



Power-Stud™

WEDGE TYPE EXPANSION ANCHOR

BASE MATERIAL

Concrete, Stone

SIZE RANGE

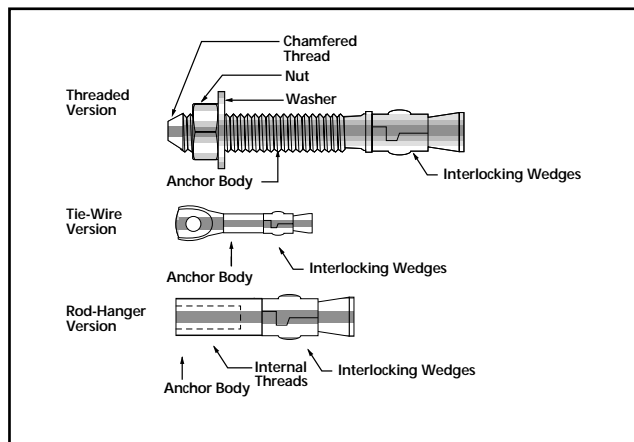
1/4" x 1-3/4" to 1-1/4" x 12"

ANCHOR MATERIAL

Carbon Steel & Type 304 or 316 Stainless Steel

PRODUCT DESCRIPTION

The Power-Stud anchor (formerly known as the Rawl-Stud) is a one piece, wedge type expansion anchor available in carbon steel and stainless steel. Threaded, Rod Hanger and Tie-Wire versions are designed for use in solid concrete. The drill bit diameter needed for proper installation is the same as the anchor diameter.



LENGTH IDENTIFICATION

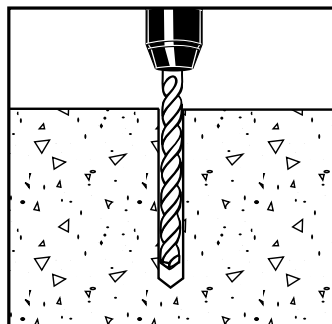
The threaded Power-Stud anchor has a length identification mark stamped on the head of the anchor as shown below.

MARK	A	B	C	D	E	F	G	H
From	1-1/2	2	2-1/2	3	3-1/2	4	4-1/2	5
Up to	2	2-1/2	3	3-1/2	4	4-1/2	5	5-1/2

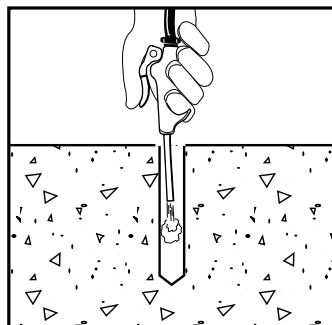
MARK	I	J	K	L	M	N	O	P
From	5-1/2	6	6-1/2	7	7-1/2	8	8-1/2	9
Up to	6	6-1/2	7	7-1/2	8	8-1/2	9	9-1/2

MARK	Q	R	S	T
From	9-1/2	10	11	12
Up to	10	11	12	13

INSTALLATION PROCEDURES

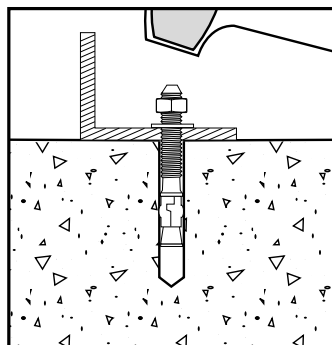


Using the proper diameter bit, drill a hole into the base material to a depth of at least 1/2" or one anchor diameter deeper than the embedment required. The tolerances of the drill bit used should meet the requirements of ANSI Standard B212.15.

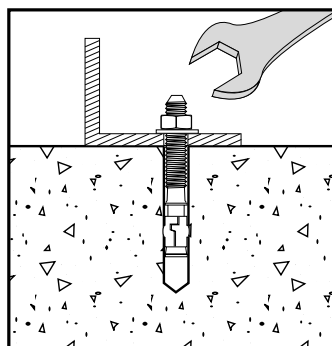


Blow the hole clean of dust and other material.

THREADED VERSION

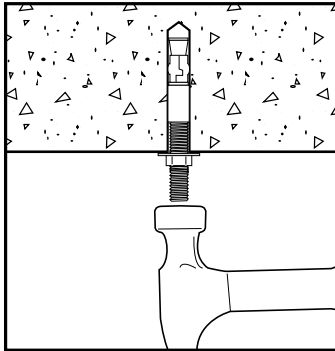


Position the washer on the anchor and thread on the nut. Drive the anchor through the fixture into the anchor hole until the nut and washer are firmly seated against the fixture. Be sure the anchor is driven to the required embedment depth.

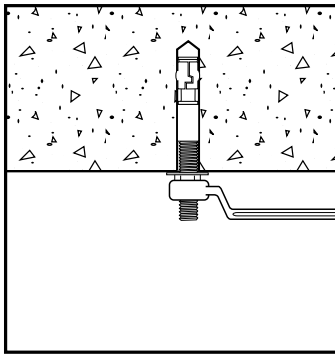


Tighten the anchor by turning the nut 3 to 5 turns past finger tight or by applying the guide installation torque from the finger tight position.

ROD HANGER VERSION

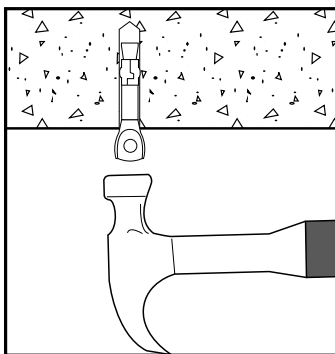


Thread the anchor onto the rod to be used along with a nut and washer. Drive the anchor into the hole until the anchor is at the required embedment depth. The anchor body should be recessed in the hole.

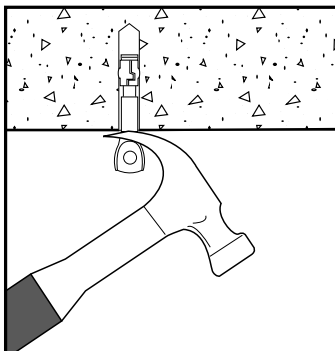


Run the nut and washer up to the concrete surface and tighten the anchor by turning the nut 3 to 5 turns past finger tight or by applying the guide installation torque from the finger tight position.

TIE-WIRE VERSION



Using the proper diameter bit, drive the anchor into the hole until the head is firmly seated against the base material. Be sure the anchor is driven to the required embedment depth.



Set the anchor with a prying action using a claw hammer.

ANCHOR SIZES AND STYLES

The following tables list the sizes and styles of standard Power-Stud anchors. To select the proper minimum anchor length for the threaded version, determine the embedment depth required to obtain the desired load capacity. Then add the thickness of the fixture, including any spacers or shims, to the embedment depth, along with the nut and washer thickness. The nut and washer thickness is equal to the nominal anchor diameter.

CARBON STEEL POWER-STUD

Carbon steel Power-Stud anchors are manufactured from carbon steel which is plated with commercial bright zinc and a supplementary chromate treatment in accordance with ASTM Specification B 633, SC1, Type III (Fe/Zn 5).

CAT. NO.	SIZE	MIN. EMBED.	THREAD LENGTH	STD. BOX	STD. CTN.	WT./ 100
7400	1/4" x 1-3/4"	1-1/8"	3/4"	100	500	3
7402	1/4" x 2-1/4"	1-1/8"	1-1/4"	100	500	3-1/2
7404	1/4" x 3-1/4"	1-1/8"	2-1/4"	100	500	4-3/4
7410	3/8" x 2-1/4"	1-5/8"	1-1/4"	50	250	8-3/4
7412	3/8" x 2-3/4"	1-5/8"	1-5/8"	50	250	9-1/2
7413	3/8" x 3"	1-5/8"	1-7/8"	50	250	10-3/4
7414	3/8" x 3-1/2"	1-5/8"	2-3/8"	50	250	12
7415	3/8" x 3-3/4"	1-5/8"	2-5/8"	50	250	12-3/4
7416	3/8" x 5"	1-5/8"	3-7/8"	50	250	15-1/2
7417	3/8" x 7"	1-5/8"	5-7/8"	50	200	21
7420	1/2" x 2-3/4"	2-1/4"	1-3/8"	50	200	18
7422	1/2" x 3-3/4"	2-1/4"	2-3/8"	50	200	23
7423	1/2" x 4-1/2"	2-1/4"	3-1/8"	50	200	28
7424	1/2" x 5-1/2"	2-1/4"	4-1/8"	50	150	32
7426	1/2" x 7"	2-1/4"	5-5/8"	25	100	44
7427	1/2" x 8-1/2"	2-1/4"	7-1/8"	25	100	46
7430	5/8" x 3-1/2"	2-3/4"	2"	25	100	40
7432	5/8" x 4-1/2"	2-3/4"	3"	25	100	54
7433	5/8" x 5"	2-3/4"	3-1/2"	25	100	57
7434	5/8" x 6"	2-3/4"	4-1/2"	25	75	64
7436	5/8" x 7"	2-3/4"	5-1/2"	25	75	72
7438	5/8" x 8-1/2"	2-3/4"	7"	25	75	84
7439	5/8" x 10"	2-3/4"	8-1/2"	25	75	100
7440	3/4" x 4-1/4"	3-3/8"	2-3/8"	20	60	70
7441	3/4" x 4-3/4"	3-3/8"	2-7/8"	20	60	76
7442	3/4" x 5-1/2"	3-3/8"	3-5/8"	20	60	85
7444	3/4" x 6-1/4"	3-3/8"	4-3/8"	20	60	95
7446	3/4" x 7"	3-3/8"	5-1/8"	20	60	105
7448	3/4" x 8-1/2"	3-3/8"	6-5/8"	10	40	120
7449	3/4" x 10"	3-3/8"	8-1/8"	10	30	135
7451	3/4" x 12"	3-3/8"	10-1/8"	10	30	155
7450	7/8" x 6"	3-7/8"	2-3/4"	10	40	120
7452	7/8" x 8"	3-7/8"	4-3/4"	10	40	160
7454	7/8" x 10"	3-7/8"	6-3/4"	10	30	200
7461	1" x 6"	4-1/2"	2-3/8"	10	30	170
7463	1" x 9"	4-1/2"	5-3/8"	10	30	240
7465	1" x 12"	4-1/2"	8-3/8"	5	15	300
7473	1-1/4" x 9"	5-5/8"	4-3/4"	5	15	360
7475	1-1/4" x 12"	5-5/8"	7-3/4"	5	15	480

The published length is the overall length of the anchor. Allow one anchor diameter for the nut and washer thickness when selecting a length.

**MECHANICALLY GALVANIZED POWER-STUD**

Mechanically Galvanized Power-Stud anchors are manufactured from steel which have a mechanically galvanized coating (zinc) in accordance with ASTM Specification B 695, Class 65, Type I.

CAT. NO.	SIZE	MIN. EMBED.	THREAD LENGTH	STD. BOX	STD. CTN.	WT./ 100
7720	1/2" x 2-3/4"	2-1/4"	1-3/8"	50	200	18
7723	1/2" x 4-1/2"	2-1/4"	3-1/8"	50	200	30
7724	1/2" x 5-1/2"	2-1/4"	4-1/8"	50	150	34
7726	1/2" x 7"	2-1/4"	5-5/8"	25	100	34
7730	5/8" x 3-1/2"	2-3/4"	2"	25	100	40
7734	5/8" x 6"	2-3/4"	4-1/2"	25	75	64
7741	3/4" x 4-3/4"	3-3/8"	2-7/8"	20	60	76
7742	3/4" x 5-1/2"	3-3/8"	3-5/8"	20	60	85
7748	3/4" x 8-1/2"	3-3/8"	6-5/8"	10	40	120
7750	7/8" x 6"	3-7/8"	2-3/4"	10	40	120
7752	7/8" x 8"	3-7/8"	4-3/4"	10	40	160
7763	1" x 9"	4-1/2"	5-3/8"	10	30	240

The published length is the overall length of the anchor. Allow one anchor diameter for the nut and washer thickness when selecting a length.

STAINLESS STEEL POWER-STUD

Stainless Steel Power-Stud anchors are manufactured from AISI Type 304 / 304 Cu and Type 316 steel which is passivated.

TYPE 304 STAINLESS STEEL POWER-STUD

CAT. NO.	SIZE	MIN. EMBED.	THREAD LENGTH	STD. BOX	STD. CTN.	WT./ 100
7300	1/4" x 1-3/4"	1-1/8"	3/4"	100	500	3
7302	1/4" x 2-1/4"	1-1/8"	1-1/4"	100	500	3-1/2
7304	1/4" x 3-1/4"	1-1/8"	2-1/4"	100	500	4-3/4
7310	3/8" x 2-1/4"	1-5/8"	1-1/4"	50	250	8-3/4
7312	3/8" x 2-3/4"	1-5/8"	1-5/8"	50	250	9-1/2
7313	3/8" x 3"	1-5/8"	1-7/8"	50	250	10-3/4
7314	3/8" x 3-1/2"	1-5/8"	2-3/8"	50	250	12
7315	3/8" x 3-3/4"	1-5/8"	2-5/8"	50	250	12-3/4
7316	3/8" x 5"	1-5/8"	3-1/8"	50	250	15-1/2
7320	1/2" x 2-3/4"	2-1/4"	1-3/8"	50	200	18
7322	1/2" x 3-3/4"	2-1/4"	2-3/8"	50	200	23
7323	1/2" x 4-1/2"	2-1/4"	3-1/8"	50	200	30
7324	1/2" x 5-1/2"	2-1/4"	4-1/8"	50	150	34
7326	1/2" x 7"	2-1/4"	5-5/8"	25	100	44
7330	5/8" x 3-1/2"	2-3/4"	2"	25	100	40
7332	5/8" x 4-1/2"	2-3/4"	3"	25	100	54
7333	5/8" x 5"	2-3/4"	3-1/2"	25	100	57
7334	5/8" x 6"	2-3/4"	4-1/2"	25	75	64
7336	5/8" x 7"	2-3/4"	5-1/2"	25	75	72
7338	5/8" x 8-1/2"	2-3/4"	7"	25	75	84
7340	3/4" x 4-1/4"	3-3/8"	2-3/8"	20	60	70
7341	3/4" x 4-3/4"	3-3/8"	2-7/8"	20	60	76
7342	3/4" x 5-1/2"	3-3/8"	3-5/8"	20	60	85
7344	3/4" x 6-1/4"	3-3/8"	4-3/8"	20	60	95
7346	3/4" x 7"	3-3/8"	5-1/8"	20	60	105

CAT. NO.	SIZE	MIN. EMBED.	THREAD LENGTH	STD. BOX	STD. CTN.	WT./ 100
7348	3/4" x 8-1/2"	3-3/8"	6-5/8"	10	40	120
7349	3/4" x 10"	3-3/8"	8-1/8"	10	30	135
7352	7/8" x 8"	3-7/8"	4-3/4"	10	40	160
7361	1" x 6"	4-1/2"	2-3/8"	10	30	170
7363	1" x 9"	4-1/2"	5-3/8"	10	30	240
7365	1" x 12"	4-1/2"	8-3/8"	5	15	300

The published length is the overall length of the anchor. Allow one anchor diameter for the nut and washer thickness when selecting a length.

TYPE 316 STAINLESS STEEL POWER-STUD

CAT. NO.	SIZE	MIN. EMBED.	THREAD LENGTH	STD. BOX	STD. CTN.	WT./ 100
7600	1/4" x 1-3/4"	1-1/8"	3/4"	100	500	3-1/4
7602	1/4" x 2-1/4"	1-1/8"	1-1/4"	100	500	3-3/4
7604	1/4" x 3-1/4"	1-1/8"	2-1/4"	100	500	5-1/4
7610	3/8" x 2-1/4"	1-5/8"	1-1/4"	50	250	8-3/4
7612	3/8" x 2-3/4"	1-5/8"	1-5/8"	50	250	10-1/2
7613	3/8" x 3"	1-5/8"	1-7/8"	50	250	11
7614	3/8" x 3-1/2"	1-5/8"	2-3/8"	50	250	12
7615	3/8" x 3-3/4"	1-5/8"	2-5/8"	50	250	13
7616	3/8" x 5"	1-5/8"	3-7/8"	50	250	17-1/4
7620	1/2" x 2-3/4"	2-1/4"	1-3/8"	50	200	18
7622	1/2" x 3-3/4"	2-1/4"	2-3/8"	50	200	24
7623	1/2" x 4-1/2"	2-1/4"	3-1/8"	50	200	30
7624	1/2" x 5-1/2"	2-1/4"	4-1/8"	50	150	34
7626	1/2" x 7"	2-1/4"	5-5/8"	25	100	44
7630	5/8" x 3-1/2"	2-3/4"	2"	25	100	40
7632	5/8" x 4-1/2"	2-3/4"	3"	25	100	54
7633	5/8" x 5"	2-3/4"	3-1/2"	25	100	57
7634	5/8" x 6"	2-3/4"	4-1/2"	25	75	64
7636	5/8" x 7"	2-3/4"	5-1/2"	25	75	72
7638	5/8" x 8-1/2"	2-3/4"	7"	25	75	84
7640	3/4" x 4-1/4"	3-3/8"	2-3/8"	20	60	70
7641	3/4" x 4-3/4"	3-3/8"	2-7/8"	20	60	76
7642	3/4" x 5-1/2"	3-3/8"	3-5/8"	20	60	85
7644	3/4" x 6-1/4"	3-3/8"	4-3/8"	20	60	95
7646	3/4" x 7"	3-3/8"	5-1/8"	20	60	105
7648	3/4" x 8-1/2"	3-3/8"	6-5/8"	10	40	120

The published length is the overall length of the anchor. Allow one anchor diameter for the nut and washer thickness when selecting a length.

ROD HANGER POWER-STUD

CAT. NO.	ROD SIZE	ANCHOR SIZE	DRILL DIA.	MIN. EMBED.	THREAD DEPTH	STD. BOX	STD. CTN.	WT./ 100
7806	3/8"	1/2" x 2-3/8"	1/2"	2-1/4"	9/16"	50	250	18
7808	1/2"	5/8" x 2-1/2"	5/8"	2-3/4"	3/4"	25	125	40
7810	5/8"	7/8" x 3-1/4"	7/8"	3-7/8"	15/16"	10	50	120

TIE-WIRE POWER-STUD

CAT. NO.	SIZE	TIE-WIRE HOLE SIZE	MIN. EMBED.	STD. BOX	STD. CTN.	WT./ 100
7409	1/4" x 2"	9/32"	1-1/8"	100	500	3-3/4

INSTALLATION SPECIFICATIONS**CARBON STEEL POWER-STUD**

ANCHOR SIZE	1/4"	3/8"	1/2"	5/8"
ANSI Drill Bit Size	1/4"	3/8"	1/2"	5/8"
Fixture Clearance Hole	5/16"	7/16"	9/16"	11/16"
Thread Size	1/4-20	3/8-16	1/2-13	5/8-11
Nut Height	7/32"	21/64"	7/16"	35/64"
Washer O.D.	5/8"	1"	1-1/16"	1-3/4"
Wrench Size	7/16"	9/16"	3/4"	15/16"

ANCHOR SIZE	3/4"	7/8"	1"	1-1/4"
ANSI Drill Bit Size	3/4"	7/8"	1"	1-1/4"
Fixture Clearance Hole	13/16"	15/16"	1-1/8"	1-3/8"
Thread Size	3/4 - 10	7/8 - 9	1 - 8	1-1/4 - 7
Nut Height	41/64"	3/4"	55/64"	1-1/16"
Washer O.D.	2"	2-1/4"	2-1/2"	3"
Wrench Size	1-1/8"	1-5/16"	1-1/2"	1-7/8"

STAINLESS STEEL POWER-STUD

ANCHOR SIZE	1/4"	3/8"	1/2"	5/8"
ANSI Drill Bit Size	1/4"	3/8"	1/2"	5/8"
Fixture Clearance Hole	5/16"	7/16"	9/16"	11/16"
Thread Size	1/4 - 20	3/8 - 16	1/2 - 13	5/8 - 11
Nut Height	7/32"	21/64"	7/16"	35/64"
Washer O.D. (304 SS)	5/8"	13/16"	1-1/16"	1-3/4"
Washer O.D. (316 SS)	5/8"	7/8"	1-1/4"	1-1/2"
Wrench Size	7/16"	9/16"	3/4"	15/16"

ANCHOR SIZE	3/4"	7/8"	1"
ANSI Drill Bit Size	3/4"	7/8"	1"
Fixture Clearance Hole	13/16"	15/16"	1-1/8"
Thread Size	3/4 - 10	7/8 - 9	1 - 8
Nut Height	41/64"	3/4"	55/64"
Washer O.D. (304 SS)	2"	2-1/4"	2-1/2"
Washer O.D. (316 SS)	1-3/4"	2"	2"
Wrench Size	1-1/8"	1-5/16"	1-1/2"

ROD HANGER POWER-STUD

ROD SIZE	3/8"	1/2"	5/8"
Anchor Diameter	1/2"	5/8"	7/8"
ANSI Drill Bit Size	1/2"	5/8"	7/8"
Internal Thread Size	3/8-16	1/2-13	5/8-11

TIE-WIRE POWER-STUD

ANCHOR SIZE	1/4"
ANSI Drill Bit Size	1/4"
Tie-Wire Hole Size	9/32"
Head Height	3/4"

MATERIAL SPECIFICATIONS**CARBON STEEL POWER-STUD**

ANCHOR COMPONENT	COMPONENT MATERIAL
Anchor Body	AISI 1018 (1/4"-3/4", lengths up to 7"), AISI 12L14 (7/8"-1-1/4" and all lengths over 7")
Nut	Carbon Steel, ASTM A 563, Grade A
Washer	Carbon Steel
Expansion Wedge	Tempered AISI 1010 Carbon Steel
Zinc Plating	ASTM B 633, SC1, Type III (Fe/Zn 5)

MECHANICALLY GALVANIZED POWER-STUD

ANCHOR COMPONENT	COMPONENT MATERIAL
Anchor Body	AISI 1018 (1/4"-3/4", lengths up to 7"), AISI 12L14 (7/8"-1-1/4" and all lengths over 7")
Nut	Carbon Steel, ASTM A 563, Grade A
Washer	Carbon Steel
Expansion Wedge	Type 304 Stainless Steel
Mechanically Galvanized Coating	ASTM B 695, Class 65, Type I

TYPE 304 STAINLESS STEEL POWER-STUD

ANCHOR COMPONENT	COMPONENT MATERIAL
Anchor Body	Type 304Cu (1/4" - 3/4", lengths up to 7") Type 304 (7/8" - 1", lengths over to 7")
Nut	Type18-8 (300 Series) Stainless Steel
Washer	Type18-8 (300 Series) Stainless Steel
Expansion Wedge	Type 304 Stainless Steel

TYPE 316 STAINLESS STEEL POWER-STUD

ANCHOR COMPONENT	COMPONENT MATERIAL
Anchor Body	Type 316L Stainless Steel
Nut	Type 316L Stainless Steel
Washer	Type 316L Stainless Steel
Expansion Wedge	Type 316 Stainless Steel

ROD HANGER POWER-STUD

ANCHOR COMPONENT	COMPONENT MATERIAL
Anchor Body	AISI 12L14 Carbon Steel
Expansion Wedge	Tempered AISI 1010 Carbon Steel
Zinc Plating	ASTM B 633 SC1, Type III (Fe / Zn 5)

TIE-WIRE POWER-STUD

ANCHOR COMPONENT	COMPONENT MATERIAL
Anchor Body	AISI 1018 Carbon Steel
Expansion Wedge	Tempered AISI 1010 Carbon Steel
Zinc Plating	ASTM B 633, SC1, Type III (Fe / Zn 5)



PERFORMANCE DATA

The following load capacities are based on testing conducted according to ASTM Standard E 488.

ULTIMATE LOAD CAPACITIES - CONCRETE

ANCHOR SIZE (IN)	EMBED DEPTH (IN)	GUIDE TORQUE (FT-LBS)	2,000 PSI CONCRETE		4,000 PSI CONCRETE		6,000 PSI CONCRETE	
			TENSION (LBS)	SHEAR (LBS)	TENSION (LBS)	SHEAR (LBS)	TENSION (LBS)	SHEAR (LBS)
1/4	1-1/8	6 - 8	1,240	1,580	1,810	1,620	1,940	1,620
1/4	1-1/2	6 - 8	1,635	1,580	2,100	1,620	2,195	1,620
1/4	2	6 - 8	2,170	1,580	2,490	1,620	2,535	1,620
1/4	2-3/4	6 - 8	2,340	1,655	2,550	2,070	2,535	2,080
3/8	1-5/8	28 - 35	2,120	3,560	3,040	3,760	3,345	3,760
3/8	2	28 - 35	2,800	3,560	3,850	3,760	4,075	3,760
3/8	3	28 - 35	4,615	3,560	6,020	3,760	6,025	3,760
3/8	4-1/4	28 - 35	5,045	3,840	6,020	5,185	6,025	5,185
1/2	2-1/4	60 - 70	4,445	6,540	5,560	6,800	6,540	6,800
1/2	3	60 - 70	6,920	6,540	8,895	6,800	9,875	6,800
1/2	4	60 - 70	7,250	6,540	9,115	6,800	10,160	6,800
1/2	6	60 - 70	7,910	7,025	9,550	7,190	10,730	7,190
5/8	2-3/4	90 - 100	6,270	9,280	8,725	11,900	9,860	11,900
5/8	4	90 - 100	9,710	9,280	10,825	11,900	13,495	11,900
5/8	5	90 - 100	10,640	9,280	12,510	11,900	16,410	11,900
5/8	7	90 - 100	12,500	9,760	15,880	12,170	16,410	12,170
3/4	3-3/8	175 - 190	8,740	13,475	10,640	15,060	12,540	15,060
3/4	5	175 - 190	11,045	13,475	14,630	15,060	17,265	15,060
3/4	6	175 - 190	12,465	13,475	17,080	15,060	20,180	15,060
3/4	8	175 - 190	16,620	14,660	22,770	17,110	24,905	17,110
7/8	3-7/8	250 - 260	9,680	17,960	15,490	24,160	17,300	24,160
7/8	4-1/2	250 - 260	11,165	17,960	15,620	24,160	20,075	24,160
7/8	5-3/4	250 - 260	14,140	17,960	19,880	24,160	25,625	24,160
7/8	7	250 - 260	17,115	17,960	20,440	24,160	31,180	24,160
7/8	8	250 - 260	17,115	18,630	20,440	25,710	31,180	25,710
1	4-1/2	300 - 325	8,935	26,420	13,820	31,100	21,225	31,100
1	5-1/2	300 - 325	12,770	26,420	20,280	31,100	27,795	31,100
1	6-1/2	300 - 325	16,605	26,420	25,485	31,100	34,365	31,100
1	8	300 - 325	22,360	26,420	27,040	31,100	44,220	31,100
1	9	300 - 325	26,195	27,020	34,205	32,370	44,220	32,370
1-1/4	5-1/2	450 - 460	21,460	40,820	26,980	40,820	36,925	40,820
1-1/4	7	450 - 460	25,360	40,820	35,410	40,820	44,845	40,820
1-1/4	10	450 - 460	33,160	40,820	52,280	40,820	60,690	40,820

NOTE: The values listed above are ultimate load capacities in pounds for the carbon steel and stainless steel Power-Stud which should be reduced by a minimum safety factor of 4 to determine the allowable working load.

ULTIMATE LOAD CAPACITIES - GROUT FILLED HOLLOW BLOCK

ANCHOR SIZE	EMBED. DEPTH	GUIDE TORQUE (FT.-LBS.)	GROUT FILLED BLOCK	
			TENSION (LBS.)	SHEAR (LBS.)
1/4"	1-1/8"	4	1,230	1,230
1/4"	2"	4	1,670	1,230
3/8"	1-5/8"	20	1,990	3,240
3/8"	3"	20	2,200	3,240
1/2"	2-1/4"	30	2,260	6,230
1/2"	4"	30	2,620	6,230
5/8"	2-3/4"	65	3,170	7,830
5/8"	5"	65	3,780	7,830
3/4"	3-3/8"	90	4,085	9,760
3/4"	5"	90	4,420	9,760

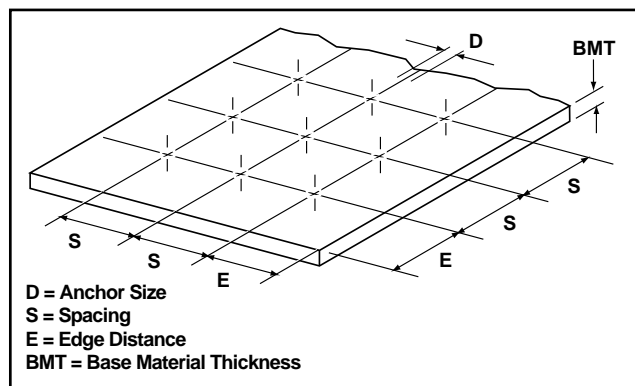
NOTE: Depending upon anchor application and governing building code, ultimate load capacities should be reduced by a minimum safety factor of 4 or greater to determine the allowable working load. The design professional familiar with the actual product installation should be consulted. Please refer to the general section entitled Evaluation of Test Data that appears earlier in this manual for current industry standards. The consistency of grout filled hollow block varies greatly. The load capacities listed above should be used as guidelines only. Job site tests should be conducted to verify base material consistency, proper installation, torque values, and actual anchor performance.

ULTIMATE LOAD CAPACITIES - LIGHTWEIGHT CONCRETE

ANCHOR SIZE	EMBED. DEPTH	GUIDE TORQUE (FT.-LBS.)	2,000 PSI LIGHTWEIGHT CONCRETE	
			TENSION (LBS.)	SHEAR (LBS.)
1/4"	1-1/8"	4	1,120	1,450
1/4"	2"	4	1,350	1,540
3/8"	1-5/8"	20	2,310	3,470
3/8"	2-1/2"	20	2,945	4,130
1/2"	2-1/4"	30	3,070	5,960
1/2"	4"	30	4,860	7,280
5/8"	2-3/4"	65	4,240	9,760
5/8"	5"	65	5,980	11,800
3/4"	3-3/8"	90	6,330	11,440
3/4"	5"	90	8,690	16,450

NOTE: The ultimate load capacities should be reduced by a minimum safety factor of 4 or greater to determine the allowable working load.

DESIGN CRITERIA



BASE MATERIAL THICKNESS

The minimum recommended thickness of base material, BMT, when using the Power-Stud is 125% of the embedment to be used. For example, when installing an anchor to a depth of 4", the base material thickness should be 5".

SPACING BETWEEN ANCHORS

To obtain the maximum load in tension or shear, a spacing, *S*, of 10 anchor diameters (10D) or greater should be used. The minimum recommended anchor spacing, *S*, is 5 anchor diameters (5D) at which point the load should be reduced by 50%. Anchor spacing closer or less than 5 diameters (5D) needs to be field tested. Actual base material conditions will determine any applicable reduction factor. The following table lists the load reduction factor, *R_s*, for each anchor diameter, *D*, based on the center to center anchor spacing.

ANCHOR SIZE D	ANCHOR SPACING, S (INCHES) TENSION AND SHEAR					
	10D	9D	8D	7D	6D	5D
1/4	2-1/2	2-1/4	2	1-3/4	1-1/2	1-1/4
3/8	3-3/4	3-3/8	3	2-5/8	2-1/4	1-7/8
1/2	5	4-1/2	4	3-1/2	3	2-1/2
5/8	6-1/4	5-5/8	5	4-3/8	3-3/4	3-1/8
3/4	7-1/2	6-3/4	6	5-1/4	4-1/2	3-3/4
7/8	8-3/4	7-7/8	7	6-1/8	5-1/4	4-3/8
1	10	9	8	7	6	5
1-1/4	12-1/2	11-1/4	9	8-3/4	7-1/2	6-1/4
R_s	1.00	0.90	0.80	0.70	0.60	0.50

EDGE DISTANCE - TENSION

For tension loads, an edge distance, *E*, of 12 diameters (12D) or greater should be used to obtain the maximum tension load. The minimum recommended edge distance, *E*, is 5 diameters (5D) at which point the tension load should be reduced by 20%. Edge distances closer or less than 5 diameters (5D) need to be field tested. Actual base material conditions will determine any applicable reduction factor. The following table lists the load reduction factor, *R_e*, for each anchor diameter, *D*, based on the anchor center to edge distance.

ANCHOR SIZE D	EDGE DISTANCE, E (INCHES) TENSION ONLY							
	12D	11D	10D	9D	8D	7D	6D	5D
1/4	3	2-3/4	2-1/2	2-1/4	2	1-3/4	1-1/2	1-1/4
3/8	4-1/2	4-1/8	3-3/4	3-3/8	3	2-5/8	2-1/4	1-7/8
1/2	6	5-1/2	5	4-1/2	4	3-1/2	3	2-1/2
5/8	7-1/2	6-7/8	6-1/4	5-5/8	5	4-3/8	3-3/4	3-1/8
3/4	9	8-1/4	7-1/2	6-3/4	6	5-1/4	4-1/2	3-3/4
7/8	10-1/2	9-5/8	8-3/4	7-7/8	7	6-1/8	5-1/4	4-3/8
1	12	11	10	9	8	7	6	5
1-1/4	15	13-1/4	12-1/2	11-1/4	9	8-3/4	7-1/2	6-1/4
R_e	1.00	0.97	0.94	0.91	0.89	0.86	0.83	0.80

EDGE DISTANCE - SHEAR

For shear loads, an edge distance, *E*, of 12 anchor diameters (12D) or greater should be used to obtain the maximum load. The minimum recommended edge distance, *E*, is 5 anchor diameters (5D) at which point the shear load should be reduced by 50%. Edge distances closer or less than 5 diameters (5D) need to be field tested. Actual base material conditions will determine any applicable reduction factor. The following table lists the load reduction factor, *R_e*, for each anchor diameter, *D*, based on the anchor center to edge distance.

ANCHOR SIZE D	EDGE DISTANCE, E (INCHES) SHEAR ONLY							
	12D	11D	10D	9D	8D	7D	6D	5D
1/4	3	2-3/4	2-1/2	2-1/4	2	1-3/4	1-1/2	1-1/4
3/8	4-1/2	4-1/8	3-3/4	3-3/8	3	2-5/8	2-1/4	1-7/8
1/2	6	5-1/2	5	4-1/2	4	3-1/2	3	2-1/2
5/8	7-1/2	6-7/8	6-1/4	5-5/8	5	4-3/8	3-3/4	3-1/8
3/4	9	8-1/4	7-1/2	6-3/4	6	5-1/4	4-1/2	3-3/4