- *Consistent performance in high & low strength concrete*
- *Nominal bit size matches anchor diameter; anchor can be installed through standard fixture holes*
- *High shear load capacity*

NEW!

CODE LISTED
ICC-ES ESR-3260

Power-Bolt+

Heavy Duty Sleeve Anchor

Powers is a proud member of:

STAFDA
Simpson Strong-Tie PREFERRED SUPPLIER
Evergreen MARKETING GROUP

Powers®
FASTENING INNOVATIONS

A domestic company headquartered in Brewster, NY

Power-Bolt+

Heavy Duty Sleeve Anchor

HEAD STYLES
Finished Hex Head

ANCHOR MATERIALS
Zinc plated carbon steel bolt, washer, cone sleeve and expansion clip; assembled with a plastic compression ring and retainer nut

ANCHOR SIZE RANGE (TYP.)
1/2" diameter through 5/8" diameter

SUITABLE BASE MATERIALS
Normal-weight concrete
Sand-lightweight concrete

TENSION ZONE CRACKED CONCRETE

SEISMIC REGION QUALIFICATION

ES®

CODE LISTED
ICC-ES ESR-3260

This Product Available In

PDA®

Powers Design Assist
Real Time Anchor Design Software
www.powersdesignassist.com

PRODUCT DESCRIPTION

The Power-Bolt+ anchor is a torque controlled, heavy duty sleeve style anchor which is designed for consistent performance in cracked and uncracked concrete. Suitable base materials include normal-weight concrete and sand-lightweight concrete. The anchor is manufactured with a zinc plated carbon steel bolt, sleeve, cone and expansion clip. The PB+ has a finished hex head.

GENERAL APPLICATIONS AND USES

- Structural connections, i.e., beam and column anchorage
- Safety-related attachments
- Interior applications / low level corrosion environment
- Tension zone applications, i.e., cable trays and strut, pipe supports, fire sprinklers
- Heavy duty applications

FEATURES AND BENEFITS

- Consistent performance in high and low strength concrete
- Nominal drill bit size is the same as the anchor diameter
- Anchor can be installed through standard fixture holes
- Length ID code and identifying marking stamped on head of each anchor
- Anchor design allows for follow-up expansion after setting under tensile loading
- Internal Grade 8 equivalent bolt is removable
- High shear load capacity

APPROVALS AND LISTINGS

International Code Council, Evaluation Service (ICC-ES), ESR-3260 for concrete.

Tested in accordance with ACI 355.2 and ICC-ES AC 193 for use in structural concrete under the design provisions of ACI 318 (Strength Design method using Appendix D)

Evaluated and qualified by an accredited independent testing laboratory for recognition in cracked and uncracked concrete including seismic and wind loading (Category 1 anchors)

GUIDE SPECIFICATIONS

CSI Divisions: *03151- Concrete Anchoring and 05090-Metal Fastenings.* Expansion anchors shall be PB+ as supplied by Powers Fasteners, Inc., Brewster, NY. Anchors shall be installed in accordance with published instructions and requirements of the Authority Having Jurisdiction.

MATERIAL SPECIFICATIONS

Anchor component	Specification
Bolt	Medium carbon steel (Grade 8 equivalent)
Washer	Conforms to ASTM F844
Cone	AISI C1035-C1040
Expansion Clip	AISI C1040-C1050
Metal Sleeve	Medium carbon steel tubing (seamless)
Compression Ring & Retainer Nut	Engineered plastic
Plating	Zinc plating according to ASTM B 633, SC1 Type III (Fe/Zn 5). Minimum plating requirements for Mild Service Condition.

Power-Bolt+

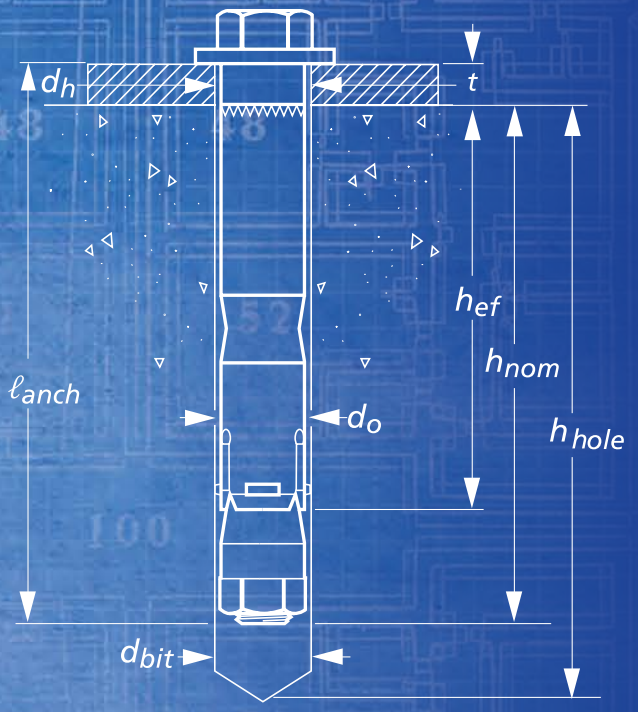
INSTALLATION SPECIFICATIONS

Power-Bolt+ Anchor Installation Specifications[1]

Anchor Property/Setting Information	Notation	Units	Norminal Anchor Diameter (in.)	
			1/2	5/8
Anchor outside diameter	$d_a [d_o]^3$	in. (mm)	0.500 (12.7)	0.625 (15.9)
Internal bolt diameter (UNC)	-	in. (mm)	3/8 (9.5)	7/16 (11.1)
Minimum diameter of hole clearance in fixture	d_h	in. (mm)	9/16 (14.3)	11/16 (17.5)
Nominal drill bit diameter	d_{bit}	in.	1/2 ANSI	5/8 ANSI
Minimum nominal embedment depth	h_{nom}	in. (mm)	3-1/4 (83)	3-3/4 (95)
Effective embedment	h_{ef}	in. (mm)	2-5/8 (67)	3 (76)
Minimum hole depth	h_{hole}	in. (mm)	3-1/2 (84)	4 (102)
Minimum member thickness	h_{min}	in. (mm)	5 (127)	6-1/2 (165)
Minimum overall anchor length[2]	ℓ_{anch}	in. (mm)	3-1/2 (89)	4 (102)
Minimum edge distance	c_{min}	in. (mm)	3-1/4 (83)	4-1/2 (114)
Minimum spacing distance	s_{min}	in. (mm)	4-1/2 (114)	6 (152)
Critical edge distance	c_{ac}	in. (mm)	8 (203)	6 (152)
Installation torque	T_{inst}	ft.-lbf. (N-m)	40 (54)	60 (81)
Bolt Head Height	-	in. (mm)	1/4 (7.1)	5/16 (7.9)
Torque wrench/socket size	-	in.	3/4	15/16

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

1. The information presented in this table is to be used in conjunction with the design criteria of ACI 318 Appendix D.
2. The listed minimum overall anchor length is based on anchor sizes available at the time of publication compared with the requirements for the minimum nominal embedment depth and fixture attachment.
3. The notation in brackets is for the 2006 IBC.



Head Marking

Legend

'PB+' Symbol = Power-Bolt+ Strength Design Compliant (see ordering information)

Letter Code = Length Identification Mark

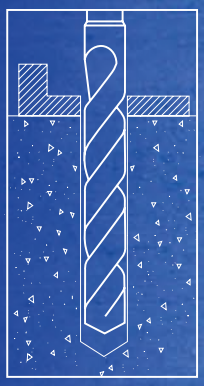
Length Identification

Mark	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
From	1-1/2"	2"	2-1/2"	3"	3-1/2"	4"	4-1/2"	5"	5-1/2"	6"	6-1/2"	7"	7-1/2"	8"	8-1/2"	9"	9-1/2	10"
Up to but not including	2"	2-1/2"	3"	3-1/2"	4"	4-1/2"	5"	5-1/2"	6"	6-1/2"	7"	7-1/2"	8"	8-1/2"	9"	9-1/2	10"	11"

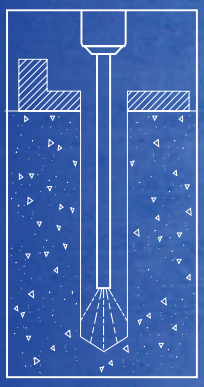
Length identification mark indicates overall length of anchor.

Power-Bolt+

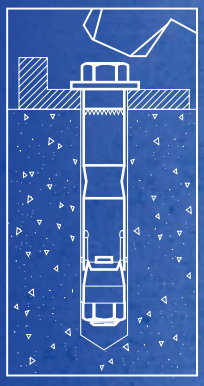
INSTALLATION SPECIFICATIONS



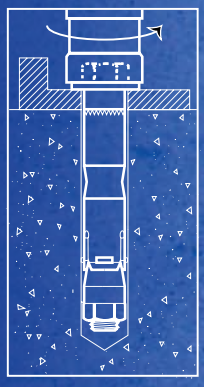
1. Using the proper drill bit size, drill a hole into the base material to the required depth. The tolerances of the drill bit used should meet the requirements of ANSI Standard B212.15.



2. Remove dust and debris from the hole using a hand pump, compressed air or a vacuum.



3. Drive anchor through the fixture into the hole. Be sure the anchor is driven to the minimum required embedment depth, h_{nom}.



4. Tighten the anchor with a torque wrench by applying the required installation torque, T_{inst}.

STRENGTH DESIGN PERFORMANCE DATA

Factored design strength ΦN_n and ΦV_n
Calculated in accordance with ACI 318 Appendix D
Tested to the International Building Code

Tension and Shear Design Strengths in Cracked Concrete [1,2,3,4,5,6]

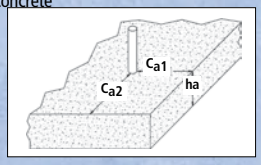
Nominal Anchor Diameter (in.)	Nominal Embed. h_{nom} (in.)	Minimum Concrete Compressive Strength, f'c (psi)									
		2,500		3,000		4,000		6,000		8,000	
		ΦN_n Tension (lbs.)	ΦV_n Shear (lbs.)	ΦN_n Tension (lbs.)	ΦV_n Shear (lbs.)	ΦN_n Tension (lbs.)	ΦV_n Shear (lbs.)	ΦN_n Tension (lbs.)	ΦV_n Shear (lbs.)	ΦN_n Tension (lbs.)	ΦV_n Shear (lbs.)
1/2	3-1/4	2,350	2,275	2,575	2,490	2,970	2,880	3,640	3,375	4,205	3,375
5/8	3-3/4	2,870	2,815	3,145	3,080	3,630	3,560	4,450	4,360	5,135	5,030

Tension and Shear Design Strengths in Uncracked Concrete [1,2,3,4,5,6]

Nominal Anchor Diameter (in.)	Nominal Embed. h_{nom} (in.)	Minimum Concrete Compressive Strength, f'c (psi)									
		2,500		3,000		4,000		6,000		8,000	
		ΦN_n Tension (lbs.)	ΦV_n Shear (lbs.)	ΦN_n Tension (lbs.)	ΦV_n Shear (lbs.)	ΦN_n Tension (lbs.)	ΦV_n Shear (lbs.)	ΦN_n Tension (lbs.)	ΦV_n Shear (lbs.)	ΦN_n Tension (lbs.)	ΦV_n Shear (lbs.)
1/2	3-1/4	3,730	3,185	4,085	3,375	4,720	3,375	5,780	3,375	6,675	3,375
5/8	3-3/4	4,560	3,940	4,995	4,315	5,765	4,980	7,060	6,100	8,155	7,045

Legend: Steel Strength Controls; Concrete Breakout Strength Controls

1. Tabular values are provided for illustration and are applicable for single anchors installed in normal-weight-concrete with minimum slab thickness, $h_a = h_{min}$, and with the following conditions:
   - c_{a1} is greater than or equal to the critical edge distance, c_{ac} (table values based on $c_{a1} = c_{ac}$).
   - c_{a2} is greater than or equal to 1.5 c_{a1}.



2. Calculations were performed according to ACI 318-05 Appendix D. The load level corresponding to the controlling failure mode is listed. (e.g. For tension: steel, concrete breakout and pullout; For shear: steel, concrete breakout and pryout). Furthermore, the capacities for concrete breakout strength in tension and pryout strength in shear are calculated using the effective embedment values, h_{ef}, for the selected anchors as noted in the design information tables. Please also reference the installation specifications for more information.
3. Strength reduction factors (Φ) were based on ACI 318 Section 9.2 for load combinations. Condition B is assumed.
4. Tabular values are permitted for static loads only, seismic loading is not considered with these tables.
5. For designs that include combined tension and shear, the interaction of tension and shear loads must be calculated in accordance with ACI 318 Appendix D.
6. Interpolation is not permitted to be used with the tabular values. For intermediate base material compressive strengths please see ACI 318 Appendix D. For other design conditions including seismic considerations please see ACI 318 Appendix D.

REFERENCE PERFORMANCE DATA

Ultimate Load Capacities in Normal-Weight Concrete [1]

Nominal Anchor Diameter d in.	Minimum Embedment Depth in.	Minimum Concrete Compressive Strength - f'c (psi)									
		2,500		3,000		4,000		6,000		8,000	
		Tension (lbs.)	Shear (lbs.)	Tension (lbs.)	Shear (lbs.)	Tension (lbs.)	Shear (lbs.)	Tension (lbs.)	Shear (lbs.)	Tension (lbs.)	Shear (lbs.)
1/2	3-1/4	7,710	8,160	8,445	8,160	9,755	8,160	9,945	8,160	11,485	8,160
5/8	3-3/4	8,715	14,630	9,545	14,630	11,020	14,630	12,820	14,630	14,800	14,630

1. The tabulated load values are applicable to single anchors installed in uncracked concrete with no edge or spacing considerations.

ALLOWABLE STRESS DESIGN (ASD) PERFORMANCE DATA

Allowable Load Capacities in Normal-Weight Concrete [1,2,3]

Nominal Anchor Diameter d in.	Minimum Embedment Depth in.	Minimum Concrete Compressive Strength - f'c (psi)									
		2,500		3,000		4,000		6,000		8,000	
		Tension (lbs.)	Shear (lbs.)	Tension (lbs.)	Shear (lbs.)	Tension (lbs.)	Shear (lbs.)	Tension (lbs.)	Shear (lbs.)	Tension (lbs.)	Shear (lbs.)
1/2	3-1/4	1,930	2,040	2,110	2,040	2,440	2,040	2,485	2,040	2,870	2,040
5/8	3-3/4	2,180	3,660	2,385	3,660	2,755	3,660	3,205	3,660	3,700	3,660

1. Tabulated load values are for anchors installed in concrete. Concrete compressive strength must be at the specified minimum at the time of installation.
2. Allowable load capacities listed are calculated using an applied safety factor of 4.0. Consideration of safety factors of 10 or higher may be necessary depending on the applications, such as life safety or overhead.
3. Allowable load capacities are multiplied by reduction factors when anchor spacing or edge distances are less than critical distances.

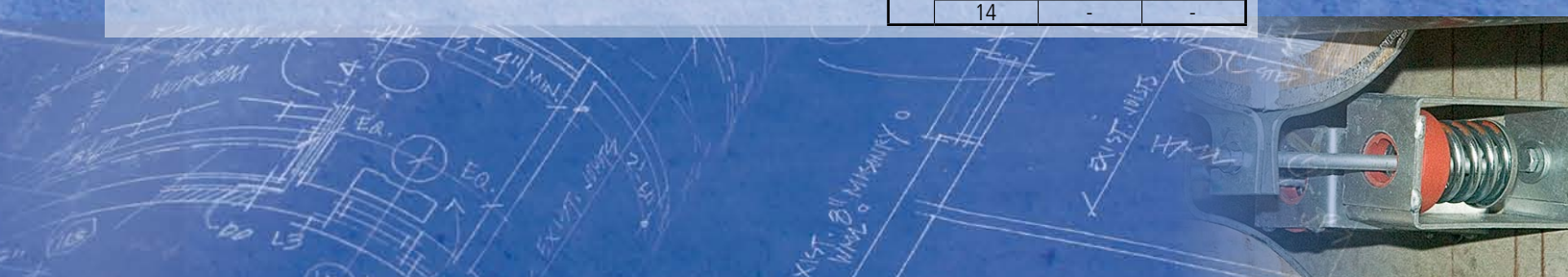
ALLOWABLE STRESS DESIGN (ASD) DESIGN CRITERIA

Edge Distance and Spacing Distance Adjustment Factors for Normal-Weight Concrete

Spacing Distance - Tension			
Dia. (in)		1/2	5/8
h_{nom}		3-1/4	3-3/4
s_{cr}		7-7/8	9
s_{min}		4-1/2	6
Spacing Distance (inches)	3-1/2	-	-
	4	-	-
	4-1/2	0.79	-
	5	0.82	-
	5-1/2	0.85	-
	6	0.88	0.83
	6-1/2	0.91	0.86
	7	0.95	0.89
	7-1/2	0.98	0.92
	8	1.00	0.95
	8-1/2	-	0.97
	9	-	1.00
	9-1/2	-	-
	10	-	-

Edge Distance - Tension			
Dia. (in)		1/2	5/8
h_{nom}		3-1/4	3-3/4
c_{ac}		8	6
c_{min}		3-1/4	4-1/2
Edge Distance (inches)	3-1/2	0.45	-
	4	0.50	-
	4-1/2	0.56	0.75
	5	0.62	0.83
	5-1/2	0.69	0.92
	6	0.75	1.00
	6-1/2	0.81	-
	7	0.88	-
	7-1/2	0.94	-
	8	1.00	-
	8-1/2	-	-
	9	-	-
	9-1/2	-	-
	10	-	-

Spacing Reduction Factors -Shear			
Dia. (in)		1/2	5/8
h_{nom}		3-1/4	3-3/4
s_{cr}		7-7/8	9
S_{min}		4-1/2	6
Spacing Distance (inches)	4	-	-
	4-1/2	0.72	-
	5	0.75	-
	5-1/2	0.77	-
	6	0.80	0.72
	6-1/2	0.82	0.74
	7	0.85	0.76
	7-1/4	0.86	0.77
	7-1/2	0.87	0.78
	8	0.90	0.80
	8-1/2	0.92	0.81
	9	0.95	0.83
	9-1/2	0.97	0.85
	10	1.00	0.87
	11	-	0.91
	11-1/2	-	0.93
	12	-	0.94
	12-1/2	-	0.96
	13	-	0.98
	13-1/2	-	1.00
	14	-	-



Power-Bolt+

SD PERFORMANCE DATA

Tension Design information for PB+ Anchor in Concrete (for use with load combinations taken form ACI 318, Section 9.2)[1,2]

Design Characteristic	Notation	Units	Nominal Anchor Diameter	
			1/2	5/8
Anchor category	1,2 or 3	-	1	1
Nominal embedment depth	h_{nom}	in. (mm)	3-1/4 (83)	3-3/4 (95)
STEEL STRENGTH IN TENSION[4]				
Minimum specified yield strength	f_y	ksi (N/mm^2)	130 (896)	130 (896)
Minimum specified ultimate tensile strength	f_{uta}[10]	ksi (N/mm^2)	150 (1034)	150 (1034)
Effective tensile stress area (threads)	A_{se}	in^2 (mm^2)	0.0775 (50)	0.1063 (68.6)
Steel strength in tension	N_{sa}[10]	lb (kN)	11,625 (51.7)	15,945 (70.9)
Reduction factor for steel strength[3]	Φ	-	0.75	
CONCRETE BREAKOUT STRENGTH IN TENSION				
Effective embedment	h_{ef}	in. (mm)	2.625 (67)	3.000 (76)
Effectiveness factor for uncracked concrete	k_{ucr}	-	27	27
Effectiveness factor for cracked concrete	k_{cr}	-	17	17
Modification factor for cracked and uncracked concrete[5]	$\psi_{c,N}$[10]	-	1.0	1.0
Critical edge distance	c_{ac}	in. (mm)	8 (203)	6 (152)
Reduction factor for concrete breakout strength[3]	Φ	-	0.65 (Condition B)	
PULLOUT STRENGTH IN TENSION (NON-SEISMIC APPLICATIONS)[8]				
Characteristic pullout strength, uncracked concrete (2,500 psi)[6]	$N_{p,uncr}$	lb (kN)	NA[7]	NA[7]
Characteristic pullout strength, cracked concrete (2,500 psi)[6]	$N_{p,cr}$	lb (kN)	NA[7]	NA[7]
Reduction factor for pullout strength[3]	Φ	-	0.65 (Condition B)	
PULLOUT STRENGTH IN TENSION FOR SEISMIC APPLICATIONS[8]				
Characteristic pullout strength, seismic (2,500 psi)[6,9]	N_{eq}[10]	lb (kN)	NA[7]	NA[7]
Reduction factor for pullout strength[3]	Φ	-	0.65 (Condition B)	

For SI: 1 inch = 25.4 mm; 1 ksi = 6.894 N/mm^2; 1 lb = 0.0044 kN.

1. The data in this table is intended to be used with the design provisions of ACI 318 Appendix D; for anchors resisting seismic load combinations the additional requirements of ACI 318 D.3.3 must apply.
2. Installation must comply with published instructions and details.
3. All values of Φ apply to the load combinations of IBC Section 1605.2.1, UBC Section 1612.2.1, or ACI 318 Section 9.2. If the load combinations of UBC Section 1902.2 or ACI 318 Appendix C are used, the appropriate value of Φ must be determined in accordance with ACI 318 D.4.5. For reinforcement that complies with ACI 318 Appendix D requirements for Condition A, the appropriate Φ factor must be determined in accordance with ACI 318 D.4.4.
4. The PB+ is considered a ductile steel element as defined by ACI 318 D.1. Tabulated values for steel strength in tension must be used for design.
5. For all design cases use $\psi_{c,N} = 1.0$. The appropriate effectiveness factor for cracked concrete (k_{cr}) or uncracked concrete (k_{uncr}) must be used.
6. For all design cases use $\psi_{c,P} = 1.0$. For the calculation of N_{pn}, For concrete compressive strength greater than 2,500 psi, N_{pn} = (pullout strength value from table) (specified concrete compressive strength/2500)$^{0.5}$.
7. Pullout strength will not control design of indicated anchors. Do not calculate pullout strength for indicated anchor size and embedment.
8. Anchors are permitted to be used in sand-lightweight concrete provided that N_b and N_{pn} are multiplied by a factor of 0.60.
9. Tabulated values for characteristic pullout strength in tension are for seismic applications and based on test results in accordance with ACI 355.2, Section 9.5.
10. For 2003 IBC, f_{uta} replaces f_{ut} ; N_{sa} replaces N_s ; ψ_{cP} replaces ψ_3; and N_{eq} replaces $N_{p,seis}$.

SD PERFORMANCE DATA

Shear Design information for PB+ Anchor in Concrete (for use with load combinations taken form ACI 318, Section 9.2)[1,2]

Design Characteristic	Notation	Units	Nominal Anchor Diameter	
			1/2	5/8
Anchor category	1, 2 or 3	-	1	1
Nominal embedment depth	h_{nom}	in. (mm)	3-1/4 (83)	3-3/4 (95)
STEEL STRENGTH IN SHEAR[4]				
Minimum specified yield strength (threads)	f_y	ksi (N/mm^2)	130 (896)	130 (896)
Minimum specified ultimate strength (threads)	f_{uta} [8]	ksi (N/mm^2)	150 (1034)	150 (1034)
Effective tensile stress area (bolt)	A_{se}	in^2 (mm^2)	0.1069 (69.0)	0.1452 (93.7)
Steel strength in shear[5]	V_{sa} [8]	lb (kN)	6,005 (26.7)	13,415 (59.7)
Reduction factor for steel strength[3]	Φ	-	0.65	
CONCRETE BREAKOUT STRENGTH IN SHEAR[6]				
Load bearing length of anchor (h_{ef} or $8d_o$, whichever is less)	ℓ_e [8]	in (mm)	2.625 (67)	3.000 (76)
Nominal anchor diameter	$d_a[d_o]$	in (mm)	0.500 (12.7)	0.625 (15.9)
Reduction factor for concrete breakout[3]	Φ	-	0.70 (Condition B)	
PRYOUT STRENGTH IN SHEAR[6]				
Coefficient for pryout strength (1.0 for $h_{ef} < 2.5$ in., 2.0 for $h_{ef} \geq 2.5$ in.)	k_{cp}	-	2.0	2.0
Effective embedment	h_{ef}	in (mm)	2.625 (675)	3.000 (76)
Reduction factor for pryout strength[3]	Φ	-	0.70 (Condition B)	
STEEL STRENGTH IN SHEAR FOR SEISMIC APPLICATIONS				
Steel strength in shear, seismic[7]	V_{eq} [8]	lb (kN)	4,565 (24.3)	7,425 (33.0)
Reduction factor for steel strength in shear for seismic[3]	Φ	-	0.65	

For SI: 1 inch = 25.4 mm; 1 ksi = 6.894 N/mm^2; 1 lb = 0.0044 kN.

1. The data in this table is intended to be used with the design provisions of ACI 318 Appendix D; for anchors resisting seismic load combinations the additional requirements of ACI 318 D.3.3 must apply.
2. Installation must comply with published instructions and details.
3. All values of Φ apply to the load combinations of IBC Section 1605.2.1, UBC Section 1612.2.1, or ACI 318 Section 9.2. If the load combinations of UBC Section 1902.2 or ACI 318 Appendix C are used, the appropriate value of Φ must be determined in accordance with ACI 318 D.4.5. For reinforcement that complies with ACI 318 Appendix D requirements for Condition A, the appropriate Φ factor must be determined in accordance with ACI 318 D.4.4.
4. The PB+ is considered a ductile steel element as defined by ACI 318 D.1.
5. Tabulated values for steel strength in shear must be used for design. These tabulated values are lower than calculated results using equation D-20 in ACI 318-05, ACI 318 D.6.1.2 and D-18 in ACI 318-02, D.6.1.2.
6. Anchors are permitted to be used in sand-lightweight concrete provided that V_b, and V_{cp} and V_{cpg} are multiplied by a factor of 0.60.
7. Tabulated values for steel strength in shear are for seismic applications and based on test results in accordance with ACI 355.2, Section 9.6.
8. For the 2003 IBC f_{uta} replaces f_{ut}; V_{sa} replaces V_s; ℓ_e replaces ℓ; and V_{eq} replaces $V_{sa,seis}$.

ORDERING INFORMATION

Power-Bolt+ (Carbon Steel Version Finished Hex Head)

Cat. No.	Anchor Size	Maximum Fixture Thickness	Box Qty.	Carton Qty.
6930SD	1/2" x 2-3/4"	1/4"	50	200
6932SD	1/2" x 3-1/2"	1/4"	50	200
6934SD	1/2" x 4-3/4"	1-1/2"	25	150
6936SD	1/2" x 5-3/4"	2-1/2"	25	150
6940SD	5/8" x 3"	1/4"	20	120
6942SD	5/8" x 4"	1/4"	15	90
6944SD	5/8" x 5"	1-1/4"	15	90
6945SD	5/8" x 6"	2-1/4"	15	90
6947SD	5/8" x 8-1/2"	4-3/4"	10	40

Shaded catalog numbers denote sizes which are less than the minimum standard anchor length for strength design.

The published size includes the diameter and the length is measured from below the washer to the end of the anchor.

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

POWERS FASTENERS **BRANCH INFORMATION**

USA LOCATIONS

CITY	ADDRESS	CONTACT	PHONE	FAX
Alabama	5405 Buford Hwy Suite 410 Norcross, GA 30071-3984	Jeff Hatchett	205-520-6044	678-966-9242
Atlanta	5405 Buford Hwy Suite 410 Norcross, GA 30071-3984	Ryan Raica	678-966-0000	678-966-9242
Boston	2 Powers Lane, Brewster, NY 10509	Jack Armour	800-524-3244	914-576-6483
Charlotte	349 L West Tremont Avenue, Charlotte, NC 28203	Bob Aurisy	704-375-5012	704-376-5517
Chicago	2472 Wisconsin Avenue, Downers Grove, IL 60515	Dan Gilligan	630-960-3156	630-960-3912
Dallas	10625 King Williams Drive, Dallas, TX 75220	Matt Henderson	972-506-9258	972-506-9290
Denver	2475 West Second Street #35, Denver, CO 80223	Jared Hemmert	303-922-9202	303-922-9228
Detroit	21600 Wyoming Avenue, Oak Park, MI 48237	Glen Gaskill	248-543-8600	248-543-8601
Florida	2412 Lynx Lane, Orlando, FL 32804	John Christy	813-626-4500	813-626-4545
Houston	13833 North Promenade, Suite 100, Stafford, TX 77477	Vaughn Eshelman	281-491-0351	281-491-0367
Indianapolis	15290 Stony Creek Way, Noblesville, IN 46060	Bill Trainor	317-773-1668	317-773-1690
Kansas City / St Louis	716 East 16th Avenue, North Kansas City, MO 64116	Don James, Jr.	816-472-5038	816-472-5040
Los Angeles	2761 Dow Avenue, Tustin, CA 92780	Jason Shelburne	714-731-2500	714-731-2566
Maryland	3137-B Pennsy Drive, Landover, MD 20785	Chris Van Syckle	301-773-1722	301-341-5119
Milwaukee	12020 W. Feerick Street, Milwaukee, WI 53222	Donn Raduenz	414-466-2400	414-466-3993
Minneapolis	351 Wilson Street, NE Minneapolis, MN 55413	Josh Nelson	612-644-3047	612-331-3549
Nashville/Memphis	221 Blanton Avenue, Nashville, TN 37210	Jamie Utley	615-248-2667	615-248-2676
New Orleans	102 Sampson Street, Houston, TX 77003	Cal Zenor	713-228-1524	713-228-1528
New York	2 Powers Lane, Brewster, NY 10509	John Partridge	914-235-6300	914-576-6483
Philadelphia	2 Powers Lane, Brewster, NY 10509	Greg Stephenson	800-524-3244	914-576-6483
Phoenix	3602 E. Southern Ave, Suite 5 Phoenix, AZ 85040	Craig Hering	602-431-8024	602-431-8027
Pittsburgh	1360 Island Avenue, Mckees Rocks, PA 15136	Bill Dugan	412-771-3010	412-771-9858
Portland	129 South Kenyon, Seattle, WA 98108	Jim Swink	360-608-6845	206-762-5817
Rochester	2 Powers Lane, Brewster, NY 10509	Mark Harper	585-265-4464	914-576-6483
Salt Lake City	2212 SW Temple #20, Salt Lake City, UT 84115	Don Manning	801-466-9428	801-466-3083
San Francisco	28970 Hopkins Street, Suite B+C, Hayward, CA 94545	John O'Brien	510-293-1500	510-293-1505
Seattle	18808 142nd Ave NE, Suite 4A, Woodinville, WA 98072	Darin Arnold	206-762-5812	206-762-5817

INTERNATIONAL LOCATIONS

COUNTRY/REGION	ADDRESS	CONTACT	PHONE	FAX
Australia	Factory 3, 205 Abbotts Road, Dandenong, South Victoria 3175	Phil Rose	+61 3 8787 5888	+61 3 8787 5899
Canada	6950 Edwards Blvd. Mississauga, Ontario L5T 2W2	Mark Russell	905-673-7295	905-673-6490
China	Besco Machinery Industry (Zhejiang) Co. Ltd. No. 125 Weizhong Road Weitang Town, Jiashan City, Zhejiang Province China 314116	Jake Olsen	+86 573 847 53255	+86 215080 5389
Europe	Westrak 208, 1771 SV Wieringerwerf, Netherlands	Paul Geuvers	+31 888 769 377	+31 227 594 759
India	D-112, Twin Arcade, Military Rd., Marol, Andheri, East Mumbai, 400059	Ajay Kulkarni	91-22-401591304	
Manitoba	1810 Dublin Avenue Man. Winnipeg, R3H 0H3	Distributor	204-633-0064	204-694-1261
New Zealand	PO Box 302 076 North Harbour Auckland	Claye Sesto	+64 9415 2425	+64 9415 2627
Quebec	721 Meloche Avenue, Dorval, Quebec H9P 2S5	Allan Hill	514-631-4216	514-631-2583
Thailand	80/89 MOO4 Petchakasem Road, Bangkae Bangkok 10160	Chalee Surakavanichakorn	+661 826 5821	

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Colombia	Electrogeno, S.A., Carrera 52 #71c-38, Bogota, Colombia		(57) 1 6600 9436	
Costa Rica	Electro Mechanics Supply, La Uruca Contiguo Banco Ntnl., De Costa Rica Condominio, Horizontal Bodega #9, San Jose, Costa Rica		(506) 2233-2595	
Dominican Republic	Calle Estancia Nueva #17 E Esquina Cul-De-Sac 9, San Geronimo, Santo Domingo	Rodfor Team	809-224-5615	809-472-8640
Ecuador	Acero Comercial Ecuatoriano S.A., Av. La Prensa N45-14 y Telégrafo 1 – Quito Av. Juan Tanca Marengo Km. 1.7 – Guayaquil	infouio@acerocomercial.com infogye@acerocomercial.com	(593-2) 2454 333 (593-4) 2683 060	(593-2) 2454 455 (593-4) 2683 059
Guatemala	Tecnofijaciones, 6 Avenue 8-56 Zona 9, Zona 9, Guatemala	Oscar Lucas Penagos	502-233-4-3478	
Panama	Centro-Industrial, Via Cincuentenario, No. 7910, Ciudad Panama, Panama		(507) 302-8022	
Peru	Powers Peruana SAC, Av. Santa Catalina, 555 La Victoria, Lima 13, Peru (www.powersperuana.com)	Martin Vasquez	(011) 511 265 8500	(011) 511 330 0909
Venezuela	Calle Sucre/Qta. Maudora, #1721 Entre Cec Acosta Y San Ignacio Chacao, Caracas	Distributor	58 212 264 1313	58 212 263 0219
Trinidad - Tobago	Ft. Farfan, 3-5 Ibis Avenue, Ibis Acres, San Juan	Derek Cumming	(868) 674-7896	

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