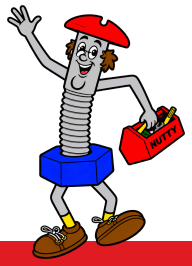
THE NUTTY COMPANY INC
FASTENER SPECIALISTS SINCE 1977

19 Seemans Lane • Milford, CT 06460 USA
203.877.1709 • 1.800.4NUTTY.1 • Fax 203.735.1097
sales@nutty.com • www.nutty.com



PRODUCT DATA SHEET

Power Screws – Concrete Screw Anchors



Zinc Plated • PSZ



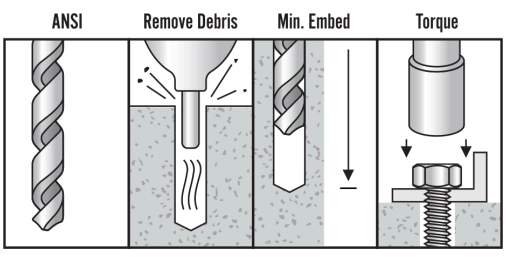
Galvanized • PS

- **One piece, no nut or washer** – drive it straight through the fixture.
- **Hole size = anchor size** with a standard ANSI masonry bit.
- **No expansion forces**, so it can go closer to edges and other anchors than wedge or sleeve anchors.
- **Load right away** – no cure time, low installation torque.
- Racking, railings, sill plates, machinery, stadium seating, formwork and tilt-up braces.

1.0 Specifications

Property	Zinc Plated (PSZ)	Galvanized (PS)
Type	One-piece, heat-treated carbon steel concrete screw anchor with hex washer head and serrated underside	Same
Finish	Zinc plated, ASTM B633 Type III, SC1 (min. 0.0002")	Mechanically galvanized, ASTM B695 Class 65, Type 1
Sizes	3/8" – 3/4" dia., 3" – 10" long	1/4" – 3/4" dia., 1-3/4" – 8" long
Threads	Hardened self-tapping threads cut into the hole wall and interlock with the concrete	Hardened self-tapping threads with undercutting design
Base Materials	Normal-weight & lightweight concrete, cracked or uncracked, f'c 2,500–8,500 psi	Normal-weight & lightweight concrete, solid masonry; may suit hollow masonry
Environment	Dry, interior locations	Improved corrosion resistance for damp and outdoor exposure
Load Data	ICC-ES ESR-4414 (ACI 318 Ch. 17 design strengths)	Independent laboratory testing per ASTM E488
Removal	May be loosened up to one full turn and retightened; do not remove and reinstall in code-designed work	Removable and reinstallable – good for temporary anchoring

2.0 Installation Read all steps before you start



1 Drill the hole | 2 Clean the hole | 3 Set the embedment | 4 Drive the screw

1. **Drill the hole.** Use a carbide-tipped masonry bit meeting **ANSI B212.15**, the **same diameter as the anchor** (a 1/2" screw takes a 1/2" bit) – no metric or odd-size bits needed. Drill at least **1/2" deeper** than the embedment (zinc plated: to the minimum hole depth on page 2). An oversized hole reduces holding power.
2. **Clean the hole.** Remove dust and debris with a nylon brush and compressed air, a hand pump or a vacuum.
3. **Set the embedment.** Choose a screw long enough to pass through the fixture and reach the embedment you need (page 2). Do not let the drill wobble.
4. **Drive the screw.** With an impact wrench or socket/torque wrench, drive the screw through the fixture until the **washer head is snug against the fixture**. Start an impact wrench on a light setting and do not exceed the maximum torque. Do not spin the socket off the head. **Concrete block (CMU):** hand-tighten with a socket wrench only – no impact wrench. **Always wear safety glasses.** Concrete must reach its design strength before installing.

3.0 Stock Numbers & Sizes

Drill bit = anchor diameter

Zinc Plated

Stock #	Size	Drill Bit	Fixture Hole	Min. Embed.	Max. Torque (ft-lbs)
PSZ383	3/8" x 3"	3/8"	1/2"	2-1/2"	35
PSZ384	3/8" x 4"	3/8"	1/2"	2-1/2"	35
PSZ385	3/8" x 5"	3/8"	1/2"	2-1/2"	35
PSZ386	3/8" x 6"	3/8"	1/2"	2-1/2"	35
PSZ123	1/2" x 3"	1/2"	5/8"	2-3/4"	45
PSZ124	1/2" x 4"	1/2"	5/8"	3"	45
PSZ125	1/2" x 5"	1/2"	5/8"	3"	45
PSZ126	1/2" x 6"	1/2"	5/8"	3"	45
PSZ128	1/2" x 8"	1/2"	5/8"	3"	45
PSZ583*	5/8" x 3"	5/8"	3/4"	2-3/4"	85
PSZ584	5/8" x 4"	5/8"	3/4"	3-1/4"	85
PSZ585	5/8" x 5"	5/8"	3/4"	3-1/4"	85
PSZ586	5/8" x 6"	5/8"	3/4"	3-1/4"	85
PSZ588	5/8" x 8"	5/8"	3/4"	3-1/4"	85
PSZ344	3/4" x 4"	3/4"	7/8"	3-3/4"	115
PSZ345	3/4" x 5"	3/4"	7/8"	4"	115
PSZ346	3/4" x 6"	3/4"	7/8"	4"	115
PSZ348	3/4" x 8"	3/4"	7/8"	4"	115
PSZ3410	3/4" x 10"	3/4"	7/8"	4"	115

Galvanized

Stock #	Size	Drill Bit	Fixture Hole	Socket	Torque (ft-lbs) approx.
PS14134	1/4" x 1-3/4"	1/4"	3/8"	7/16"	8
PS14214	1/4" x 2-1/4"	1/4"	3/8"	7/16"	8
PS143	1/4" x 3"	1/4"	3/8"	7/16"	8
PS383	3/8" x 3"	3/8"	1/2"	9/16"	25
PS384	3/8" x 4"	3/8"	1/2"	9/16"	25
PS385	3/8" x 5"	3/8"	1/2"	9/16"	25
PS386	3/8" x 6"	3/8"	1/2"	9/16"	25
PS123	1/2" x 3"	1/2"	5/8"	3/4"	55
PS124	1/2" x 4"	1/2"	5/8"	3/4"	55
PS125	1/2" x 5"	1/2"	5/8"	3/4"	55
PS126	1/2" x 6"	1/2"	5/8"	3/4"	55
PS127	1/2" x 7"	1/2"	5/8"	3/4"	55
PS584	5/8" x 4"	5/8"	3/4"	15/16"	95
PS585	5/8" x 5"	5/8"	3/4"	15/16"	95
PS586	5/8" x 6"	5/8"	3/4"	15/16"	95
PS587	5/8" x 7"	5/8"	3/4"	15/16"	95
PS588	5/8" x 8"	5/8"	3/4"	15/16"	95
PS344	3/4" x 4"	3/4"	7/8"	1-1/8"	150
PS345	3/4" x 5"	3/4"	7/8"	1-1/8"	150
PS346	3/4" x 6"	3/4"	7/8"	1-1/8"	150
PS347	3/4" x 7"	3/4"	7/8"	1-1/8"	150

* PSZ583 is shorter than the minimum anchor length for code strength design; use it for non-structural work.

4.0 Installation Data – Zinc Plated

ICC-ES ESR-4414

Anchor Dia.	Drill Bit	Nominal Embed.	Min. Hole Depth	Max. Install Torque (ft-lbs)	Min. Concrete Thickness	Critical Edge Dist.	Fixture Hole	Socket	Min. Edge Dist.	Min. Spacing
3/8"	3/8"	2-1/2"	2-3/4"	35	4"	4"	1/2"	9/16"	1-1/2"	3"
		3-1/4"	3-1/2"	50	4-3/4"	5"				
1/2"	1/2"	3"	3-3/8"	45	4-3/4"	4-1/2"	5/8"	3/4"	1-3/4"	3"
		4-1/4"	4-5/8"	65	6-3/4"	5"				
5/8"	5/8"	3-1/4"	3-5/8"	85	5"	3-3/4"	3/4"	15/16"	1-3/4"	4"
		5"	5-3/8"	100	7"	7"				
3/4"	3/4"	4"	4-3/8"	115	6"	4-1/2"	7/8"	1-1/8"	1-3/4"	4"
		6-1/4"	6-5/8"	150	8-1/8"	8"				

5.0 Installation Data – Galvanized

Anchor Dia.	Drill Bit	Install Torque approx. (ft-lbs)	Socket	Fixture Hole	Min. Edge Dist.	Critical Edge Dist.	Min. Spacing	Critical Spacing	Head & Washer Height	Washer O.D.
1/4"	1/4"	8	7/16"	3/8"	3/4"	2"	1"	3"	1/4"	1/2"
3/8"	3/8"	25	9/16"	1/2"	1-1/8"	3"	1-1/2"	4-1/2"	3/8"	3/4"
1/2"	1/2"	55	3/4"	5/8"	1-1/2"	4"	2"	6"	31/64"	1"
5/8"	5/8"	95	15/16"	3/4"	1-7/8"	5"	2-1/2"	7-1/2"	19/32"	1-5/32"
3/4"	3/4"	150	1-1/8"	7/8"	2-1/4"	6"	3"	9"	45/64"	1-3/8"

6.0 Load Data – Zinc Plated

Normal-weight concrete • ICC-ES ESR-4414 • lbs

Allowable Loads (ASD) – Uncracked Concrete

Anchor Dia.	Nominal Embed.	2,500 psi		3,000 psi		4,000 psi		6,000 psi		8,000 psi	
		Tension	Shear	Tension	Shear	Tension	Shear	Tension	Shear	Tension	Shear
3/8"	2-1/2"	1,492	1,607	1,634	1,760	1,887	2,032	2,311	2,116	2,669	2,116
	3-1/4"	2,330	2,129	2,552	2,129	2,947	2,129	3,609	2,129	4,167	2,129
1/2"	3"	1,948	2,098	2,134	2,298	2,464	2,653	3,018	3,192	3,485	3,192
	4-1/4"	3,116	4,116	3,414	4,116	3,942	4,116	4,828	4,116	5,575	4,116
5/8"	3-1/4"	1,911	2,058	2,093	2,254	2,417	2,603	2,960	3,188	3,418	3,681
	5"	3,981	5,594	4,361	5,594	5,036	5,594	6,168	5,594	7,122	5,594
3/4"	4"	2,698	5,810	2,955	6,253	3,412	6,253	4,179	6,253	4,826	6,253
	6-1/4"	5,699	6,253	6,243	6,253	7,209	6,253	8,829	6,253	10,195	6,253

Allowable Loads (ASD) – Cracked Concrete

Anchor Dia.	Nominal Embed.	2,500 psi		3,000 psi		4,000 psi		6,000 psi		8,000 psi	
		Tension	Shear	Tension	Shear	Tension	Shear	Tension	Shear	Tension	Shear
3/8"	2-1/2"	939	1,012	1,029	1,108	1,188	1,280	1,455	1,567	1,680	1,810
	3-1/4"	1,467	1,580	1,607	1,730	1,855	1,998	2,272	2,129	2,624	2,129
1/2"	3"	1,415	1,632	1,461	1,787	1,537	2,064	1,650	2,528	1,735	2,919
	4-1/4"	2,207	4,116	2,418	4,116	2,792	4,116	3,420	4,116	3,949	4,116
5/8"	3-1/4"	1,353	1,458	1,483	1,597	1,712	1,844	2,097	2,258	2,421	2,607
	5"	2,820	5,594	3,089	5,594	3,587	5,594	4,369	5,594	5,045	5,594
3/4"	4"	1,911	4,115	2,093	4,508	2,417	5,206	2,960	6,253	3,418	6,253
	6-1/4"	4,037	6,253	4,422	6,253	5,106	6,253	6,254	6,253	7,221	6,253

Design Strengths (φN_n / φV_n, LRFD) – Uncracked Concrete

Anchor Dia.	Nominal Embed.	2,500 psi		3,000 psi		4,000 psi		6,000 psi		8,000 psi	
		Tension	Shear	Tension	Shear	Tension	Shear	Tension	Shear	Tension	Shear
3/8"	2-1/2"	2,208	2,378	2,419	2,605	2,793	3,008	3,421	3,131	3,950	3,131
	3-1/4"	3,448	3,151	3,777	3,151	4,361	3,151	5,341	3,151	6,168	3,151
1/2"	3"	2,883	3,105	3,158	3,401	3,647	3,927	4,466	4,724	5,157	4,724
	4-1/4"	4,612	6,091	5,053	6,091	5,834	6,091	7,145	6,091	8,251	6,091
5/8"	3-1/4"	2,828	3,045	3,098	3,336	3,577	3,852	4,381	4,718	5,059	5,448
	5"	5,892	8,278	6,455	8,278	7,453	8,278	9,128	8,278	10,540	8,278
3/4"	4"	3,992	8,599	4,373	9,255	5,050	9,255	6,185	9,255	7,142	9,255
	6-1/4"	8,434	9,255	9,240	9,255	10,669	9,255	13,067	9,255	15,088	9,255

Design Strengths (φN_n / φV_n, LRFD) – Cracked Concrete

Anchor Dia.	Nominal Embed.	2,500 psi		3,000 psi		4,000 psi		6,000 psi		8,000 psi	
		Tension	Shear	Tension	Shear	Tension	Shear	Tension	Shear	Tension	Shear
3/8"	2-1/2"	1,390	1,497	1,523	1,640	1,759	1,894	2,154	2,319	2,487	2,678
	3-1/4"	2,171	2,338	2,378	2,561	2,746	2,957	3,363	3,151	3,883	3,151
1/2"	3"	2,095	2,415	2,163	2,645	2,275	3,054	2,442	3,741	2,568	4,320
	4-1/4"	3,267	6,091	3,579	6,091	4,133	6,091	5,061	6,091	5,844	6,091
5/8"	3-1/4"	2,003	2,157	2,194	2,363	2,534	2,729	3,103	3,342	3,583	3,859
	5"	4,147	8,278	4,572	8,278	5,279	8,278	6,466	8,278	7,466	8,278
3/4"	4"	2,828	6,091	3,098	6,672	3,577	7,704	4,381	9,255	5,059	9,255
	6-1/4"	5,974	9,255	6,545	9,255	7,557	9,266	9,256	9,255	10,687	9,255

- Allowable loads are converted from design strengths with α = 1.48 (30% dead / 70% live load, 1.2D + 1.6L).
- Values are for a single anchor at or beyond critical edge distance and spacing, in concrete at least the minimum thickness. Reduce per ACI 318 for closer anchors or edges.
- f'c is the specified compressive strength of the concrete. Design of code-required anchorage must be done by a registered design professional per ACI 318 Chapter 17 and ESR-4414.

7.0 Load Data – Galvanized

Normal-weight concrete • tested per ASTM E488

Anchor Dia.	Drill Bit	Embed. Depth	Ultimate Loads (lbs)				Allowable Loads (lbs) – 4:1			
			3,000 psi		6,000 psi		3,000 psi		6,000 psi	
			Tension	Shear	Tension	Shear	Tension	Shear	Tension	Shear
1/4"	1/4"	1-3/16"	760	1,710	1,030	2,680	190	428	258	670
		2-1/2"	2,400	1,770	3,450	2,850	600	443	863	713
3/8"	3/8"	2"	3,680	3,560	4,250	8,240	920	890	1,063	2,060
		3-1/2"	8,340	8,190	11,150	12,030	2,085	2,048	2,788	3,008
1/2"	1/2"	2"	3,410	4,350	4,760	9,070	853	1,088	1,190	2,268
		3-1/2"	8,760	8,940	12,030	14,670	2,190	2,235	3,008	3,668
5/8"	5/8"	2-1/2"	3,490	4,760	4,690	12,650	873	1,190	1,173	3,163
		3-1/2"	9,300	9,560	13,360	23,660	2,325	2,390	3,340	5,915
3/4"	3/4"	2-1/2"	4,310	6,280	7,040	14,140	1,078	1,570	1,760	3,535
		5-3/4"	13,160	15,840	27,010	31,730	3,290	3,960	6,753	7,933

Loads from independent laboratory testing at critical spacing and edge distance. Allowable loads use a 4:1 safety factor; higher factors may be needed for life-safety or overhead use.

8.0 Load Adjustment Factors – Galvanized

Multiply the load by the factor

Spacing – Tension

100% at 12 dia. • 50% at 4 dia.

Anchor Dia.	1/4"	3/8"	1/2"	5/8"	3/4"
Critical (in.)	3	4-1/2	6	7-1/2	9
Minimum (in.)	1	1-1/2	2	2-1/2	3
Actual distance (in.) ↓ • load factor					
1"	0.50	–	–	–	–
1-1/2"	0.63	0.50	–	–	–
2"	0.77	0.57	0.50	–	–
2-1/2"	0.89	0.66	0.56	0.50	–
3"	**1.00**	0.74	0.62	0.56	0.50
4-1/2"	–	**1.00**	0.80	0.76	0.63
6"	–	–	**1.00**	0.87	0.77
7-1/2"	–	–	–	**1.00**	0.90
9"	–	–	–	–	**1.00**

Spacing – Shear

100% at 12 dia. • 75% at 4 dia.

Anchor Dia.	1/4"	3/8"	1/2"	5/8"	3/4"
Critical (in.)	3	4-1/2	6	7-1/2	9
Minimum (in.)	1	1-1/2	2	2-1/2	3
Actual distance (in.) ↓ • load factor					
1"	0.75	–	–	–	–
1-1/2"	0.81	0.75	–	–	–
2"	0.87	0.79	0.75	–	–
2-1/2"	0.93	0.83	0.78	0.75	–
3"	**1.00**	0.87	0.81	0.78	0.75
4-1/2"	–	**1.00**	0.90	0.86	0.80
6"	–	–	**1.00**	0.94	0.89
7-1/2"	–	–	–	**1.00**	0.95
9"	–	–	–	–	**1.00**

Edge Distance – Tension

100% at 8 dia. • 70% at 3 dia.

Anchor Dia.	1/4"	3/8"	1/2"	5/8"	3/4"
Critical (in.)	2	3	4	5	6
Minimum (in.)	3/4	1-1/8	1-1/2	1-7/8	2-1/4
Actual distance (in.) ↓ • load factor					
3/4"	0.70	–	–	–	–
1-1/8"	0.78	0.70	–	–	–
1-1/2"	0.86	0.76	0.70	–	–
1-7/8"	0.97	0.82	0.74	0.70	–
2"	**1.00**	0.85	0.76	0.72	–
2-1/4"	–	0.90	0.80	0.76	0.70
3"	–	**1.00**	0.89	0.81	0.75
4"	–	–	**1.00**	0.91	0.84
5"	–	–	–	**1.00**	0.92
6"	–	–	–	–	**1.00**

Edge Distance – Shear

100% at 12 dia. • 15% at 3 dia.

Anchor Dia.	1/4"	3/8"	1/2"	5/8"	3/4"
Critical (in.)	3	4-1/2	6	7-1/2	9
Minimum (in.)	3/4	1-1/8	1-1/2	1-7/8	2-1/4
Actual distance (in.) ↓ • load factor					
3/4"	0.15	–	–	–	–
1-1/8"	0.29	0.15	–	–	–
1-1/2"	0.42	0.25	0.15	–	–
1-7/8"	0.57	0.35	0.23	0.15	–
2-1/4"	0.72	0.46	0.31	0.21	0.15
3"	**1.00**	0.62	0.45	0.32	0.25
4-1/2"	–	**1.00**	0.75	0.56	0.46
6"	–	–	**1.00**	0.77	0.65
7-1/2"	–	–	–	**1.00**	0.84
9"	–	–	–	–	**1.00**

Disclaimer: The above is a compilation of data from various industry standards. The Nutty Company, Inc. has made every effort to present the data accurately. However, The Nutty Company, Inc. cannot be held liable for any claim traceable to any errors, typographical or otherwise, contained herein.



Need a size you don't see, or masonry drill bits?

Call 203.877.1709 or email sales@nutty.com – shop online at nutty.com