

POWDER-ACTUATED FASTENERS

Powder actuated fasteners provide a quick and economical method for fastening cold-formed steel to concrete or steel base materials.

CODES: ICC-ES 4546; City of LA RR 25469

In Normal Weight Concrete

PDP-Series Fasteners

PDP*	PDPW*	PDPWL*
PDP-125	PDPW-125	PDPWL-125
PDP-150	PDPW-150	PDPWL-150
PDP-175	PDPW-175	PDPWL-175
PDP-200	PDPW-200	PDPWL-200
PDP-225	—	—
PDP-250	PDPW-250	PDPWL-250
PDP-300	PDPW-300	PDPWL-300
*Including stainless steel models.		PDPWL-400

PHN-Series Fasteners

PHN	PHNW	PHSN	PHSNA
PHN-27	PHNW-27	PHSN-27	PHSNA-27
PHN-32	PHNW-32	PHSN-32	PHSNA-32
PHN-37	PHNW-37	PHSN-37	PHSNA-37
PHN-42	PHNW-42	PHSN-42	PHSNA-42
PHN-47	PHNW-47	PHSN-47	PHSNA-47
PHN-52	PHNW-52	PHSN-52	PHSNA-52
PHN-57	PHNW-57	PHSN-57	PHSNA-57
PHN-62	PHNW-62	PHSN-62	PHSNA-62
PHN-72	PHNW-72	PHSN-72	PHSNA-72

In Steel

PDP-Series Fasteners

PDP	PDPW	PDPWL
PDP-100	PDPW-100	PDPWL-100
PDP-125	PDPW-125	PDPWL-125
PDP-150	PDPW-150	PDPWL-150
PDP-175	PDPW-175	PDPWL-175
PDP-200	PDPW-200	PDPWL-200
PDP-225	—	—
PDP-250	PDPW-250	PDPWL-250
PDP-300	PDPW-300	PDPWL-300

PHN-Series Fasteners

PHN	PHNW	PHSN	PHSNA
PHN-27	PHNW-27	PHSN-27	PHSNA-27
PHN-32	PHNW-32	PHSN-32	PHSNA-32
PHN-37	PHNW-37	PHSN-37	PHSNA-37
PHN-42	PHNW-42	PHSN-42	PHSNA-42
PHN-47	PHNW-47	PHSN-47	PHSNA-47
PHN-52	PHNW-52	PHSN-52	PHSNA-52
PHN-57	PHNW-57	PHSN-57	PHSNA-57
PHN-62	PHNW-62	PHSN-62	PHSNA-62
PHN-72	PHNW-72	PHSN-72	PHSNA-72

PRODUCT NOMENCLATURE

EXAMPLE:

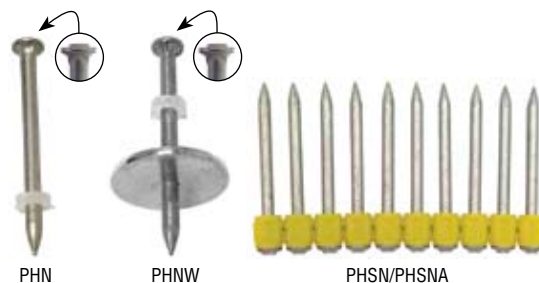
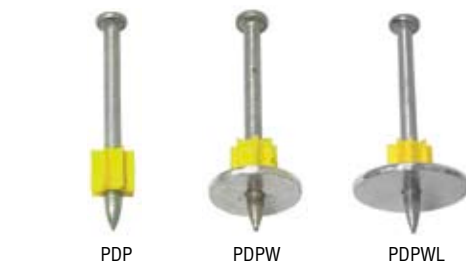
PDP-175 = 0.145 Dia. PIN
x 1 3/4" length
(no washer)

PHN-52 = 0.145 Dia. PIN
x 52mm length
(no washer)

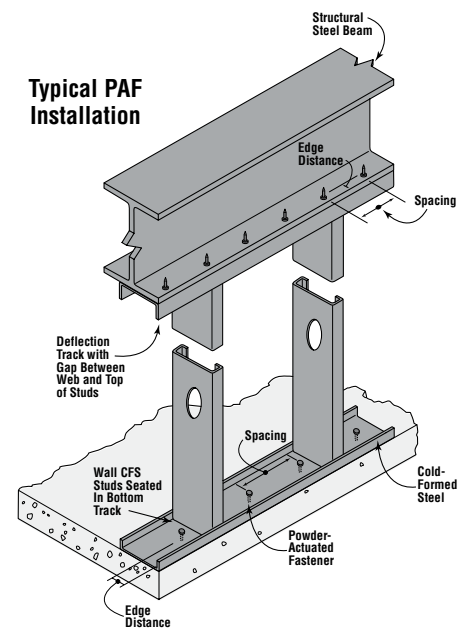
W = 3/4" Dia. metal washer (PDP)
1" Dia. metal washer (PHN)

WL = 1" Dia. metal washer (PDP)

Refer to latest Simpson Strong-Tie® Anchor Systems Catalog for further information on Powder Actuated Fasteners



Typical PAF Installation



POWDER-ACTUATED FASTENERS

PAF Shear Loads in Concrete and Steel

0.145" Dia. Pin Spacing	Allowable Shear Load (100)					
	Base Material ¹			Cold Formed Steel		
	Concrete (f' _c ≥ 2500 psi) ²		Steel ^{3,4}			
	1" emb. (lbs/ft)	1.25" emb. (lbs/ft)	Min. thickness 3/16" (lbs/ft)	54 mils (16 GA) ⁵ (lbs/ft)	43 mils (18 GA) ⁵ (lbs/ft)	33 mils (20 GA) ⁵ (lbs/ft)
0' - 4"	425	795	1185	1440	795	610
0' - 6"	285	530	790	960	530	405
0' - 8"	215	400	595	720	400	305
1' - 0"	145	265	395	480	265	205
1' - 6"	95	175	265	320	175	135
2' - 0"	70	130	200	240	135	100
2' - 6"	55	105	160	192	105	80
3' - 0"	50	90	130	160	90	70
4' - 0"	35	65	100	120	65	50

1. Load values based on 0.145" dia. pins in 2500 psi nm. wt. concrete or steel having a minimum F_y = 36 ksi (see Simpson ER-4546).
2. Edge distance of pins shall be no less than 3". Spacing distance of pins shall be no less than 4".
3. The entire pointed portion of the fastener must penetrate the steel.
4. Edge distance of pins shall be no less than 1/2". Spacing distance of pins shall be no less than 1 1/2".
5. 2001 AISI NAS, Eq. E4.3.1-2, Ω = 3.0, d = 0.145". See page 11 for CFS thickness standards and General Notes (e) on page 9 for CFS properties.
6. Allowable loads must be the lesser of the base material or CFS strength.

PAF Tension Loads in Concrete and Steel

Allowable Tension Load (100)					
Base Material ^{1,2}			Cold Formed Steel (Pull-Over)		
Concrete (f' _c ≥ 2500 psi) ³		Steel ^{4,5}			
1" emb. (lbs)	1.25" emb. (lbs)	Min. thickness 3/16" (lbs)	54 mils (16 GA) ⁶ (lbs)	43 mils (18 GA) ⁶ (lbs)	33 mils (20 GA) ⁶ (lbs)
70	195	155	275	150	115

1. Load values based on 0.145" dia. pins in 2500 psi nm. wt. concrete or steel having a minimum F_y = 36 ksi (see Simpson ER-4546).
2. Use interaction formula for combined tension/shear (P_s/P_t) + (V_s/V_t) ≤ 1.0.
3. Edge distance of pins shall be no less than 3". Spacing distance of pins shall be no less than 4".
4. The entire pointed portion of the fastener must penetrate the steel.
5. Edge distance of pins shall be no less than 1/2". Spacing distance of pins shall be no less than 1 1/2".
6. 2001 AISI NAS, Eq. E4.4.2-1 divided by 2.0 (one-sided loading), Ω = 3.0, d_w = 0.3". See page 11 for CFS thickness standards and General Notes (e) on page 9 for CFS properties.
7. Allowable loads must be the lesser of the base material or CFS strength.

Anchors

TITEN[®] Screw Anchor

Titen screws are 3/16" and 1/4" diameter masonry screws for attaching all types of components to concrete and masonry. Available in hex and phillips head designs in blue, white or silver colors. Use with appropriately sized Titen drill bits included with each box.

CODES: FL 2355

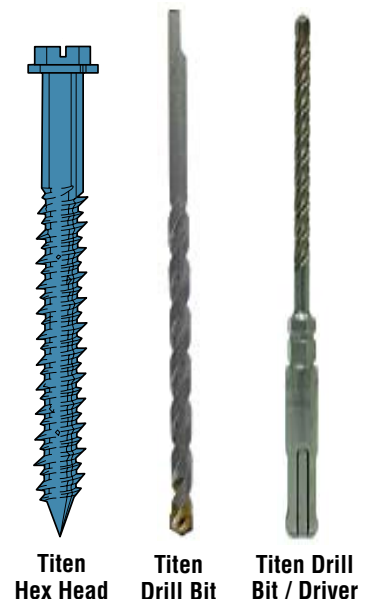
Titen Installation Sequence



WARNING: Industry studies show that hardened fasteners can experience performance problems in wet environments. Accordingly, use this product in dry, interior applications only.

Shear Loads for Titen Screw Anchors

Anchor Callout (Dia. x L)	Min. Embed. Depth	Min. Edge	Anchor Spacing	Allowable Shear Load (100)			
				Concrete (f' _c ≥ 2000 psi) (lbs/ft)	CMU (hollow or grout-filled) (lbs/ft)	Cold Formed Steel	
						43 mils (18 GA) ¹ (lbs/ft)	33 mils (20 GA) ¹ (lbs/ft)
3/16" x 1 1/4" Titen	1"	1 1/8"	0' - 2.25"	1360	1200	1815	1410
			0' - 6"	510	450	680	530
			1' - 0"	255	225	340	265
			1' - 6"	170	150	225	175
			2' - 0"	125	110	170	135
			3' - 0"	85	75	115	90
1/4" x 1 3/4" Titen	1 1/2"	1 1/2"	0' - 3"	1600	1240	1820	1400
			0' - 6"	800	620	910	700
			1' - 0"	400	310	455	350
			1' - 6"	265	205	305	235
			2' - 0"	200	155	230	175
			3' - 0"	135	105	150	115
4' - 0"	100	80	115	90			



Titen Hex Head Titen Drill Bit Titen Drill Bit / Driver

1. 2001 AISI NAS, Eq. E4.3.1-2, Ω = 3.0. See page 11 for CFS thickness standards and General Notes (e) on page 9 for CFS properties.
2. Allowable loads must be the lesser of the concrete, CMU or CFS strength.

Tension Loads for Titen Screw Anchors

Dia. (in)	Embed. Depth (in)	Allowable Tension Load (100)					
		Concrete ¹		Cold Formed Steel (Pull-Over)			
		(f' _c ≥ 2500 psi) (lbs)	Hollow or Grout-filled (lbs)	68 mils (14 GA) ⁴ (lbs)	54 mils (16 GA) ⁴ (lbs)	43 mils (18 GA) ⁴ (lbs)	33 mils (20 GA) ⁴ (lbs)
3/16 ²	1	135	135	360	290	160	120
1/4 ³	1 1/2	400	185	435	345	190	145

1. Use interaction formula for combined tension and shear (P_s/P_t) + (V_s/V_t) ≤ 1.0.
2. Critical spacing = 2 1/4" and critical edge distance = 1 1/8".
3. Critical spacing = 3" and critical edge distance = 1 1/2".
4. 2001 AISI NAS, Eq. E4.4.2-1 divided by 2.0 (one-sided loading), Ω = 3.0, d_w = 3/16" (3/16" Titen) and d_w = 3/8" (1/4" Titen). See page 11 for CFS thickness standards and General Notes (e) on page 9 for CFS properties.
5. Allowable loads must be the lesser of the concrete, CMU or CFS strength.



Special hex adapter on the bit allows the Titen Installation Tool to slide over the bit and lock in, ready to drive screws.