Simpson Strong-Tie offers a complete line of dispensing tools and accessories to maximize adhesive anchoring productivity.

Adhesive Dispensing Tools

Our heavy-duty tools are designed to work with our cartridges for trouble-free dispensing. Each manual tool provides a 26:1 drive mechanism for easier dispensing of high-viscosity adhesive.

CDT10S

Manual Dispensing Tool for Single Cartridge Adhesives

The CDT10S features a steel carriage for ultimate durability and is engineered for continuous, high-volume use. The CDT10S also features double-gripping plates that help extend tool life.

CDT10S

EDT22S

Manual Dispensing Tool for 22 oz. Adhesive Cartridges

The EDT22S epoxy adhesive tool features a steel carriage and is engineered for high-volume, continuous use. The tool can be easily converted (conversion parts included) from dispensing a 22 oz. 1:1 ratio cartridge to a 16.5 oz. 2:1 ratio cartridge.

EDT22S

EDT22CKT

Battery-Powered Dispensing Tool for 22 oz. Cartridges

The EDT22CKT offers power dispensing without the need for a hose or compressor. The tool features dosage and rate control for maximum efficiency. Each battery charge dispenses approximately 25 cartridges and recharging takes 1 hour. Tool comes complete with two 14.4V batteries and a charger.

EDT22CKT Tool and Charger

EDTA22P

Pneumatic Dispensing Tool for 22 oz. Cartridges

The EDTA22P tool features an optional suitcase handle adapter for the ultimate in tool configuration and dispensing convenience. The suitcase option enables easier and time-saving ground-level doweling. The heavy-duty tool comes with a custom, blow-molded plastic carrying case.

EDTA22P

EDTA56P

Pneumatic Dispensing Tool for 56 oz. Cartridges

The EDTA56P tool features an optional suitcase handle adapter for the ultimate in tool configuration and dispensing convenience. The suitcase option enables easier and time-saving ground-level doweling. The heavy-duty tool comes with a custom, blow-molded plastic carrying case.

EDTA56P

Description	Model No.
Premium tool for single-tube cartridges	CDT10S
Manual tool for 22 oz. cartridges	EDT22S
Replacement 14.4V battery (ea)	EDT14B
Battery-powered tool for 22 oz. cartridges	EDT22CKT
Pneumatic tool for 22 oz. cartridges[1,2]	EDTA22P
Pneumatic tool for 56 oz. cartridges[1,2]	EDTA56P

1. Air supply attachment is ¼-18 NPT (male) thread.
2. Recommended operating air pressure is between 80–100 psi.

Maintenance tips, troubleshooting and repair parts schematics available at ***www.strongtie.com***.

ADT813S

Manual Dispensing Tool for 12.5 oz. Cartridges

The ADT813S features a steel carriage for ultimate durability. The ADT813S also features double-gripping plates that help extend tool life.

ADT813S

ADT30S

Manual Dispensing Tool for 30 oz. Acrylic-Tie® Adhesive Cartridges

The ADT30S features a steel carriage for ultimate durability and is engineered for continuous, high-volume use. The ADT30S also features double-gripping plates that help extend tool life.

ADT30S

ADTA30P

Pneumatic Dispensing Tool for 30 oz. Cartridges

The ADTA30P tool features an optional suitcase handle adapter for flexible tool configuration and dispensing convenience. The suitcase option enables easier and time-saving ground-level doweling. The heavy-duty tool comes with a custom, blow-molded plastic carrying case.

ADTA30P

Description	Model No.
Manual tool for 12.5 oz. cartridges	ADT813S
Manual tool for 30 oz. cartridges	ADT30S
Pneumatic tool for 30 oz. cartridges[1,2]	ADTA30P

1. Air supply attachment is ¼-18 NPT (male) thread.
2. Recommended operating air pressure is between 80–120 psi .

Maintenance tips, troubleshooting and repair parts schematics available at ***www.strongtie.com***.

Mixing Nozzles

Mixing nozzles are designed for the proper proportioning and mixing of the different adhesive formulations. Use only the appropriate Simpson Strong-Tie mixing nozzle in accordance with Simpson Strong-Tie instructions. Modification or improper use of the mixing nozzle may impair epoxy or acrylic performance.

EMN22i
An 18-element mixing nozzle with integrated nut for use with 22 oz. and 56 oz. epoxy adhesive cartridges.


EMN22i

EMN37A
An 18-element, high-strength, mixing nozzle for dispensing epoxy adhesive through bulk metering equipment.


EMN37A

EMN50
A high-volume nozzle for 22 oz. and 56 oz. epoxy cartridges.


EMN50

AMN19Q
A 19-element high-strength static mixing nozzle for use with all acrylic adhesive products.


AMN19Q

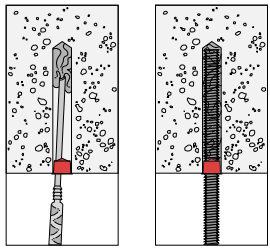
Description	Model No.	Package Qty.	Carton Qty.
Mixing nozzle for 1.7 oz. SET 1.7 KTA cartridge (separate retaining nut not required).	EMN1.7-R	2	24 Packs (2 nozzles per pack)
18-element nozzle for 22 oz. and 56 oz. epoxy adhesives. Features an integrated threaded nut for attachment to cartridges.	EMN22i	1	12 Nozzles
	EMN22i-RP5	5	6 Packs (5 nozzles per pack)
	EMN22i-RP10	10	3 Packs (10 nozzles per pack)
	EMN22iB	—	500
18-element nozzle for dispensing epoxy through metering equipment	EMN37A-RP5	5	6 Packs (5 nozzles per pack)
High-volume nozzle for 22 oz. and 56 oz. cartridges (separate retaining nut not required), 17" long, major diameter ⅞"	EMN50	—	10
A 19-element nozzle for all acrylic adhesives	AMN19Q-RP5	5	10 Packs (5 nozzles per pack)

Adhesive Retaining Caps

Adhesive retaining caps make overhead and horizontal installation easier by preventing the adhesive from running out of the hole. They also center the rod in the hole, making them ideal for applications where precise anchor placement is required. It may be necessary to provide support for the insert during cure time. Adhesive retaining caps are not designed to support the weight of the insert in overhead installations.

Material: Plastic

Adhesive Retaining Caps



The "X" cut in the cap allows the mixing nozzle and insert to pass through, while containing the adhesive in the hole.

Adhesive Retaining Caps

Drill Bit Dia. (in.)	Anchor Diameter (in.)	Rebar Size	Model No.	Cap Depth (in.)	Package Qty.	Carton Qty.* (ea.)
7/16	3/8	#3	ARC37A-RP25	7/16	25	200
1/2	3/8		ARC37-RP25	7/16	25	200
9/16	1/2	#4	ARC50A-RP25	1/2	25	200
5/8	1/2		ARC50-RP25	1/2	25	200
11/16	5/8	#5	ARC62A-RP25	9/16	25	200
3/4	5/8		ARC62-RP25	9/16	25	200
13/16	3/4	#6	ARC75A-RP25	9/16	25	200
7/8	3/4		ARC75-RP25	9/16	25	200
1	7/8	#7	ARC87-RP25	11/16	25	200
1 9/95	1	#8	ARC100A-RP25	11/16	25	200
1 1/8	1		ARC100-RP25	11/16	25	200
1 3/8	1 1/4	#10	ARC125-RP25	7/8	25	200

*8 packages of 25.

Steel Adhesive-Anchoring Screen Tubes

Screen tubes are used in hollow base material applications to contain adhesive around the anchor and prevent it from running into voids. Simpson Strong-Tie® screen tubes are specifically designed to work with AT, SET and ET-HP (formerly ET) adhesives in order to precisely control the amount of adhesive that passes through the mesh. This results in thorough coating and bonding of the rod to the screen tube and base material. Order screen tubes based upon rod diameter and adhesive type. The actual outside diameter of the screen tube is larger than the rod diameter.

Material: Acrylic screen tubes: 50 mesh stainless steel;
Epoxy screen tubes: 60 mesh carbon steel.

Caution: Screen tubes are designed for a specific adhesive type. Epoxy screen tubes must be used with SET or ET-HP formulations and acrylic screen tubes must be used with AT. Do not use SET1.7KTA with screen tubes.

Epoxy Screen Tube
(Acrylic screen tubes similar)

Screen tubes are for use in hollow CMU, hollow brick and unreinforced masonry applications. Contact Simpson Strong-Tie for information on special order sizes.

Acrylic Adhesive (AT) Screen Tubes – Stainless Steel

For Rod Dia. (in.)	Hole Size (in.)	Actual Screen Size O.D./Length (in.)	Model No.	Carton Qty.
3/8	9/16	15/32 x 3 1/2	ATS373	150
		15/32 x 6	ATS376	150
1/2	11/16	19/32 x 3 1/2	ATS503	100
		19/32 x 6	ATS506	100
		19/32 x 10	ATS5010	50
5/8	7/8	25/32 x 3	ATS623	50
		25/32 x 6	ATS626	50
		25/32 x 10	ATS6210	25
		25/32 x 13	ATS6213	25
3/4	1	31/32 x 8	ATS758	25
		31/32 x 13	ATS7513	25
		31/32 x 17	ATS7517	25

Epoxy Adhesive (SET and ET-HP) Screen Tubes – Carbon Steel

For Rod Dia. (in.)	Hole Size (in.)	Actual Screen Size O.D./Length (in.)	Model No.	Carton Qty.
3/8	9/16	15/32 x 6	ETS376	150
		15/32 x 10	ETS3710	100
1/2	11/16	19/32 x 6	ETS506	100
		19/32 x 10	ETS5010	50
5/8	7/8	25/32 x 6	ETS626	50
		25/32 x 10	ETS6210	25
		25/32 x 13	ETS6213	25
3/4	1	31/32 x 8	ETS758	25
		31/32 x 13	ETS7513	25
		31/32 x 17	ETS7517	25
		31/32 x 21	ETS7521	25

Note: Not for use with SET1.7KTA.

Opti-Mesh® Adhesive-Anchoring Screen Tubes

Screen tubes are vital to the performance of adhesive anchors in base materials that are hollow or contain voids, such as hollow block and brick. The Simpson Strong-Tie® Opti-Mesh® screen tube provides the economical advantage of a plastic screen tube while providing performance comparable to steel screen tubes and better than competitive plastic screen tubes.

Material: Plastic

Caution: Screen tubes are designed for a specific adhesive type. Epoxy screen tubes must be used with SET or ET-HP formulations and acrylic adhesive screen tubes must be used with AT. Do not use SET1.7KTA with screen tubes.

U.S. Patent 6,837,018

Integral Cap: Serves to center and secure the rod in the screen tube, while displaying important information such as rod diameter, drill bit diameter and the Simpson Strong-Tie® "≠" symbol for easy inspection after installation. The cap also prevents adhesive from running out of the front of the screen tube.

Flanges: Prevents the screen tube from slipping into over-drilled holes. Allows screen tube to function in holes that are drilled too deep.

Open-Mesh Collar: This section of larger mesh allows extra adhesive to flow out of the screen tube behind the face shell of hollow block applications. The extra "collar" of adhesive increases bearing area and results in higher load capacities in hollow concrete block.

Color-Coded, Formula-Specific Mesh: The screen tube mesh is sized to allow only the right amount of adhesive to flow through the screen tube to bond with the base material while the balance remains in the screen to bond the rod. The acrylic screen tube mesh is white while the epoxy screen tube mesh is black.

Epoxy Adhesive Screen Tube (mesh is black)

The integral cap centers the rod and displays drill bit and rod diameter.

Acrylic Adhesive Screen Tube (mesh is white)

Adhesive Accessories

Epoxy Adhesive (SET and ET-HP) Screen Tubes – Plastic

For Rod Dia. (in.)	Hole Size (in.)	Length (in.)	Model No.	Carton Qty.
⅜	9⁄16	3½	ETS373P	150
		6	ETS376P	150
		10	ETS3710P	100
½	¾	3½	ETS503P	100
		6	ETS506P	100
		10	ETS5010P	50
⅝	⅞	3½	ETS623P	50
		6	ETS626P	50
		10	ETS6210P	25
		13	ETS6213P	25
¾	1	8	ETS758P	25
		13	ETS7513P	25
		17	ETS7517P	25
		21	ETS7521P	25

Not for use with SET1.7KTA.

Acrylic Adhesive (AT) Screen Tubes – Plastic

For Rod Dia. (in.)	Hole Size (in.)	Length (in.)	Model No.	Carton Qty.
⅜	9⁄16	3½	ATS373P	150
		6	ATS376P	150
		10	ATS3710P	100
½	¾	3½	ATS503P	100
		6	ATS506P	100
		10	ATS5010P	50
⅝	⅞	3½	ATS623P	50
		6	ATS626P	50
		10	ATS6210P	25
		13	ATS6213P	25
¾	1	8	ATS758P	25
		13	ATS7513P	25
		17	ATS7517P	25
		21	ATS7521P	25

The photo on the left shows the Opti-Mesh® screen tube installed in a hollow CMU block. The extra collar of adhesive created by the open-mesh collar results in increased bearing area and higher load values. The typical screen tube shown on the right relies on the bond between the relatively small amount of adhesive in contact with the face shell of the block for its holding power.

Hole Cleaning Brushes

Brushes are used for cleaning drilled holes prior to adhesive anchor installation. Brushes have a twisted wire handle with nylon bristles.

Description	Model No.	For Anchor/Rebar Diameter (in.)	For Hole Diameter (in.)	Carton Qty.
½" dia x 3" brush (8" total length)	ETB4	¼ – 5⁄16	3⁄8 – 7⁄16	24
¾" x 4" brush (16" total length)	ETB6	3⁄8 – 5⁄8	½ – ¾	24
1" x 4" brush (16" total length)	ETB8	¾	13⁄16 – 7⁄8	24
1" x 4" brush (24" total length)	ETB8L	¾	13⁄16 – 7⁄8	24
1 ¼" x 4" brush (29" total length)	ETB10	7⁄8 – 1	1 – 1 ⅛	24
1 5⁄8" x 6" brush (34" total length)	ETB12	1 ¼	1 3⁄16–1 3⁄8	24

ETB

Adhesive Shear Tubes

Used in conjunction with anchoring adhesive and screen tubes, adhesive shear tubes transfer anchor shear loads over a larger area, reducing localized crushing in unreinforced masonry installations. Required for thru bolt applications per ICC-ES's unreinforced masonry anchorage "Configuration C" detail. For detailed installation instructions refer to the appropriate adhesive anchor ICC-ES report.

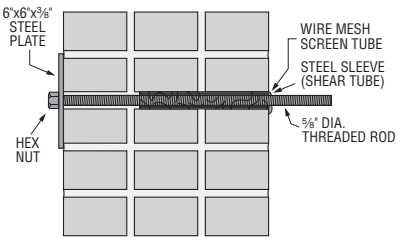
Material: Steel

Finish: Zinc-plated

Description (in.)	Model No.	For use with Simpson Screen Model No.[1]	Drill Bit Dia. (in.)	Threaded Rod Diameter (in.)	Carton Qty.
13⁄16 x 8	AST800	ETS758, ATS758	1	5⁄8	1

1. Screens sold separately. Not for use with Simpson Strong-Tie #ETS758P or ATS758P plastic Opti-Mesh screen tubes.

Adhesive Shear Tube



Configuration C

Retrofit Bolts

RFBs are pre-cut threaded rod, supplied with nut and washer. For use with Simpson Strong-Tie® adhesives. May be ordered in bulk without the nut and washer. Use with Simpson Strong-Tie adhesives to anchor into existing concrete and masonry. Offers a complete engineered anchoring system when used with Simpson Strong-Tie anchoring adhesives. Inspection is easy; each end of the threaded rod is stamped with rod length in inches and "No-Equal" symbol for identification after installation.

Material: A307, Grade C (F1554, Grade 36)

Finish: Zinc-plated or hot-dip galvanized

Description Dia. Length	Zinc Plated Model No.	Hot-Dip Galvanized Model No.	Carton Qty.	Retail Pack
½" x 4"	RFB#4x4	RFB#4x4HDG	50	—
½" x 5"	RFB#4x5	RFB#4x5HDG	50	10
½" x 6"	RFB#4x6	RFB#4x6HDG	50	10
½" x 7"	RFB#4x7	RFB#4x7HDG	50	10
½" x 8"	—	RFB#4x8HDG	—	10
½" x 10"	RFB#4x10	RFB#4x10HDG	25	10
⅝" x 5"	RFB#5x5	RFB#5x5HDG	50	10
⅝" x 8"	RFB#5x8	RFB#5x8HDG	50	10
⅝" x 10"	RFB#5x10	RFB#5x10HDG	50	10
⅝" x 12"	—	RFB#5x12HDG	—	10
⅝" x 16"	RFB#5x16	RFB#5x16HDG	25	10
¾" x 10½"	RFB#6x10.5	RFB#6x10.5HDG	25	—

1. Retail packs must be ordered with a "-R" suffix (example: RFB#5x12HDG-R).

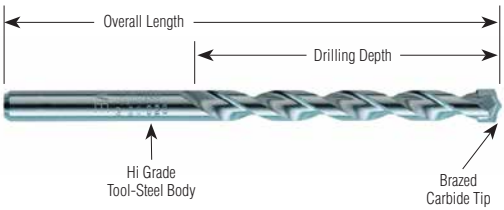
RFB
Retrofit Bolts

Simpson Strong-Tie offers a full-line of highest-quality carbide drill bits, demolition bits, chisels and core bits.

Carbide Drill Bits for Concrete and Masonry

Our carbide-tipped drill bits are premium quality, professional-grade tools manufactured in Germany to the highest industry standards for Simpson Strong-Tie. They are designed to meet precise tolerance requirements and incorporate proprietary features that enhance durability and drilling speed, while improving ease of use. Regular and quad-head bit tip and solid-tipped configurations are available. Shank styles include SDS-PLUS®, SDS-MAX, Spline, and Straight.

Features and Benefits:



- Uniformly brazed carbide inserts result in longer bit life
- Most bits contain a centering tip that facilitates easy spot drilling
- Chromium-nickel-molybdenum steel alloy body ensures hammering quality and extended service life
- Heat-treatment procedures and shot-peened finish increase surface hardness, drilling speed, reduces drill bit wear and improves resistance to bending forces
- Drill bits conform to ANSI Standard B212.15
- Additional Features for SDS-MAX, Spline and Select SDS-PLUS Bits:
- Chisel-shaped drill bit head penetrates the material and directs concrete dust into the multi-flute spiral
- Patented, high-volume, multi-flute spiral quickly channels concrete dust from the hole to improve drilling speed
- Proprietary flute geometry reduces vibration and optimizes impact energy transfers from the rotary hammer into the drill bit tip which enhances drilling speed and durability and reduces noise, stress and vibration on the operator

Quad-Head Feature:
(Available in SDS-PLUS, SDS-MAX and Spline Shank)

All the features of single cutter bits and the Quad Head dual-cutter are designed to improve durability and drilling speed. The high-volume, double helix design of Quad Head bit is produced with the patented, high performance, reinforced core flute to maximize energy transfer.

Solid-tip carbide drill bit

Simpson Strong-Tie® Drill Bits come in various shank styles to fit virtually any drill or rotohammer.

SDS-MAX® **SDS-PLUS®** **Spline** **Straight** **'A' Taper**

Drill Bit Tool Selection Guide

SDS-PLUS

Fits all current and older SDS-PLUS rotohammers from AEG, Black & Decker, Bosch, DeWalt, Hitachi, Hilti, Kango, Makita, Metabo, Milwaukee, Porter Cable, Ramset, Red Head, Ryobi, Skil

SDS-MAX

Fits all current and older SDS-MAX rotohammers from Black & Decker, Bosch, DeWalt, Hitachi, Hilti, Kango, Makita, Metabo, Milwaukee

Spline

Fits all current and older Spline rotohammers from AEG, Black & Decker, Bosch, DeWalt, Hitachi, Kango, Makita, Metabo, Milwaukee, Ramset, Red Head, Ryobi

SDS-PLUS® Shank Bits

Dia. (in.)	Drilling Depth (in.)	Overall Length (in.)	Model No.
5/32	2	4¼	MDPL01504
	4	6¼	MDPL01506
3/16	2	4¼	MDPL01804
	4	6¼	MDPL01806
	6	8¼	MDPL01808
	8	10	MDPL01810
	10	12	MDPL01812
	12	14	MDPL01814
7/32	4	6¼	MDPL02106
	6	8¼	MDPL02108
	14	16	MDPL02116
	18	20	MDPL02120
1/4	2	4¼	MDPL02504
	4	6¼	MDPL02506
	6	8¼	MDPL02508
	9	11	MDPL02511
	12	14	MDPL02514
	14	16	MDPL02516
5/16	4	6¼	MDPL03106
	10	12	MDPL03112
3/8	4	6¼	MDPL03706
	8	10¼	MDPL03710
	10	12¼	MDPL03712
	16	18	MDPL03718
	22	24	MDPL03724
7/16	4	6¼	MDPL04306
	10	12¼	MDPL04312
1/2	4	6¼	MDPL05006
	8	10¼	MDPL05010
	10	12¼	MDPL05012
	16	18	MDPL05018
	22	24	MDPL05024
9/16	4	6¼	MDPL05606
	10	12¼	MDPL05612
	16	18	MDPL05618
5/8	6	8	MDPL06208
	10	12	MDPL06212
	16	18	MDPL06218
	22	24	MDPL06224
11/16	6	8	MDPL06808
3/4	6	8	MDPL07508
	8	10	MDPL07510
	10	12	MDPL07512
	16	18	MDPL07518
	22	24	MDPL07524
13/16	6	8	MDPL08108
27/32	6	8	MDPL08408
7/8	6	8	MDPL08708
	10	12¼	MDPL08712
	16	18	MDPL08718
1	8	10	MDPL10010
	16	18	MDPL10018

SDS-PLUS®
Shank Bit

SDS-PLUS bits use an asymmetrical-parabolic flute for efficient energy transmission and dust removal.

SDS-PLUS® Solid-Tip Carbide Drill Bits

Model No.	Diameter (in.)	Total length (in.)	Drilling Depth (in.)
MDPL01804S	3/16	4¼	2
MDPL01806S	3/16	6¼	4
MDPL01808S	3/16	8¼	6
MDPL01812S	3/16	12	10
MDPL02506S	1/4	6¼	4
MDPL02508S	1/4	8¼	6
MDPL02512S	1/4	12	10
MDPL03106S	5/16	6¼	4
MDPL03112S	5/16	12	10
MDPL03706S	3/8	6¼	4
MDPL03712S	3/8	12¼	10
MDPL05006S	1/2	6¼	4
MDPL05012S	1/2	12¼	10
MDPL05606S	9/16	6	4
MDPL05612S	9/16	12	10

SDS-PLUS® Drill Bits for Concrete and Masonry

SIMPSON Strong-Tie®

SDS-PLUS® Shank Bits – Retail Packs

Dia. (in.)	Drilling Depth (in.)	Overall Length (in.)	Quantity (per pack)	Model No.
5/32	4	6¼	25	MDPL01506-R25
3/16	2	4¼	25	MDPL01804-R25
	4	6¼	25	MDPL01806-R25
	6	8¼	25	MDPL01808-R25
	8	10	25	MDPL01810-R25
	10	12	25	MDPL01812-R25
	12	14	25	MDPL01814-R25
7/32	4	6¼	25	MDPL02106-R25
	6	8¼	25	MDPL02108-R25
	8¾	11	25	MDPL02111-R25
¼	2	4¼	25	MDPL02504-R25
	4	6¼	25	MDPL02506-R25
	6	8¼	25	MDPL02508-R25
	8¾	11	25	MDPL02511-R25
5/16	4	6¼	25	MDPL03106-R25
3/8	4	6¼	25	MDPL03706-R25
	10	12¼	25	MDPL03712-R25
½	4	6¼	25	MDPL05006-R25
	10	12¼	25	MDPL05012-R25
5/8	6	8	20	MDPL06208-R20

SDS-PLUS® Quad Head® Drill Bits

Dia. (in.)	Drilling Depth (in.)	Overall Length (in.)	Model No.
¾	6	8	MDPL07508Q
	10	12	MDPL07512Q
	16	18	MDPL07518Q
⅞	6	8	MDPL08708Q
	10	12	MDPL08712Q
	16	18	MDPL08718Q
1	8	10	MDPL10010Q
	16	18	MDPL10018Q
1 1/8	8	10	MDPL11210Q
	16	18	MDPL11218Q

Quad Head®

SDS-PLUS® Retail Packs

Titen Screw Drill Bit/Driver – Bulk Packs

Dia. (in.)	Drilling Depth (in.)	Overall Length (in.)	For Screw Dia. (in.)	Model No.
5/32	2⅜	5	3/16	MDPL01505H-R25
	4⅛	7	3/16	MDPL01507H-R25
3/16	2⅜	5	¼	MDPL01805H-R25
	4⅛	7	¼	MDPL01807H-R25

Titen® Screw Drill Bit/Driver Product Data

Dia. (in.)	Drilling Depth (in.)	Overall Length (in.)	For Screw Dia. (in.)	Model No.
5/32	2⅜	5	3/16	MDPL01505H
	3⅛	6	3/16	MDPL01506H
	4⅛	7	3/16	MDPL01507H
3/16	2⅜	5	¼	MDPL01805H
	3⅛	6	¼	MDPL01806H
	4⅛	7	¼	MDPL01807H

1. Product is sold individually.

Titen® Drill Bit/Driver – Bulk Packs of 25

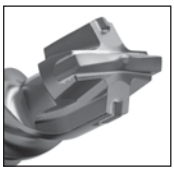
Size (in.)	Model No.	For Screw Dia. (in.)	Drilling Depth (in.)	Overall Length (in.)
5/32 x 5	MDBP15500HB	3/16	2¼	5
5/32 x 7	MDBP15700HB		4¼	7
3/16 x 5	MDBP18500HB	¼	2¼	5
3/16 x 7	MDBP18700HB		4¼	7

Special hex adaptor (included with the Titen® Screw installation kit) allows the Titen installation tool to slide over the bit and lock in, ready to drive Titen concrete and masonry screws. Rotohammer must be in rotation-only mode before driving screws.

SDS-MAX® and SDS-MAX Quad Head® Shank Bits

Dia. (in.)	Drilling Depth (in.)	Overall Length (in.)	Model No.
3/8	7 1/2	13	MDMX03713
1/2	7 1/2	13	MDMX05013
	15 1/2	21	MDMX05021
9/16	7 1/2	13	MDMX05613
	15 1/2	21	MDMX05621
5/8	7 1/2	13	MDMX06213Q
	15 1/2	21	MDMX06221Q
	30 1/2	36	MDMX06236Q
11/16	15 1/2	21	MDMX06821Q
3/4	8	13	MDMX07513Q
	17	21	MDMX07521Q
	31	36	MDMX07536Q
13/16	17	21	MDMX08121Q
7/8	8	13	MDMX08713Q
	17	21	MDMX08721Q
1	8	13	MDMX10013Q
	17	21	MDMX10021Q
	31	36	MDMX10036Q
1 1/16	18	23	MDMX10623Q
1 1/8	12	17	MDMX11217Q
	17	21	MDMX11221Q
1 3/16	18	23	MDMX11823Q
1 1/4	10	15	MDMX12515Q
	18	23	MDMX12523Q
	31	36	MDMX12536Q
1 3/8	12	17	MDMX13717Q
	18	23	MDMX13723Q
1 1/2	18	23	MDMX15023Q
1 3/4	18	23	MDMX17523Q
2	18	23	MDMX20023Q

1. Model numbers ending with "Q" denote Quad Head®



Quad Head® Model numbers ending with "Q" denote Quad Head® bits.

SDS-PLUS® Solid-Tip Carbide Drill Bits

Model No.	Dia. (in.)	Total length (in.)	Drilling Depth (in.)
MDPL01804S	3/16	4 1/4	2
MDPL01806S	3/16	6 1/4	4
MDPL01808S	3/16	8 1/4	6
MDPL01812S	3/16	12	10
MDPL02506S	1/4	6 1/4	4
MDPL02508S	1/4	8 1/4	6
MDPL02512S	1/4	12	10
MDPL03106S	5/16	6 1/4	4
MDPL03112S	5/16	12	10
MDPL03706S	3/8	6 1/4	4
MDPL03712S	3/8	12 1/4	10
MDPL05006S	1/2	6 1/4	4
MDPL05012S	1/2	12 1/4	10
MDPL05606S	9/16	6	4
MDPL05612S	9/16	12	10

SDS-MAX® Shank Bit

Solid-Tip Carbide Drill Bit

Spline Shank Bits

Dia. (in.)	Drilling Depth (in.)	Overall Length (in.)	Model No.
3/8	5	10	MDSP03710
	8	13	MDSP03713
	11	16	MDSP03716
7/16	8	13	MDSP04313
1/2	5	10	MDSP05010
	8	13	MDSP05013
	11	16	MDSP05016
	17	22	MDSP05022
	22	29	MDSP05029
	31	36	MDSP05036
9/16	8	13	MDSP05613
	11	16	MDSP05616
	18	23	MDSP05623
5/8	5	10	MDSP06210
	8	13	MDSP06213
	11	16	MDSP06216
	17	22	MDSP06222
	24	29	MDSP06229
	31	36	MDSP06236
11/16	8	13	MDSP06813
	11	16	MDSP06816
3/4	5	10	MDSP07510
	8	13	MDSP07513
	11	16	MDSP07516
	17	22	MDSP07522
	24	29	MDSP07529
	31	36	MDSP07536
7/8	11	16	MDSP08716
	17	22	MDSP08722
	31	36	MDSP08736
1	11	16	MDSP10016
	17	22	MDSP10022
	31	36	MDSP10036
1 1/8	11	16	MDSP11216
	17	22	MDSP11222
1 1/4	11	16	MDSP12516
	17	22	MDSP12522
1 3/8	11	16	MDSP13716
	17	22	MDSP13722
1 1/2	11	16	MDSP15016
	17	22	MDSP15022
1 3/4	17	22	MDSP17522
2	17	22	MDSP20022

Spline Shank Bit

1. Spline Shank Bits continued on the next page.

Spline Shank Quad Head® Bits

Dia. (in.)	Drilling Depth (in.)	Overall Length (in.)	Model No.
5/8	5	10	MDSP06210Q
	11	16	MDSP06216Q
	17	22	MDSP06222Q
	24	29	MDSP06229Q
	31	36	MDSP06236Q
11/16	11	16	MDSP06816Q
3/4	5	10	MDSP07510Q
	11	16	MDSP07516Q
	17	22	MDSP07522Q
	24	29	MDSP07529Q
	31	36	MDSP07536Q
7/8	11	16	MDSP08716Q
	17	22	MDSP08722Q
1	11	16	MDSP10016Q
	17	22	MDSP10022Q
	31	36	MDSP10036Q
1 1/8	11	16	MDSP11216Q
	17	22	MDSP11222Q
1 1/4	11	16	MDSP12516Q
	17	22	MDSP12522Q
	31	36	MDSP12536Q
1 3/8	11	16	MDSP13716Q
	17	22	MDSP13722Q
1 1/2	17	22	MDSP15022Q
1 3/4	18	23	MDSP17523Q
2	18	23	MDSP20023Q

Spline Shank Bit

Quad Head®

'A' Taper Shank Bits

Dia. (in.)	Drilling Depth (in.)	Overall Length (in.)	Model No.
1/2	7	9	MDA05007
5/8	7	9	MDA06207
3/4	16	18	MDA07516

'A' Taper Bit

Straight Shank Bits

Dia. (in.)	Drilling Depth (in.)	Overall Length (in.)	Model No.
1/8	1 3/8	3	MDB01203
3/16	1 9/16	3 1/2	MDB01803
	4	6	MDB01806
1/4	2 1/8	4	MDB02504
	4	6	MDB02506
	10	12	MDB02512
5/16	2 3/4	4 3/4	MDB03104
	4	6	MDB03106
3/8	4	6	MDB03706
	10	12	MDB03712
7/16	4	6	MDB04306
1/2	4	6	MDB05006
	10	12	MDB05012
	22	24	MDB05024
5/8	3 1/2	6	MDB06206
	10	12	MDB06212
	22	24	MDB06224
3/4	4	6	MDB07506
	10	12	MDB07512
7/8	4	6	MDB08706
	10	12	MDB08712
1	4	6	MDB10006
	10	12	MDB10012

1. Bits have recessed shank to fit Titen® screws and other masonry screw installation tools. They also work in three-jaw style chucks.

Straight Shank Bit

Straight Shank Bits – Retail Packs

Dia. (in.)	Drilling Depth (in.)	Overall Length (in.)	Quantity (per pack)	Model No.
1/8	1 3/8	3	25	MDB01203-R25
3/16	1 9/16	3 1/2	25	MDB01803-R25
	4	6	25	MDB01806-R25
1/4	2 1/8	4	25	MDB02504-R25
	4	6	25	MDB02506-R25
5/16	2 3/4	4 3/4	25	MDB03104-R25
	4	6	25	MDB03106-R25
3/8	4	6	25	MDB03706-R25
1/2	4	6	25	MDB05006-R25
5/8	4	6	20	MDB06206-R20

Rebar Cutters**

When hole placement conflicts with rebar or wire mesh, these bits enable the rebar to be removed so the hole can be drilled to the proper depth. Rebar cutters are separate from shanks. Shanks work with all sizes of rebar cutters. Overall length is approximately 15".

Rebar Cutter Detail

Dia. (in.)	Drilling Depth (in.)	Model No.
½	12	MCR05012
⅝	12	MCR06212
¾	12	MCR07512
⅞	12	MCR08712
1	12	MCR10012

Rebar Cutter

** After drilling through the reinforcement or plate, remove debris from the hole and resume drilling with carbide tipped drill bit.

Plate Cutters**

Similar to Rebar Cutters, these bits are designed for cutting through steel base plates when it is necessary to enlarge the fixture hole. These bits can also be used as rebar cutters. Plate cutters are separate from shanks. Shanks work with all sizes of plate cutters.

Plate Cutter Detail

Dia. (in.)	Drilling Depth (in.)	Model No.
½	12	MCP05012
⅝	12	MCP06212
¾	12	MCP07512
⅞	12	MCP08712
1	12	MCP10012

Plate Cutter

** After drilling through the reinforcement or plate, remove debris from the hole and resume drilling with carbide tipped drill bit.

Shanks for Rebar and Plate Cutters

Shank Style	Model No.	Description
Straight	MC	For use in drills with jawed chucks. Use in rotation mode only.
SDS-PLUS®	MCSDP	For use in SDS-PLUS® style drills. Use in rotation only.
SDS-MAX®	MCSDM	For use in SDS-MAX® style drills. Shank design allows rotation only.
Spline	MCS	For use in Spline style drills. Shank design allows rotation only.

SDS-PLUS Shank

Spline Shank

Drill Bit Shank Adaptors

Description (shank style to bit type)	Model No.
SDS-MAX to SDS-PLUS Adaptor	ADMX2PL
Spline to SDS-PLUS Adaptor	ADSP2PL
SDS-top to SDS-PLUS Adaptor	ADST2PL

SDS-MAX® to SDS-PLUS® Adaptor

Spline to SDS-PLUS Adaptor

SDS-Top
(T-ET style) to SDS-PLUS Adaptor

Demolition Chisels & Bits

Simpson Strong-Tie® chisels are made of toughened steel with special surface treatment that improves performance. The superior tempering process creates a hardened surface that is more wear resistant and allows the working point to be re-sharpened which extends the life of the tool.

Simpson Strong-Tie® Demolition Chisels and Bits come in various shank styles to fit virtually any demolition tool.

SDS-MAX®

Spline
(Design disables rotohammer rotation.)

¾" Hex

Scrapers: Removing Tiles, Flooring and Other Materials

Shank Type	Head Width (in.)	Overall Length (in.)	Model No.
SDS-PLUS	¾	10	CHPLF07510
	1½	10	CHPLSC15010
SDS-MAX	2	12	CHMXSCP20012
Spline	2	12	CHSPSCP20012

Scraper

Flat Chisels: General Concrete and Masonry Demolition

Shank Type	Head Width (in.)	Overall Length (in.)	Model No.
SDS-MAX	1	12	CHMXF10012
	1	18	CHMXF10018
Spline	1	12	CHSPF10012
	1	18	CHSPF10018
¾" Hex	1	12	CHHF10012
	1	18	CHHF10018

Flat Chisel

Bull Point Chisels: General Concrete and Masonry Demolition

Shank Type	Overall Length (in.)	Model No.
SDS-PLUS	10	CHPLBP10
SDS-MAX	12	CHMXBP12
	18	CHMXBP18
Spline	12	CHSPBP12
	18	CHSPBP18
¾" Hex	12	CHHBP12
	18	CHHBP18

Bull Point Chisel

Asphalt Cutters: Asphalt, Hardpan and Compacted Soil Cutting

Shank Type	Head Width (in.)	Overall Length (in.)	Model No.
SDS-MAX	3½	16	CHMXAC35016
¾" Hex	3½	16	CHHAC35016

Asphalt Cutter

Clay Spades: Clay and Other Rock-Free Soil Cutting

Shank Type	Head Width (in.)	Overall Length (in.)	Model No.
Spline	5⅜	16	CHSPCS53716
Clay Spade	5⅜	16	CHHCS53716

Clay Spade

Scalers:
Removing Large Quantities of Material

Shank Type	Head Width (in.)	Overall Length (in.)	Model No.
SDS-MAX	1½	12	CHMXSC15012
	2	12	CHMXSC20012
	3	12	CHMXSC30012
Spline	1½	12	CHSPSC15012
	2	12	CHSPSC20012
	3	12	CHSPSC30012
¾" Hex	2	12	CHHSC20012
	3	12	CHHSC30012

Scaler

Ground Rod Drivers:
Driving in Ground Rods

Shank Type	Head Width (in.)	Overall Length (in.)	Model No.
SDS-MAX	⅞	10¼	CHMXRD08710
Spline	⅞	10¼	CHSPRD08710

Ground Rod Driver

Bushing Tools One and Two Piece:
Concrete and Asphalt Surface Roughening

Shank Type	Head Width (in.)	Overall Length (in.)	Model No.
SDS-MAX	1¾	9½	CHMXBT17509
Spline	1¾	9¼	CHSPBT17509
Bushing Tool	1¾	9¼	CHHBT17509

Bushing Tool Head

Core Bits

Simpson Strong-Tie® Core Bits are made to the same exacting standards as our standard carbide tipped drill bits. They utilize a centering bit to facilitate accurate drilling in combination hammer/drill mode.

One-Piece Core Bits with Centering Bit – SDS-MAX® Shank

Dia. (in.)	Drilling Depth (in.)	Overall Length (in.)	Model No.
1½	6¼	11⅜	CBMX15011
	16¾	22	CBMX15022
2	6¼	11⅜	CBMX20011
	16¾	22	CBMX20022
2⅝	6¼	11⅜	CBMX26211
	16¾	22	CBMX26222
3½	16¾	22	CBMX35022
4	6¼	11⅜	CBMX40011
	16¾	22	CBMX40022
5	6¼	11⅜	CBMX50011
	16¾	22	CBMX50022

1. **NOTE:** With 1-piece bits, once coring is begun the centering bit must be removed using ejector pin. Core bit bodies are 2 11/16" deep.

One-Piece Core Bit transfers energy efficiently

One-Piece Core Bits with Centering Bit – Spline Shank

Dia. (in.)	Drilling Depth (in.)	Overall Length (in.)	Model No.
1½	6¾	11⅜	CBSP15012
	16¾	22	CBSP15022
2	6¼	11⅜	CBSP20011
	16¾	22	CBSP20022
2⅝	6¼	11⅜	CBSP26211
	16¾	22	CBSP26222
3⅛	6¼	11⅜	CBSP31211
	16¾	22	CBSP31222
3½	6¼	11⅜	CBSP35011
	16¾	22	CBSP35022
5	6¼	11⅜	CBSP50011
	16¾	22	CBSP50022

Core Bit Replacement Parts

Core Bit Center Pilot Bit

Dia. (in.)	Overall Length (in.)	Model No.
7/16	4¾	CTRBTF04304

Ejector Key

Dia. (in.)	Model No.
⅜	CDBEJKEY

Popular Anchoring and Fastening Applications by Contractor Market

The following section depicts many popular applications and the Simpson Strong-Tie® products that most effectively suit them.

There are many variables, such as anchor strength, cost and needs of the installer, which affects the specific needs of the project. This section serves only as a guide. We recommend you contact Simpson Strong-Tie for additional information.

Determining the type of environment where and anchor or fastener will be used is an important factor in selecting the most appropriate material and/or coating for the anchor or fastener used. Please visit *www.strongtie.com/corrosion* for more information.

Concrete and Masonry Applications

Anchoring Adhesives

AT-XP® SET-XP® ET-HP® AT SET

Mechanical Anchors

Titen HD® Strong-Bolt® 2 Torq-Cut® Wedge-All® DSD (Split Drive) Drop-In Anchor

Direct Fastening Systems

Gas Systems

Powder-Actuated Systems

For additional information about the above products including technical information, application information and installation instructions, reference the *Simpson Strong-Tie® Anchoring and Fastening Systems for Concrete and Masonry* catalog or visit ***www.strongtie.com***.

Concrete and Masonry Applications

SIMPSON Strong-Tie®

Rebar and Smooth Dowelling

Anchoring adhesives

Tilt-Up Braces

Titen HD®, Strong-Bolt® 2

Wall Dowels

Anchoring adhesives

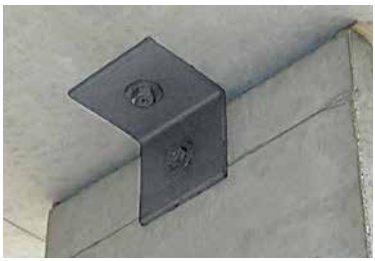
Concrete Formwork

Coil Thread Drop-In, Titen HD, DSD, Strong-Bolt 2, Wedge-All®

Fastening Forms

Powder-actuated systems

Attaching Precast Elements



Anchoring adhesives and Strong-Bolt 2, Titen HD, Wedge-All

Anchors into Concrete Blocks

Anchoring adhesives and Strong-Bolt 2, Titen HD, Wedge-All

Note: These are general product recommendations. Final product selection must be made by a qualified engineer or installer in accordance with Simpson Strong-Tie technical information. Photos are for illustration purposes only.

Mechanical Anchors


Titen HD®


Strong-Bolt® 2


Wedge-All®


Titen HD® Rod Hanger


Tie Wire Wedge-All


Crimp Anchor


CSD


Titen® Screw

Direct Fastening Systems


Gas Systems


Powder-Actuated Systems

For additional information about the above products including technical information, application information and installation instructions, reference the *Simpson Strong-Tie® Anchoring and Fastening Systems for Concrete and Masonry* catalog or visit ***www.strongtie.com***.

Commercial Drywall and Acoustical Ceiling Applications

SIMPSON Strong-Tie®

Drywall Track

Direct fastening systems

Furring Strips

Titen® screw and CSD anchors, Direct fastening systems

Ceiling Track

Direct fastening systems

Metal Furring

Direct fastening systems

Acoustical Ceiling Grid

Direct fastening systems, ceiling clips, Tie Wire Wedge-All®

Non-Top Supported Wall Braces

Strong-Bolt® 2, Titen HD®, Wedge-All

Note: These are general product recommendations. Final product selection must be made by a qualified engineer or installer in accordance with Simpson Strong-Tie technical information. Photos are for illustration purposes only.

Curtainwall, Glazing and Cladding Applications

Anchoring Adhesives

AT-XP® SET-XP® ET-HP® AT SET

Mechanical Anchors

Titen HD® Strong-Bolt® 2 Wedge-All® Titen® Screw Split-Drive

Cold-Formed Steel Clips

SCB49.5

Direct Fastening Systems

Powder-Actuated Systems

For additional information about the above products including technical information, application information and installation instructions, reference the *Simpson Strong-Tie® Anchoring and Fastening Systems for Concrete and Masonry* catalog or visit ***www.strongtie.com***.

Curtainwall, Glazing and Cladding Applications

SIMPSON Strong-Tie®

Steel Curtain Walls

Titen HD®, Split-Drive, Anchoring adhesives, Direct fastening systems

Framework Mullions

Titen HD, Strong-Bolt 2, Wedge-All, Direct fastening systems

Exterior Stone or Masonry Clips

Anchoring adhesives, Strong-Bolt® 2, Wedge-All®

Masonry Veneer Ledger

Anchoring adhesives, Strong-Bolt 2, Wedge-All

Titen® screw

Note: These are general product recommendations. Final product selection must be made by a qualified engineer or installer in accordance with Simpson Strong-Tie technical information. Photos are for illustration purposes only.

Anchoring Adhesives

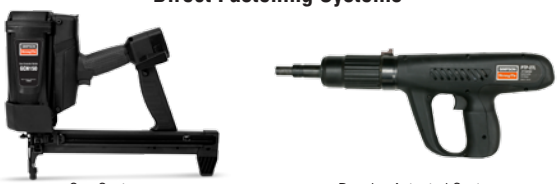
AT-XP® SET-XP® ET-HP® AT SET

Mechanical Anchors

Titen HD® Rod Hanger | Titen HD® | Strong-Bolt® 2 | Wedge-All® | Drop-In Anchor | Sleeve-All | Titen® Screw | Zinc Nailon | Crimp Anchor

Blue-Banger Hanger® Metal Deck Insert | Blue-Banger Hanger® Wood Form Insert | Blue-Banger Hanger® Roof Deck Insert

Direct Fastening Systems



Gas Systems | Powder-Actuated Systems

For additional information about the above products including technical information, application information and installation instructions, reference the *Simpson Strong-Tie® Anchoring and Fastening Systems for Concrete and Masonry* catalog or visit ***www.strongtie.com***.

Mechanical, Electrical and Plumbing Applications

SIMPSON Strong-Tie®

Junction Boxes and Breaker Panels

Titen HD®, Zinc Nailon, Direct fastening systems

Transformers / Electrical Enclosures

Titen HD (interior), Strong-Bolt® 2, Wedge-All®, Anchoring adhesives

Conduit Attachment

Titen® screw, Zinc Nailon, Direct fastening systems

System Controls

Titen HD (interior), Strong-Bolt 2, Wedge-All, Titen screw

Cable Tray

Titen HD, Drop-In, Wedge-All, Blue Banger Hanger

Pipe Fixtures

Titen HD, Strong-Bolt 2, Wedge-All

Cable Hangers

Titen HD, Strong-Bolt 2, Wedge-All

Note: These are general product recommendations. Final product selection must be made by a qualified engineer or installer in accordance with Simpson Strong-Tie technical information. Photos are for illustration purposes only.

Highway and Bridge Applications

Anchoring Adhesives

AT-XP® SET-XP® ET-HP® EDOT™ AT SET

Mechanical Anchors

Strong-Bolt® 2 Wedge-All®

Visit ***www.strongtie.com/rps*** for more information about our new *Repair, Protection and Strengthening Systems* product line!

Direct Fastening Systems

Gas Systems

Powder-Actuated Systems

For additional information about the above products including technical information, application information and installation instructions, reference the *Simpson Strong-Tie® Anchoring and Fastening Systems for Concrete and Masonry* catalog or visit ***www.strongtie.com***.

Highway and Bridge Applications

SIMPSON Strong-Tie®

Dowels for New or Lane Addition

Anchoring adhesives

Dowel Baskets

Direct fastening systems

Dowels for Repairs

Anchoring adhesives

Glare Screens

Strong-Bolt® 2, Wedge-All®, Anchoring adhesives

Barriers and Guardrails

Anchoring adhesives

Heavy- and Light-Duty Signs

Anchoring adhesives, Strong-Bolt 2, Wedge-All

Dowels for Jersey Barriers

Anchoring adhesives

Note: These are general product recommendations. Final product selection must be made by a qualified engineer or installer in accordance with Simpson Strong-Tie technical information. Photos are for illustration purposes only.

Anchoring Adhesives

AT-XP® SET-XP® ET-HP® AT SET

Mechanical Anchors

Torq-Cut® Titen HD® Strong-Bolt® 2 Wedge-All® Titen® Screw DMSA

For additional information about the above products including technical information, application information and installation instructions, reference the *Simpson Strong-Tie® Anchoring and Fastening Systems for Concrete and Masonry* catalog or visit ***www.strongtie.com***.

Machinery and Equipment Mounting

Anchoring adhesives, Strong-Bolt® 2, Wedge-All®, Torq-Cut®

Dock Doors and Bumpers

Anchoring adhesives, Titen HD®, Strong-Bolt 2, Wedge-All

Control Stations and Electrical

Titen HD, Strong-Bolt 2, Wedge-All, Titen® screws

Overhead Doors

Anchoring Adhesives, Titen HD, Strong-Bolt 2, Wedge-All

Conveyors and Rollers

Anchoring adhesives, Strong-Bolt 2, Wedge-All, Torq-Cut

Racking

Titen HD, Strong-Bolt 2, Wedge-All, Torq-Cut

Security Cage and Shelving

Titen HD, Strong-Bolt 2, Wedge-All

Note: These are general product recommendations. Final product selection must be made by a qualified engineer or installer in accordance with Simpson Strong-Tie technical information. Photos are for illustration purposes only.

Anchoring Adhesives

AT-XP® SET-XP® ET-HP® AT SET

Mechanical Anchors

Titen HD® Strong-Bolt® 2 Torq-Cut® Wedge-All®

For additional information about the above products including technical information, application information and installation instructions, reference the *Simpson Strong-Tie® Anchoring and Fastening Systems for Concrete and Masonry* catalog or visit ***www.strongtie.com***.

Structural and Miscellaneous Steel Applications

SIMPSON Strong-Tie®

Steel Beams / Columns

Anchoring adhesives, Titen HD®, Strong-Bolt® 2, Wedge-All®, Torq-Cut®

Exterior Stairs and Ladders

Strong-Bolt 2, Wedge-All

Awnings

Anchoring adhesives, Strong-Bolt 2, Wedge-All

Interior Stairs

Anchoring adhesives, Titen HD, Strong-Bolt 2, Wedge-All, Torq-Cut

Hand Railings and Access Ladders

Anchoring adhesives, Strong-Bolt 2, Wedge-All

Ornamental Iron

Anchoring adhesives, Strong-Bolt 2, Wedge-All

Protective Railing and Fencing

Titen HD (interior), Strong-Bolt 2, Wedge-All

Note: These are general product recommendations. Final product selection must be made by a qualified engineer or installer in accordance with Simpson Strong-Tie technical information. Photos are for illustration purposes only.

Water and Sewage Treatment Applications

Anchoring Adhesives

AT-XP® SET-XP® ET-HP® AT SET

Mechanical Anchors

Titen HD® Strong-Bolt® 2 Wedge-All® Drop-In Anchor Blue Banger Hanger® Wood Form Insert

For additional information about the above products including technical information, application information and installation instructions, reference the *Simpson Strong-Tie® Anchoring and Fastening Systems for Concrete and Masonry* catalog or visit ***www.strongtie.com***.

Water and Sewage Treatment Applications

Covers and Domes

Anchoring adhesives, Strong-Bolt® 2, Wedge-All®

Pumps and Equipment

Anchoring adhesives, Titen HD® (interior), Strong-Bolt 2, Wedge-All

Railings and Ladders

Titen HD (interior), Strong-Bolt 2, Wedge-All,

Instrumentation and Controls

Titen HD (interior), Strong-Bolt 2, Wedge-All

Gates

Anchoring adhesives, Strong-Bolt 2, Wedge-All

Elevated Walkways

Titen HD (interior), Strong-Bolt 2, Wedge-All

Pipe Supports

Drop-In, Strong-Bolt 2, Wedge-All, Blue Banger Hanger®

Note: These are general product recommendations. Final product selection must be made by a qualified engineer or installer in accordance with Simpson Strong-Tie technical information. Photos are for illustration purposes only.

Wood Construction Applications

Anchoring Adhesives

AT-XP®

SET-XP®

ET-HP®

AT

SET

Mechanical Anchors

Titen HD®

Strong-Bolt® 2

Wedge-All®

Powder-Actuated Fastening Systems

Powder-Actuated Systems

For additional information about the above products including technical information, application information and installation instructions, reference the *Simpson Strong-Tie® Anchoring and Fastening Systems for Concrete and Masonry* catalog or visit ***www.strongtie.com***.

Wood Construction Applications

Perimeter Mudsills

Anchoring adhesives, Titen HD®, Powder-actuated systems

Framing Hardware (new and retrofit)

Anchoring adhesives, Titen HD, Strong-Bolt® 2, Wedge-All®

Ledgers

Anchoring adhesives, Titen HD (interior only), Strong-Bolt 2, Wedge-All

Structural Beams

Anchoring adhesives, Strong-Bolt 2, Wedge-All

Post Bases for Decks, Railings and Patio Covers

Anchoring Adhesives, Strong-Bolt 2, Wedge-All

Note: These are general product recommendations. Final product selection must be made by a qualified engineer or installer in accordance with Simpson Strong-Tie technical information. Photos are for illustration purposes only.

Concrete Repair / Restoration Applications

Crack Injection Adhesives

ETI-SLV

ETI-LV

ETI-GV

Crack-Pac®

Crack-Pac® Flex-H_2O™

ETR-16

CIP

CIP-F

For additional information about the above products including technical information, application information and installation instructions, reference the *Simpson Strong-Tie® Anchoring and Fastening Systems for Concrete and Masonry* catalog or visit ***www.strongtie.com***.

Crack injection in concrete slabs and walls to stop moisture

Dry cracks: ETI-SLV, ETI-LV, ETI-GV, Crack-Pac®, Crack-Pac® Flex-H_2O™

Wet/Leaking cracks: ETI-SLV, ETI-LV, ETI-GV, Crack-Pac Flex-H_2O

Gravity feed for cracks in floors

ETI-SLV, ETI-LV, ETI-GV, Crack-Pac, Crack-Pac Flex-H_2O

Crack injection in concrete slabs, walls, columns and beams to restore structural integrity

ETI-SLV, ETI-LV, ETI-GV

Dowels to reinforce replaced concrete

Anchoring Adhesives

Crack injection in swimming pools

ETI-SLV, ETI-LV, ETI-GV, Crack-Pac, Crack-Pac Flex-H_2O

Note: These are general product recommendations. Final product selection must be made by a qualified engineer or installer in accordance with Simpson Strong-Tie technical information. Photos are for illustration purposes only.

Visit ***www.strongtie.com/rps*** for more information about our new *Repair, Protection and Strengthening Systems* product line!

Specialty Applications

Anchoring Adhesives

AT-XP®

SET-XP®

ET-HP®

AT

SET

Mechanical Anchors

Heli-Tie™

Titen HD®

Strong-Bolt® 2

Torq-Cut™

Wedge-All®

Titen® Screw

Direct Fastening Systems

Gas Systems

Powder-Actuated Systems

For additional information about the above products including technical information, application information and installation instructions, reference the *Simpson Strong-Tie® Anchoring and Fastening Systems for Concrete and Masonry* catalog or visit ***www.strongtie.com***.

Specialty Applications

Stadium Seating

Anchoring adhesives, Strong-Bolt® 2, Titen HD® (interior), Wedge-All®

Basement Wrap / Waterproofing

Direct fastening systems

Rail Anchoring

Anchoring adhesives

Architectural Features

Anchoring adhesives, Strong-Bolt 2, Titen HD (interior only), Wedge-All, Titen® screw

Lathing

Direct fastening systems

Concrete Removal

Strong-Bolt 2, Titen HD, Wedge-All

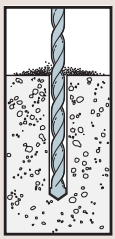
Seismic Retrofit / Structural Renovation

Anchoring adhesives, Strong-Bolt 2, Titen HD, Wedge-All, Torq-Cut®

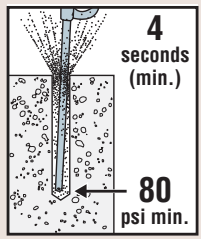
Note: These are general product recommendations. Final product selection must be made by a qualified engineer or installer in accordance with Simpson Strong-Tie technical information. Photos are for illustration purposes only.

Adhesive Anchoring Installation Instructions

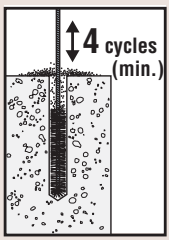
1 HOLE PREPARATION: Horizontal, Vertical and Overhead Applications



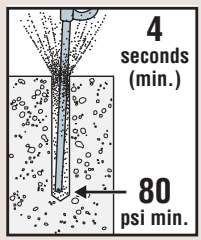
1. Drill – Drill hole to specified diameter and depth.



2. Blow – Remove dust from hole with oil-free compressed air for a minimum of 4 seconds. Compressed air nozzle must reach the bottom of the hole.



3. Brush – Clean with a nylon brush for a minimum of 4 cycles. Brush should provide resistance to insertion. If no resistance is felt, the brush is worn and must be replaced.



4. Blow– Remove dust from hole with oil-free compressed air for a minimum of 4 seconds.

Refer to page 126 or visit ***www.strongtie.com*** for proper brush part number.

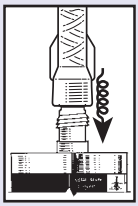
Note: Always check expiration date on product label. Do not use expired product.

Warning: When drilling and cleaning hole, use eye and lung protection. When installing adhesive, use eye and skin protection.

2 CARTRIDGE PREPARATION:

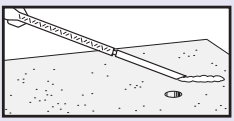
1. Check –
Check expiration date on product label. Do not use expired product. Product is usable until end of printed expiration month.

2. Open –
Open cartridge per package instructions.



3. Attach –
Attach proper Simpson Strong-Tie® nozzle and extension to cartridge. Do not modify nozzle.

4. Insert – Insert cartridge into dispensing tool.



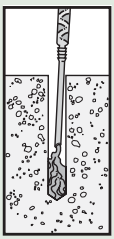
5. Dispense – Dispense adhesive to the side until properly mixed (uniform color).

Refer to pages 119-121 or visit ***www.strongtie.com*** for proper mixing nozzle and dispensing tool part number.

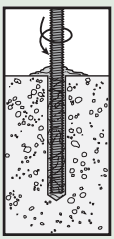
3 FILLING THE HOLE: Vertical Anchorage

Prepare the hole per instructions "Hole Preparation" on product label.

Dry and Damp Holes:

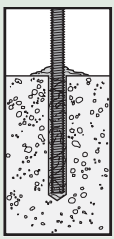


1. Fill –
Fill hole ½–⅔ full, starting from bottom of hole to prevent air pockets. Withdraw nozzle as hole fills up.



Threaded rod or rebar

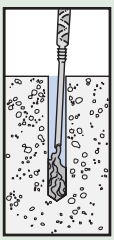
2. Insert –
Insert clean, oil free anchor, turning slowly until the anchor contacts the bottom of the hole.



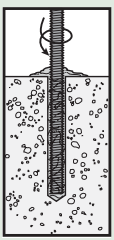
3. Do not disturb –
Do not disturb anchor until fully cured. (See cure schedule for specific adhesive.)

Note: Nozzle extensions may be needed for deep holes.

Water-Filled Holes:

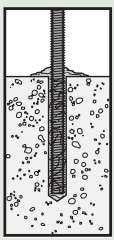


1. Fill –
Fill hole completely full, starting from bottom of hole to prevent water pockets. Withdraw nozzle as hole fills up.



Threaded rod or rebar

2. Insert –
Insert clean, oil-free anchor, turning slowly until the anchor contacts the bottom of the hole.

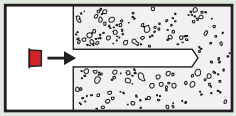


3. Do not disturb –
Do not disturb anchor until fully cured. (See cure schedule.)

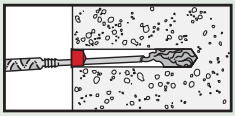
Note: Nozzle extensions may be needed for deep holes.

FILLING THE HOLE: Horizontal and Overhead Anchorage

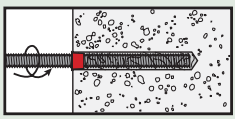
Prepare the hole per instructions "Hole Preparation" on product label.



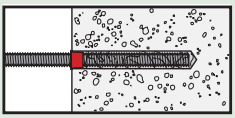
1. Install – Install Simpson Strong-Tie® ARC adhesive retaining cap. See page 122 for proper ARC size.



2. Fill – Fill hole ½–⅔ full, starting from bottom of hole to prevent air pockets. Withdraw nozzle as hole fills up.



3. Insert – Insert clean, oil-free anchor, turning slowly until the anchor contacts the bottom of the hole.

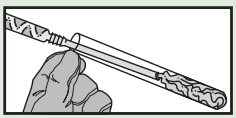


4. Do not disturb – Do not disturb anchor until fully cured (see cure schedule).

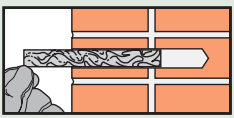
Note: Nozzle extensions may be needed for deep holes.

FILLING THE HOLE: When Anchoring with Screens: For AT, ET-HP (formerly ET) and SET Anchoring Adhesives (except SET1.7KTA)

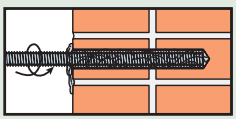
Prepare the hole per instructions "Hole Preparation".



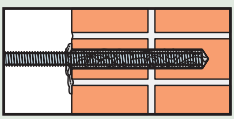
1. Fill – Fill screen completely. Fill from the bottom of the screen and withdraw the nozzle as the screen fills to prevent air pockets. (Opti-Mesh® screens: Close integral cap after filling.)



2. Insert – Insert adhesive filled screen into hole.



3. Insert – Insert clean, oil-free anchor, turning slowly until the anchor contacts the bottom of the screen.



4. Do not disturb – Do not disturb anchor until fully cured. (See cure schedule for specific adhesive.)

Acrylic Adhesive Usage Estimating Guides

Estimating Guide for 12.5 oz. Cartridge using Threaded Rod – Installations per Cartridge

Rod Dia. (in.)	Drill Bit Dia. (in.)	Threaded Rod In Solid Base Material Hole Depth (in.)									
		2	4	6	8	10	12	14	16	18	20
⅜	7⁄16	103	51	34	26	21	17	15	13	11	10
½	9⁄16	75	37	25	19	15	12	11	9	8	7
⅝	11⁄16	55	27	18	14	11	9	8	7	6	5
¾	13⁄16	44	22	15	11	9	7	6	6	5	4
⅞	1	25	12	8	6	5	4	4	3	3	2
1	1⅛	21	10	7	5	4	3	3	3	2	2
1⅛	1 3⁄16	24	12	8	6	5	4	3	3	3	2
1¼	1⅜	16	8	5	4	3	3	2	2	2	2

Estimating Guide for 12.5 oz. Cartridge using Rebar – Installations per Cartridge

Rebar Size (no.)	Drill Bit Dia. (in.)	Rebar In Solid Base Material Hole Depth (in.)									
		2	4	6	8	10	12	14	16	18	20
3	½	77	39	26	19	15	13	11	10	9	8
4	⅝	60	30	20	15	12	10	9	8	7	6
5	¾	48	24	16	12	10	8	7	6	5	5
6	⅞	39	19	13	10	8	6	6	5	4	4
7	1	34	17	11	8	7	6	5	4	4	3
8	1⅛	29	15	10	7	6	5	4	4	3	3
9	1¼	26	13	9	7	5	4	4	3	3	3
10	1⅜	26	13	9	7	5	4	4	3	3	3
11	1⅝	13	7	4	3	3	2	2	2	1	1

Estimating Guide for 12.5 oz. Cartridge and Steel Screen Tubes – Installations per Cartridge

Rod Dia. (in.)	Drill Bit Dia. (in.)	Threaded Rod Inserted In Screen Tube Hole Depth (in.)											
		3½	4	4½	5	5½	6	6½	7	7½	8	9	10
⅜	9⁄16	29	25	23	20	18	17	16	15	14	13	11	10
½	11⁄16	18	16	14	13	12	11	10	9	9	8	7	6
⅝	⅞	10	9	8	7	7	6	6	5	5	5	4	4
¾	1	8	7	6	5	5	4	4	4	4	3	3	3

Estimating Guide for 12.5 oz. Cartridge and Plastic Screen Tubes – Installations per Cartridge

Rod Dia. (in.)	Drill Bit Dia. (in.)	Threaded Rod Inserted In Screen Tube Hole Depth (in.)											
		3½	4	4½	5	5½	6	6½	7	7½	8	9	10
⅜	9⁄16	34	30	26	24	22	20	18	17	16	15	13	12
½	11⁄16	18	15	14	12	11	10	9	9	8	8	7	6
⅝	⅞	12	11	9	8	8	7	6	6	6	5	5	4
¾	1	9	8	7	6	6	5	5	4	4	4	3	3

Tables are estimations. Actual usage may vary depending on waste.

Note: Online adhesive cartridge quantity estimating tools are available by visiting ***www.strongtie.com***.

Acrylic Adhesive Usage Estimating Guides

Estimating Guide for 30 oz. Cartridge using Threaded Rod – Installations per Cartridge

Rod Dia. (in.)	Drill Bit Dia. (in.)	Threaded Rod In Solid Base Material Hole Depth (in.)									
		2	4	6	8	10	12	14	16	18	20
⅜	7/16	237	119	79	59	47	40	34	30	26	24
½	9/16	173	86	58	43	35	29	25	22	19	17
⅝	11/16	127	63	42	32	25	21	18	16	14	13
¾	13/16	102	51	34	25	20	17	15	13	11	10
⅞	1	58	29	19	14	12	10	8	7	6	6
1	1⅛	47	24	16	12	9	8	7	6	5	5
1⅛	1 3/16	55	27	18	14	11	9	8	7	6	5
1¼	1⅜	37	18	12	9	7	6	5	5	4	4

Estimating Guide for 30 oz. Cartridge using Rebar – Installations per Cartridge

Rebar Size (no.)	Drill Bit Dia. (in.)	Rebar In Solid Base Material Hole Depth (in.)									
		2	4	6	8	10	12	14	16	18	20
3	½	178	89	59	45	36	30	25	22	20	18
4	⅝	139	69	46	35	28	23	20	17	15	14
5	¾	112	56	37	28	22	19	16	14	12	11
6	⅞	89	45	30	22	18	15	13	11	10	9
7	1	78	39	26	19	16	13	11	10	9	8
8	1⅛	67	33	22	17	13	11	10	8	7	7
9	1¼	60	30	20	15	12	10	9	8	7	6
10	1⅜	61	30	20	15	12	10	9	8	7	6
11	1⅝	31	15	10	8	6	5	4	4	3	3

Estimating Guide for 30 oz. Cartridge and Steel Screen Tubes – Installations per Cartridge

Rod Dia. (in.)	Drill Bit Dia. (in.)	Threaded Rod Inserted In Screen Tube Hole Depth (in.)											
		3½	4	4½	5	5½	6	6½	7	7½	8	9	10
⅜	9/16	67	59	52	47	43	39	36	33	31	29	26	23
½	¾	42	37	33	30	27	25	23	21	20	19	16	15
⅝	⅞	24	21	19	17	15	14	13	12	11	10	9	8
¾	1	18	16	14	12	11	10	10	9	8	8	7	6

Estimating Guide for 30 oz. Cartridge and Plastic Screen Tubes – Installations per Cartridge

Rod Dia. (in.)	Drill Bit Dia. (in.)	Threaded Rod Inserted In Screen Tube Hole Depth (in.)											
		3½	4	4½	5	5½	6	6½	7	7½	8	9	10
⅜	9/16	78	69	61	55	50	46	42	39	37	34	31	27
½	¾	41	36	32	28	26	24	22	20	19	18	16	14
⅝	⅞	28	24	22	19	18	16	15	14	13	12	11	10
¾	1	20	18	16	14	13	12	11	10	9	9	8	7

Tables are estimations. Actual usage may vary depending on waste.

Note: Online adhesive cartridge quantity estimating tools are available by visiting ***www.strongtie.com***.

Epoxy Usage Estimating Guides

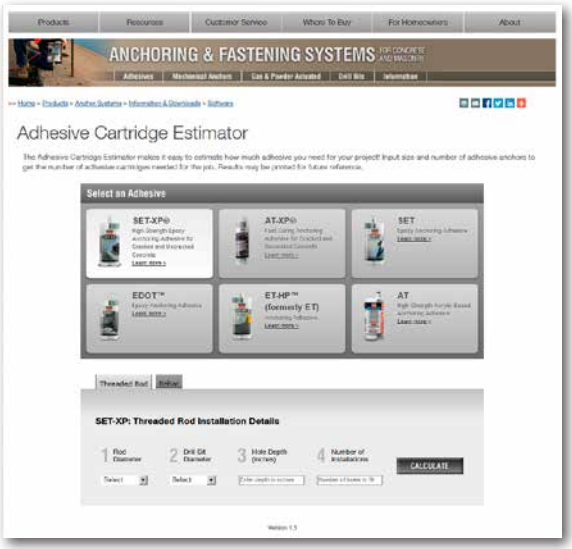
Estimating Guide for 8.5 oz. Cartridge using Threaded Rod – Installations per Cartridge

Rod Dia. (in.)	Drill Bit Dia. (in.)	Threaded Rod In Solid Base Material Hole Depth (in.)									
		2	4	6	8	10	12	14	16	18	20
⅜	½	42	21	14	11	8	7	6	5	5	4
½	⅝	31	15	10	8	6	5	4	4	3	3
⅝	¾	24	12	8	6	5	4	3	3	3	2.4
¾	⅞	19	10	6	5	4	3	3	2.4	2.1	1.9
⅞	1	16	8	5	4	3	3	2.3	2.0	1.8	1.6
1	1⅛	13	7	4	3	3	2.2	1.9	1.7	1.5	1.3
1⅛	1¼	12	6	4	3	2.3	1.9	1.6	1.4	1.3	1.2
1¼	1⅜	10	5	3	3	2.1	1.7	1.5	1.3	1.2	1.0

Estimating Guide for 8.5 oz. Cartridge using Rebar – Installations per Cartridge

Rebar Size (no.)	Drill Bit Dia. (in.)	Rebar In Solid Base Material Hole Depth (in.)									
		2	4	6	8	10	12	14	16	18	20
3	½	50	25	17	13	10	8	7	6	6	5
4	⅝	39	20	13	10	8	7	6	5	4	4
5	¾	32	16	11	8	6	5	5	4	4	3
6	⅞	25	13	8	6	5	4	4	3	3	3
7	1	22	11	7	6	4	4	3	3	2.4	2.2
8	1⅛	19	9	6	5	4	3	3	2.4	2.1	1.9
9	1¼	17	8	6	4	3	3	2.4	2.1	1.9	1.7
10	1½	9	5	3	2.3	1.8	1.5	1.3	1.1	1.0	0.9
11	1⅝	9	4	3	2.2	1.7	1.4	1.2	1.1	1.0	0.9

Tables are estimations. Actual usage may vary depending on waste.



Online adhesive cartridge quantity estimating tools are available by visiting ***www.strongtie.com***.

Epoxy Usage Estimating Guides

Estimating Guide for 22 oz. Cartridge using Threaded Rod – Installations per Cartridge

Rod Dia. (in.)	Drill Bit Dia. (in.)	Threaded Rod In Solid Base Material Hole Depth (in.)									
		2	4	6	8	10	12	14	16	18	20
⅜	½	110	55	37	27	22	18	16	14	12	11
½	⅝	80	40	27	20	16	13	11	10	9	8
⅝	¾	62	31	21	16	12	10	9	8	7	6
¾	⅞	50	25	17	13	10	8	7	6	6	5
⅞	1	42	21	14	11	8	7	6	5	5	4
1	1⅛	35	17	12	9	7	6	5	4	4	3
1⅛	1¼	30	15	10	7	6	5	4	4	3	3
1¼	1⅜	27	13	9	7	5	4	4	3	3	3

Estimating Guide for 22 oz. Cartridge using Rebar – Installations per Cartridge

Rebar Size (no.)	Drill Bit Dia. (in.)	Rebar In Solid Base Material Hole Depth (in.)									
		2	4	6	8	10	12	14	16	18	20
3	½	131	65	44	33	26	22	19	16	15	13
4	⅝	102	51	34	25	20	17	15	13	11	10
5	¾	82	41	27	20	16	14	12	10	9	8
6	⅞	65	33	22	16	13	11	9	8	7	7
7	1	57	29	19	14	11	10	8	7	6	6
8	1⅛	49	25	16	12	10	8	7	6	5	5
9	1¼	44	22	15	11	9	7	6	6	5	4
10	1½	23	12	8	6	5	4	3	3	3	2
11	1⅝	22	11	7	6	4	4	3	3	2	2

Estimating Guide for 22 oz. Cartridge and Steel Screen Tubes – Installations per Cartridge

Rod Dia. (in.)	Drill Bit Dia. (in.)	Threaded Rod Inserted In Screen Tube Hole Depth (in.)							
		3½	4	5	6	7	8	9	10
⅜	9⁄16	49	43	34	29	25	21	19	17
½	11⁄16	31	27	22	18	16	14	12	11
⅝	⅞	18	15	12	10	9	8	7	6
¾	1	13	11	9	8	7	6	5	5

Estimating Guide for 22 oz. Cartridge and Plastic Screen Tubes – Installations per Cartridge

Rod Dia. (in.)	Drill Bit Dia. (in.)	Threaded Rod Inserted In Screen Tube Hole Depth (in.)							
		3½	4	5	6	7	8	9	10
⅜	9⁄16	57	50	40	34	29	25	22	20
½	11⁄16	30	26	21	17	15	13	12	10
⅝	⅞	20	18	14	12	10	9	8	7
¾	1	15	13	10	9	7	6	6	5

Tables are estimations. Actual usage may vary depending on waste.

Note: Online adhesive cartridge quantity estimating tools are available by visiting ***www.strongtie.com***.

Epoxy Usage Estimating Guides

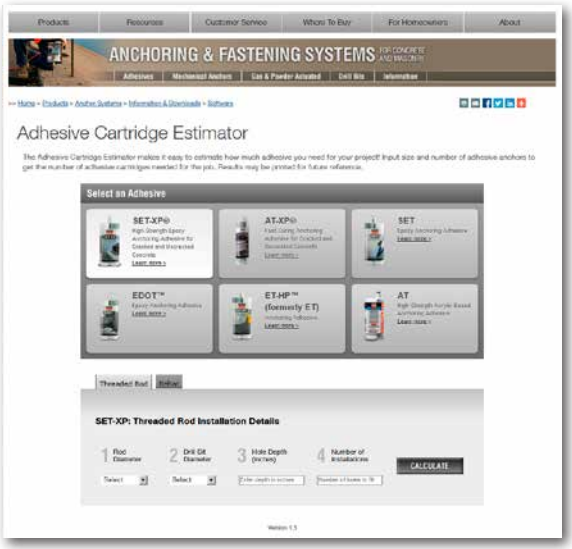
Estimating Guide for 56 oz. Cartridge using Threaded Rod – Installations per Cartridge

Rod Dia. (in.)	Drill Bit Dia. (in.)	Threaded Rod In Solid Base Material Hole Depth (in.)									
		2	4	6	8	10	12	14	16	18	20
⅜	½	279	140	93	70	56	47	40	35	31	28
½	⅝	203	101	68	51	41	34	29	25	23	20
⅝	¾	159	79	53	40	32	26	23	20	18	16
¾	⅞	127	64	42	32	25	21	18	16	14	13
⅞	1	107	54	36	27	21	18	15	13	12	11
1	1⅛	88	44	29	22	18	15	13	11	10	9
1⅛	1¼	76	38	25	19	15	13	11	10	8	8
1¼	1⅜	69	34	23	17	14	11	10	9	8	7

Estimating Guide for 56 oz. Cartridge using Rebar – Installations per Cartridge

Rebar Size (no.)	Drill Bit Dia. (in.)	Rebar In Solid Base Material Hole Depth (in.)									
		2	4	6	8	10	12	14	16	18	20
3	½	332	166	111	83	66	55	47	42	37	33
4	⅝	259	129	86	65	52	43	37	32	29	26
5	¾	208	104	69	52	42	35	30	26	23	21
6	⅞	167	83	56	42	33	28	24	21	19	17
7	1	145	73	48	36	29	24	21	18	16	15
8	1⅛	125	62	42	31	25	21	18	16	14	12
9	1¼	112	56	37	28	22	19	16	14	12	11
10	1½	60	30	20	15	12	10	9	7	7	6
11	1⅝	57	29	19	14	11	10	8	7	6	6

Tables are estimations. Actual usage may vary depending on waste.



Online adhesive cartridge quantity estimating tools are available by visiting ***www.strongtie.com***.

Epoxy Usage Estimating Guides

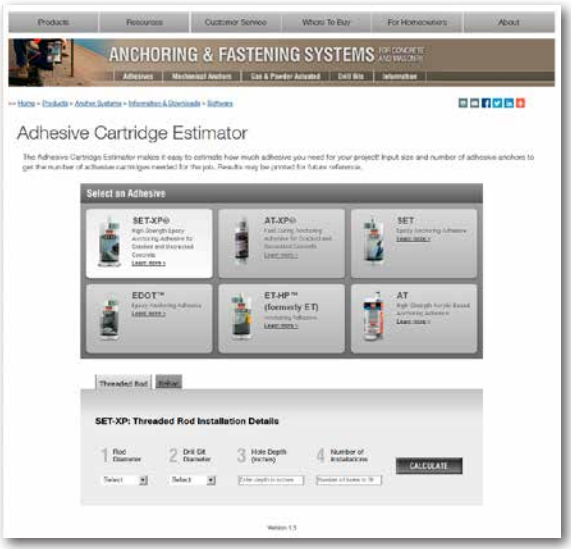
Estimating Guide for 1 Gallon (128 oz.) System using Threaded Rod – Installations per Gallon

Rod Dia. (in.)	Drill Bit Dia. (in.)	Threaded Rod In Solid Base Material Hole Depth (in.)									
		2	4	6	8	10	12	14	16	18	20
⅜	½	638	319	213	160	128	106	91	80	71	64
½	⅝	464	232	155	116	93	77	66	58	52	46
⅝	¾	363	181	121	91	73	60	52	45	40	36
¾	⅞	291	146	97	73	58	49	42	36	32	29
⅞	1	245	123	82	61	49	41	35	31	27	25
1	1⅛	202	101	67	50	40	34	29	25	22	20
1⅛	1¼	174	87	58	43	35	29	25	22	19	17
1¼	1⅜	157	78	52	39	31	26	22	20	17	16

Estimating Guide for 1 Gallon (128 oz.) System using Rebar – Installations per Gallon

Rebar Size (no.)	Drill Bit Dia. (in.)	Rebar In Solid Base Material Hole Depth (in.)									
		2	4	6	8	10	12	14	16	18	20
3	½	759	380	253	190	152	127	108	95	84	76
4	⅝	591	296	197	148	118	99	84	74	66	59
5	¾	476	238	159	119	95	79	68	60	53	48
6	⅞	381	191	127	95	76	64	54	48	42	38
7	1	332	166	111	83	66	55	47	42	37	33
8	1⅛	285	143	95	71	57	48	41	36	32	29
9	1¼	257	128	86	64	51	43	37	32	29	26
10	1½	136	68	45	34	27	23	19	17	15	14
11	1⅝	131	65	44	33	26	22	19	16	15	13

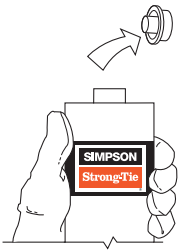
Tables are estimations. Actual usage may vary depending on waste.



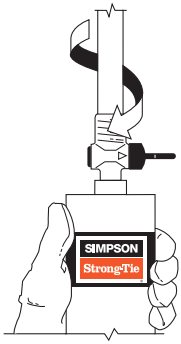
Online adhesive cartridge quantity estimating tools are available by visiting ***www.strongtie.com***.

Cartridge Preparation and Mixing Instructions for Crack-Pac and Crack-Pac Flex-H_2O

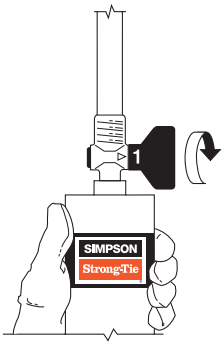
After the product is mixed, a small volume of air will remain in the cartridge. Keeping this cushion of air at the back of the cartridge during dispensing will allow the dispensing of the final bit of epoxy from the nozzle once the cartridge is empty.



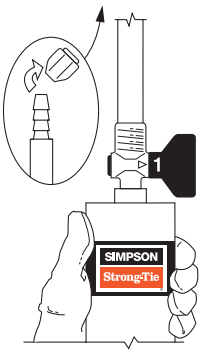
1. Remove the red cap from the top of the cartridge.



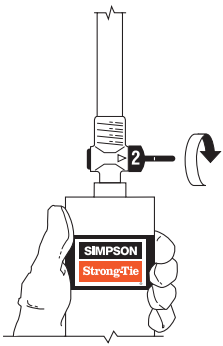
2. Screw the threaded portion of the nozzle into the cartridge.



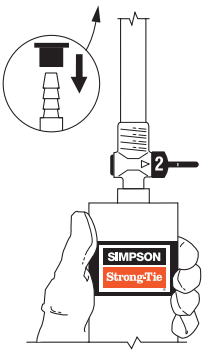
3. Turn the black valve so that the #1 on the valve aligns with the arrow on the neck of the nozzle.



4. Twist off the tip of the nozzle and allow the material contained within to drain into the cartridge.

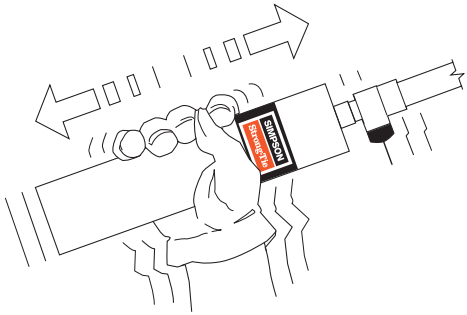


5. Turn the black valve to the #2 position.

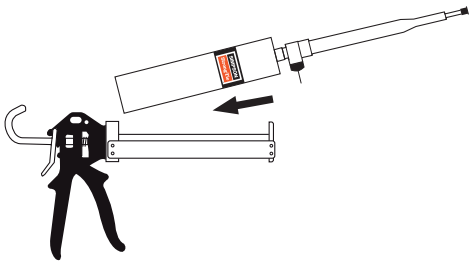


6. Attach the black cap securely to the end of the nozzle.

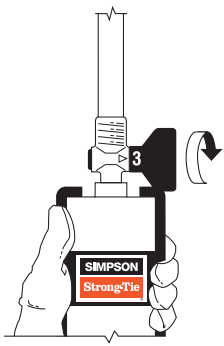
Wear gloves when handling the Crack-Pac® Flex-H_2O™ cartridge. Eye protection is recommended.



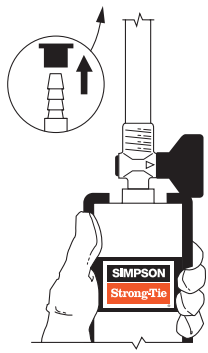
7. Shake the cartridge at a rate of 2 shakes per second for 2 minutes or until the mixed material is a uniform color.



8. Insert the cartridge into the caulking tool.



9. Turn the black valve to the #3 position.



10. Remove the black cap from the end of the nozzle. Attach the E-Z-Click™ injection fitting to the end of the nozzle for injection.

Warning: Do not open cartridge until ready to use. The polyurethane will react to atmospheric moisture if left exposed. To prevent pressure build up possibly resulting in cartridge breach and injury, remove cartridge from the caulking tool when not dispensing.

Crack Injection Guide

Important: These instructions are intended as recommended guidelines. Due to the variability of field conditions, selection of the proper material for the intended application and installation are the sole responsibility of the applicator.

Epoxy injection is an economical method of repairing non-moving cracks in concrete walls, slabs, columns and piers and is capable of restoring the concrete to its pre-cracked strength. Prior to doing any injection it is necessary to determine the cause of the crack. If the source of cracking has not been determined and remedied, the concrete may crack again.

Materials

- ETI-SLV for repair of hairline cracks and those up to ¼".
- ETI-LV for repair of fine to medium-width cracks (Suggested width range: 1/64"–¼").
- ETI-GV for repair of medium-width cracks (Suggested width range: 3/32"–¼")
- Crack-Pac® injection epoxy for repair of fine to medium non-structural cracks (Suggested width range: 1/64"–¼")
- CIP, CIP-F and ETR are recommended for paste-over of crack surface and installation of injection ports. ET-HP, EDOT™, ETR or SET adhesives may also be used as a substitute. (SET is the only paste-over epoxy approved for NSF/ANSI Standard 61.)
- E-Z-Click™ injection ports, fittings and other suitable accessories.

Preparation of the Crack for Injection

Clean the crack and the surface surrounding it to allow the epoxy to bond to sound concrete. At a minimum, the surface to receive paste-over should be brushed with a wire brush. Oil, grease or other surface contaminant must be removed in order to allow the paste-over to bond properly. Take care not to impact any debris into the crack during cleaning. Using clean, oil-free compressed air, blow out the crack to remove any dust, debris or standing water. Best results will be obtained if the crack is dry at the time of injection. If water is continually seeping from the crack, the flow must be stopped in order for epoxy injection to yield a suitable repair. Other materials such as polyurethane resins may be required to repair an actively leaking crack.

For many applications, additional preparation is necessary in order to seal the crack. Where a surfacing material has been removed using an acid or chemical solvent, prepare the crack as follows:

1. Using clean, compressed air, blow out any remaining debris and liquid.
2. Remove residue by high-pressure washing or steam cleaning.
3. Blow any remaining water from the crack with clean compressed air.

If a coating, sealant or paint has been applied to the concrete it must be removed before placing the paste-over epoxy. Under the pressure of injection these materials may lift and cause a leak. If the surface coating is covering the crack, it may be necessary to route out the opening of the crack in a "V" shape using a grinder in order to get past the surface contamination.

Sealing of the Crack and Attachment of E-Z-Click™ injection ports

1. To adhere the port to the concrete, apply a small amount of epoxy around the bottom of the port base. Place the port at one end of the crack and repeat until the entire crack is ported. As a rule of thumb, injection ports should be placed 8" apart along the length of the crack.

1. *Important: Do not allow epoxy to block the port or the crack under it, this is where epoxy must enter the crack.*

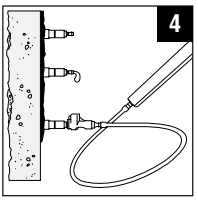
2. Using a putty knife or other paste-over tool, generously work epoxy along the entire length of the crack. Take care to mound the epoxy around the base of the port to approximately ¼" thick extending 1" out from the base of the port and to work out any holes in the material. It is recommended that the paste-over should be a minimum of 3⁄16" thick and 1" wide along the crack. Insufficient paste-over will result in leaks under the pressure of injection. If the crack passes completely through the concrete element, seal the back of the crack, if possible. If not, epoxy may be able to run out the back side of the crack, resulting in an ineffective repair.

3. Allow the paste-over to harden before beginning injection. **Note:** CIP, CIP-F and ETR epoxies are fast-cure materials and may harden prematurely if left in a mixed mass on the mixing surface while installing ports. Spreading paste-over into a thin film (approximately ⅛") on the mixing surface will slow curing by allowing the heat from the reaction to dissipate.

Injection Procedure for ETI-SLV, ETI-LV, ETI-GV and Crack-Pac® Injection Epoxy

1. Follow cartridge preparation instructions on the cartridge label. Verify that the material flowing from the Opti-Mix® mixing nozzle is a uniform gray color for ETI-GV; dark purple/black for ETI-SLV; amber for ETI-LV. For Crack-Pac® injection epoxy verify that the mixed material in the cartridge is a light amber color.
2. Attach the E-Z-Click™ fitting to the end of the nozzle by pushing the tubing over the barbs at the end of the nozzle. Make sure that all ports are pushed in to the open position.
3. Attach the E-Z-Click™ injection fitting to the first E-Z-Click™ port until it clicks into place. Make sure that the heads of all the ports are pushed in to the open position. In vertical applications, begin injection at the lowest port and work your way up. In a horizontal application start at one end of the crack and work your way to the other end.

4. Inject epoxy into the first port until it will no longer flow into the crack. If epoxy shows at the next port and the first port still accepts material, close the second port and continue to inject into the first port until it accepts no more epoxy. Continue closing ports where epoxy appears until the first port refuses epoxy. When the first port reaches the point of refusal, brace the base of the port and pull out gently on the head of the port to close it. Pulling too hard may dislodge the port from the surface of the concrete, causing a leak. Depress the metal tab on the head of the E-Z-Click fitting and remove it from the port.



5. Go to the last port where epoxy appeared while injecting the first port, open it, and continue injection at this port. If the epoxy has set up and the port is bonded closed, move to the next clean port and repeat the process until every portion of the crack has refused epoxy.

While this method may appear to leave some ports uninjected, it provides maximum pressure to force the epoxy into the smaller areas of the crack. Moving to the next port as soon as epoxy appears will allow the epoxy to travel along the wider parts of the crack to the next ports rather than force it into the crack before it travels to the next ports.

Injection Tips

- If using a pneumatic dispensing tool, set the tool at a low setting when beginning injection and increase pressure if necessary to get the epoxy to flow.
- For narrow cracks it may be necessary to increase the pressure gradually until the epoxy begins to flow. It may also be necessary to wait a few minutes for the epoxy to fill the crack and travel to the next port.
- If desired, once the injection epoxy has cured, remove the injection ports and paste-over epoxy. The epoxy can be removed with a chisel, scraper, or grinder. The paste-over can be simply peeled off if CIP-F is used. Using a heat gun to soften the epoxy is recommended when using a chisel or scraper.
- Mixing nozzles can be used for multiple cartridges as long as the epoxy does not harden in the nozzle.

Troubleshooting

Epoxy is flowing into the crack, but not showing up at the next port.
This can indicate that either the crack expands and/or branches off under the surface of the concrete. Continue to inject and fill these voids. In situations where the crack penetrates completely through the concrete element and the backside of the concrete element cannot be sealed (e.g basement walls, or footings with backfill) longer injection time may not force the epoxy to the next port. This most likely indicates that epoxy is running out of the unsealed back side of the crack. In this case the application may not be suitable for epoxy injection repair without excavation and sealing of the back side of the crack.

Back pressure is preventing epoxy from flowing.This can indicate several situations:

- The crack is not continuous and the portion being injected is full (see above instructions about injection after the port has reached refusal).
- The port is not aligned over the crack properly.
- The crack is blocked by debris.
- If the mixing nozzle has been allowed to sit for a few minutes full of epoxy, the material may have hardened in the nozzle. Attach the E-Z-Click™ fitting to a port at another uninjected location on the crack and attempt to inject. If the epoxy still won't flow, chances are the epoxy has hardened in the nozzle. If so, replace the nozzle

Epoxy is leaking from the pasted-over crack or around injection ports.
Stop injecting. If using a fast cure paste-over material (ETR or CIP), wipe off the leaking injection epoxy with a cotton cloth and re-apply the paste-over material. Wait approximately 10–15 minutes to allow the epoxy to begin to harden. If the leak is large (e.g. the port broke off of the concrete surface) it is a good idea to wait approximately 30 minutes, or longer as necessary, to allow the paste-over to cure more completely. Check to see that the epoxy is hard before reinjecting or the paste-over or ports may leak. Another option for small leaks is to clean off the injection epoxy and use paraffin or crayon to seal the holes.

More epoxy is being used than estimated.
This may indicate that the crack either expands or branches off below the surface. Continue to inject and fill these voids. This may also indicate that epoxy is running out of the back side of the crack. If the crack penetrates completely through the concrete element and cannot be sealed, the application may not be suitable for injection repair.

Less epoxy is being used than estimated.
This may indicate that the crack is shallower than originally thought, or the epoxy is not penetrating the crack sufficiently before moving to the next port. Reinject some ports with a lower viscosity epoxy to see if the crack will take more epoxy. Another option is to heat the epoxy to a temperature of 80–100°F which will reduce its viscosity and allow it to penetrate into small cracks easier. The epoxy should be heated uniformly, do not overheat cartridge.

Gravity-Feed Procedure
Some horizontal applications where complete penetration is not a requirement can be repaired using the gravity feed method.

1. Follow cartridge preparation instructions on the cartridge label. Verify that the material flowing from the Opti-Mix® mixing nozzle is a uniform gray color for ETI-GV, black for ETI-SLV and amber for ETI-LV. For Crack-Pac® injection epoxy verify that the mixed material in the cartridge is a clear amber color.
2. Starting at one end of the crack, slowly dispense epoxy into the crack, moving along the crack as it fills. It will probably be necessary to do multiple passes in order to fill the crack. It is possible that the epoxy will take some time to run into the crack, and the crack may appear empty several hours after the initial application. Reapply the epoxy until the crack is filled. In situations where the crack completely penetrates the member (e.g. concrete slab) the material may continue to run through the crack into the subgrade. In these cases epoxy repair may not provide an effective repair.

Tip: For narrow cracks, run a bead of caulk along each side of the crack approximately **⅛"** from the edge of the crack. This will form a reservoir into which epoxy can be dispensed. Alternatively, use a grinder to route the crack with compressed air afterwards as grinding can impact dust and debris into the crack and prevent proper flow of the epoxy.

Estimating Guide for Epoxy Crack Injection

Width of Crack (in.)	Concrete Thickness (in.)	Approximate Coverage per 22 oz. Cartridge (linear ft.)	Approximate Coverage per 9 oz. Crack-Pac Cartridge (linear ft.)
1/64	4	47.6	18.4
	6	31.8	12.3
	8	23.8	9.2
	10	19.1	7.4
1/32	4	23.8	9.2
	6	15.9	6.1
	8	11.9	4.6
	10	9.5	3.7
1/16	4	11.9	4.6
	6	7.9	3.1
	8	6.0	2.3
	10	4.8	1.9
1/8	4	6.0	2.3
	6	4.0	1.5
	8	3.0	1.2
	10	2.4	0.9
3/16	4	4.0	1.5
	6	2.6	1.0
	8	2.0	0.8
	10	1.6	0.6

Width of Crack (in.)	Concrete Thickness (in.)	Approximate Coverage per 22 oz. Cartridge (linear ft.)
1/4	4	3.0
	6	2.0
	8	1.5
	10	1.2
5/16	4	2.4
	6	1.6
	8	1.2
	10	1.0
3/8	4	2.0
	6	1.3
	8	1.0
	10	0.8
7/16	4	1.7
	6	1.1
	8	0.9
	10	0.7
1/2	4	1.5
	6	1.0
	8	0.7
	10	0.6

Coverage listed is approximate and will vary depending on waste and condition of concrete.

Simpson Strong-Tie does not recommend repair of cracks larger than ¼" wide without consulting a qualified engineer.

Gas and Powder-Actuated Fastening Safety Principles

Before operating any Simpson Strong-Tie® gas- or powder-actuated tool you must read and understand the Operator's Manual and be trained by an authorized instructor in the operation of the tool. Simpson Strong-Tie highly recommends you read and fully understand the safety guidelines of the tool you use. You must then pass a test and receive a certified operator card to become a Certified Operator. The test and Operator's Manual are included with each tool kit or certification can be obtained by taking the test online at www.strongtie.com.

GENERAL SAFETY

To avoid serious injury or death:

- ALWAYS make sure that the operator and bystanders wear safety glasses. Hearing and head protection are also recommended.
- ALWAYS post warning signs when gas- or powder-actuated tools are in use. Signs should state (Tool in Use) and should be posted within the area where the tool is being used.
- ALWAYS store gas- or powder-actuated tools unloaded. Tools, loads and gas cells should be stored in a locked container out of the reach of children.
- NEVER place any part of your body over the front muzzle of the tool even if no fastener is present. The fastener, pin or tool piston can cause serious injury or death in the event of an accidental discharge.
- NEVER transport fasteners or other hard objects in the same pocket or container with powder loads or fuel cells. These objects may strike the powder loads or puncture the fuel cell, thereby setting them off and causing serious injury or death.
- NEVER attempt to bypass or circumvent any of the safety features on a gas- or powder-actuated tool.
- ALWAYS keep the tool pointed in a safe direction.
- ALWAYS keep your finger off the trigger until ready to shoot.
- ALWAYS keep the tool unloaded until ready to use.

INSTALLATION SAFETY

To avoid serious injury or death:

- ALWAYS hold the tool perpendicular (90°) to the fastening surface to prevent ricocheting fasteners. Use the spall guard whenever possible.
- NEVER attempt to fasten to soft, thin, brittle or very hard materials such as drywall, light gauge steel, glass, tile or cast iron as these materials are inappropriate. Conduct a pre-punch test to determine base material adequacy.
- NEVER attempt to fasten to soft material like wood or drywall (fastening through soft materials into an appropriate base material may be allowed if the application is appropriate).
- NEVER attempt to fasten to a spalled, cracked or uneven surface.

Safety equipment, such as safety glasses and ear plugs, are recommended when using gas- or powder-actuated tools.

Length Identification Head Marks

The following tables define the length of various Simpson Strong-Tie® mechanical anchors based upon the letter stamped on the anchor head. The lengths represented are in inches.

This information pertains to the following Simpson Strong-Tie mechanical anchors:

- Strong-Bolt® 2
- Strong-Bolt® (no longer produced)
- Wedge-All®
- Sleeve-All®
- Torq-Cut™

Length Identification Head Marks

Mark	Units	A	B	C	D	E	F	G	H	I
From	in.	1½	2	2½	3	3½	4	4½	5	5½
Up To But Not Including	in.	2	2½	3	3½	4	4½	5	5½	6

Length Identification Head Marks

Mark	Units	J	K	L	M	N	O	P	Q	R
From	in.	6	6½	7	7½	8	8½	9	9½	10
Up To But Not Including	in.	6½	7	7½	8	8½	9	9½	10	11

Length Identification Head Marks

Mark	Units	S	T	U	V	W	X	Y	Z
From	in.	11	12	13	14	15	16	17	18
Up To But Not Including	in.	12	13	14	15	16	17	18	19

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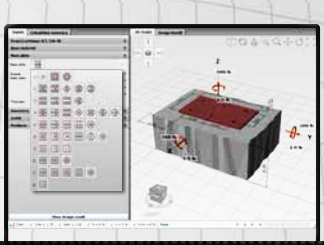
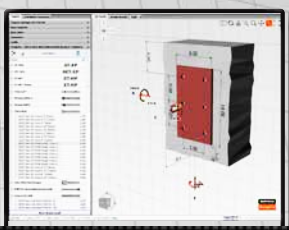
Powerful calculations,

Concrete solutions





Performing challenging calculations required by current design methodologies can be completed quickly and accurately with the new Simpson Strong-Tie® Anchor Designer™ software. A fully interactive 3D graphical-user interface with 42 pre-loaded anchor configurations simplify input, and calculation results are output for verification and submission of your design. Anchor Designer complies with current ACI 318, ETAG and CSA code requirements.

Call (800) 999-5099 to learn more and download the free software at ***www.strongtie.com/anchordesigner***.

Alphabetical Index of Products

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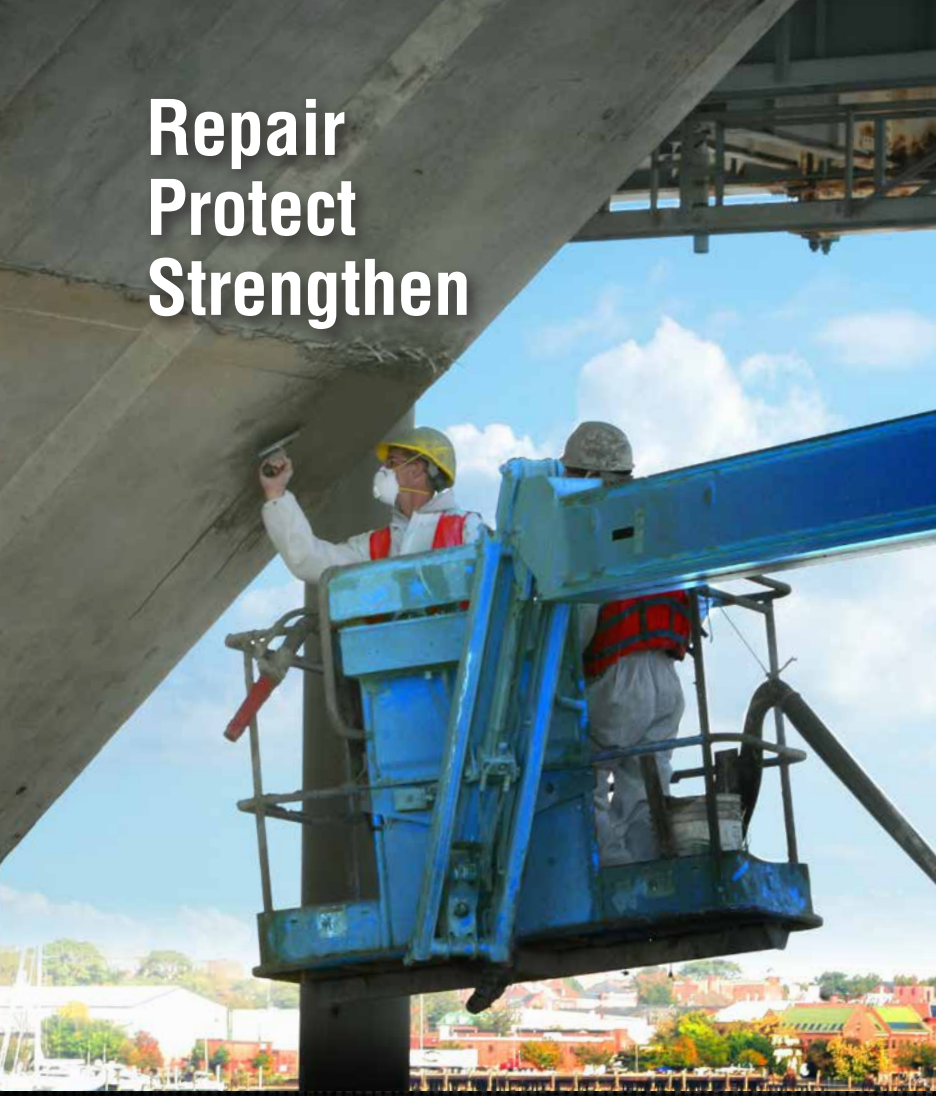
Notes

Notes



Repair
Protect
Strengthen

Simpson Strong-Tie now offers products designed to repair, protect and strengthen concrete, steel and wood. Lab-developed and contractor-tested, our wide range of repair mortars, injection epoxies, joint sealants, high-performance coatings and grouts are suited for all types of repairs in a variety of applications. Visit ***www.strongtie.com/rps*** for more information, or to contact your local specialist.

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S-A-PG14 1/14 exp. 12/15