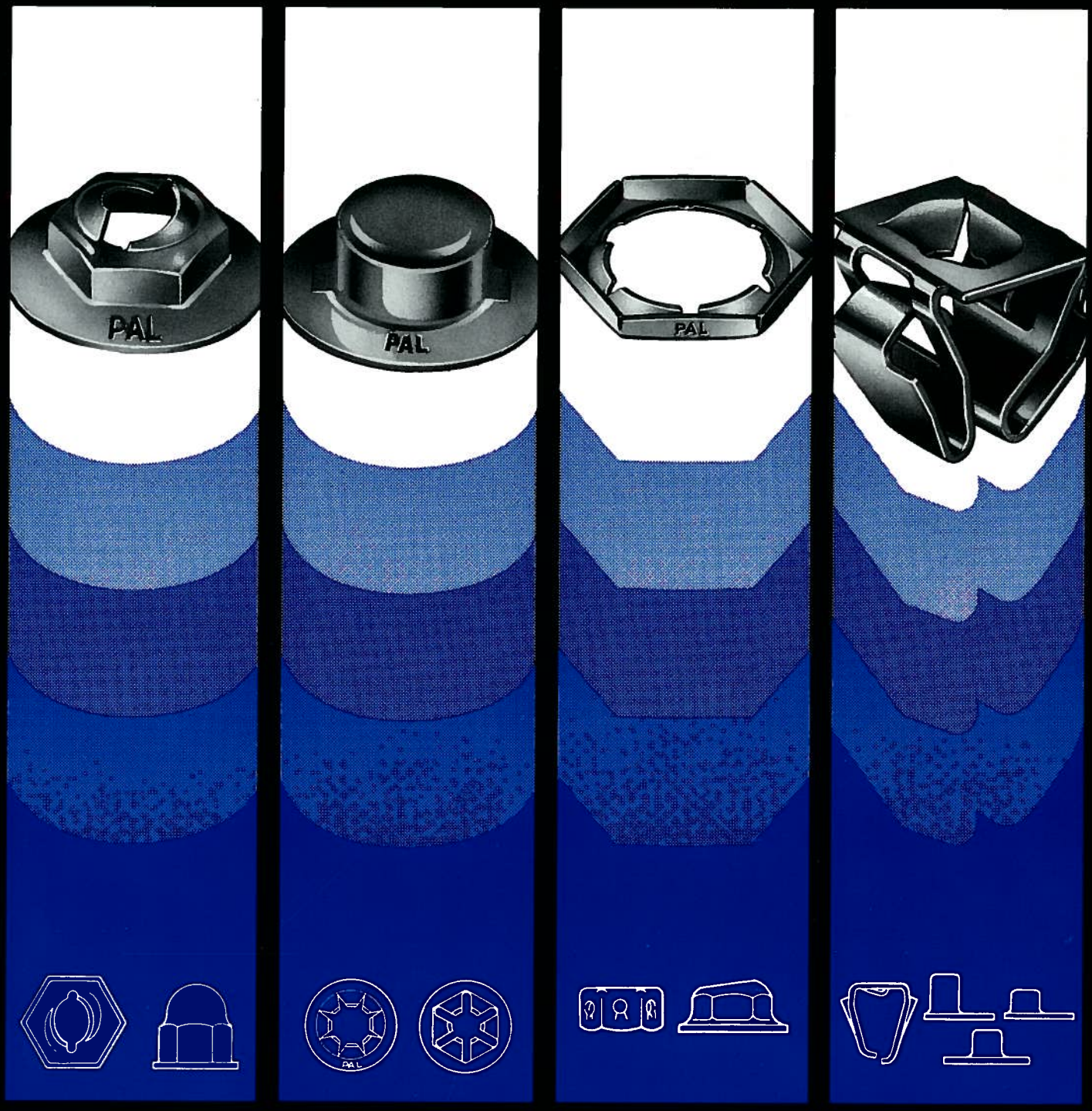
Industrial
Fasteners and Closures
Catalog IF2000

TINNERMAN PALNUT
ENGINEERED PRODUCTS, LLC

Palnut® Fasteners



One source of standard Fasteners

This consolidated catalog lists the standard products manufactured by Tinnerman Palnut Engineered Products. It covers Palnut fasteners for both threaded and non-threaded application, light or heavy duty. The principal Palnut fasteners are lock nuts, On-sert fasteners, self-threading nuts, and Pushnut fasteners.

The standard products in this catalog also reflect our concentration on fasteners that have become widely used over the years. In many cases they are maintained in stock for considerably faster shipment than items that as a rule are ordered by only a few custumers. All standard fasteners have established prices.

At the beginning of each section is a discussion of the general features of the particular fasteners. Engineering data and ordering information are on the back cover.

We invite you to bring your fastening and assembly problems to the attention of a Palnut sales representative. We offer you the broadest line in the industry, with a tradition of reliability and performance you can count on.

TINNERMAN PALNUT
ENGINEERED PRODUCTS, LLC
P.O. BOX 10
BRUNSWICK, OHIO 44212

Palnut® fasteners

Threaded applications

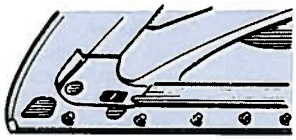
Palnut lock nuts incorporate a design principle that has stood the test of over 60 years. These nuts may be used alone for load-carrying in light-duty assemblies or they may be used on top of ordinary nuts to assure tightness of high-stress assemblies. They offer impressive savings over alternative fasteners in initial cost, assembly time, weight and space. They are removable, reusable, self-cleaning. They are unaffected by temperatures up to 400°.

This catalog also covers these Palnut fasteners for threaded applications:

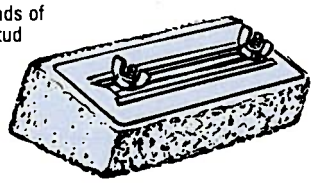
Tension nuts are preassembled on adjusting screws to a predetermined point. Subsequent turning of the screw advances the tension nut until it touches the work. Barbs on the nut base then "bite" and resist further turning.

On-sert® fasteners are pressed onto hollow plastic bosses where they minimize splitting and stripping.

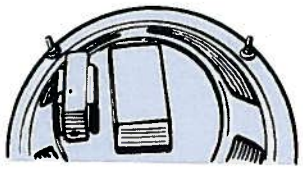
Pushnut® bolt retainers are temporary fasteners that hold pre-inserted bolts in place until they reach final assembly.



Automotive hood and trunk trim are secured with Palnut lock nuts run down on welded studs. Threads of nuts match the pitch of the stud threads.

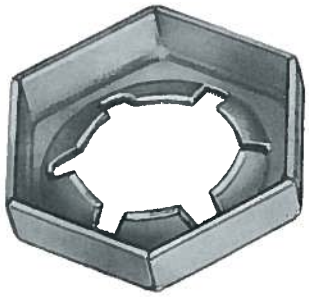


Wing type lock nuts on sponge mops are made of stainless steel to resist corrosive effects of strong cleaning solutions.



Washer base of lock nut spans slots in speaker frames when they are mounted to cabinet.

• Regular Type Lock Nuts

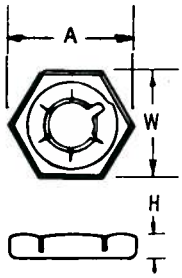


Design 1
Single notch

Design 2
Single notch with five shears

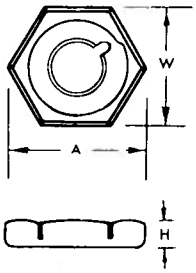
Design 3
Six notches

Design 4
Nine notches



Size		Height H (In.)	Maximum Across Corners A (In.)	Notch Design	Performance		Weight Lbs./M Pieces	Catalog No.
Thread No.	Hex Width W (In.)				Recommended Torque (In. Lbs.)	Average Resulting Tension (Lbs.)		
4-40	3/16	.068	.217	1	3	60	0.2	**RM 440003**
	1/4	.076	.289	1	5	80	0.3	**RM 440**
5-40	1/4	.080	.289	1	5	120	0.3	**RM 540004**
6-32	1/4	.080	.289	1	7	130	0.3	**RM 632004**
	5/16	.092	.361	2	9	130	0.6	**RM 632**
8-32	11/32	.099	.397	2	11	150	0.7	**RM 832**
10-32	5/16	.094	.361	2	12	150	0.5	**RM 103205**
	3/8	.105	.433	2	15	150	0.8	**RM 1032**

Threaded Applications



Design 1
Single notch

Design 2
Single notch with five shears

Design 3
Six notches

Design 4
Nine notches

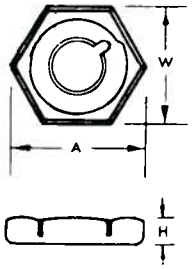
Size		Height H (In.)	Maximum Across Corners A (In.)	Notch Design	Performance		Weight Lbs./M Pieces	Catalog No.
Thread No.	Hex Width W (In.)				Recommended Torque (In. Lbs.)	Average Resulting Tension (Lbs.)		
10-24	3/8	.105	.433	2	18	210	0.9	**RM 1024**
1/8-27NPS	9/16	.114	.650	3	60	350	1.8	**RP 1827**
1/4-32	7/16	.118	.505	3	17	200	1.1	**RE 1432**
1/4-28	7/16	.118	.505	3	30	250	1.2	**RF 1428**
1/4-20	7/16	.123	.505	3	38	350	1.5	**RF 1420**
	1/2	.134	.578	3	38	400	2.3	**RH 1420**
1/4-18NPS	3/4	.130	.866	3	140	600	3.9	**RP 1418**
5/16-24	1/2	.129	.578	4	45	320	1.9	**RF 51624**
5/16-18	1/2	.134	.578	3	52	450	2.0	**RF 51618**
3/8-32	9/16	.094	.650	4	30	200	1.3	**RE 3832**
3/8-27	9/16	.094	.650	4	35	200	1.4	**RE 3827**
3/8-24	9/16	.140	.650	4	65	420	2.1	**RF 3824**
3/8-18NPS	15/16	.145	1.083	3	205	660	6.5	**RP 3818**
3/8-16	9/16	.145	.650	3	70	500	2.3	**RF 3816**
	5/8	.156	.722	3	85	720	3.7	**RR 3816**
7/16-28	5/8	.111	.722	4	25	340	1.9	**RE 71628**
7/16-20	5/8	.150	.722	4	85	700	2.8	**RL 71620**
7/16-14	3/4	.168	.866	3	180	900	6.1	**RH 71614**
15/32-32	5/8	.090	.722	4	40	200	1.3	**RE 153232**
1/2-20	3/4	.172	.866	4	130	750	4.3	**RF 1220**
1/2-13	3/4	.179	.866	3	145	900	5.5	**RF 1213**
9/16-18	7/8	.193	1.010	4	180	900	6.7	**RF 91618**
5/8-32	3/4	.094	.866	4	65	280	1.5	**RE 5832**
5/8-18	15/16	.203	1.083	4	200	1000	7.2	**RF 5818**
5/8-11	15/16	.213	1.083	3	330	1150	10.4	**RF 5811**
	1	.224	1.155	3	370	1500	12.3	**RR 5811**
	1	.238	1.131	1	400	2000	13.5	**RN 5811**
	1	.201	1.131	1	400	2000	12.0	**RZ 5811**
5/8-11 Left Hand	1	.180	1.131	1	—	—	—	**RZ 213300**
3/4-20	1-1/16	.100	1.227	4	—	—	4.1	**RZ 001895**
	1-1/16	.203	1.227	4	—	—	6.3	**RZ 001464**

Continued...

Threaded Applications

Regular Type Lock Nut

(Chart continued from previous page)



Design 1 Single notch

Design 2 Single notch with five shears

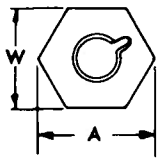
Design 3 Six notches

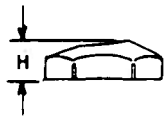
Design 4 Nine notches

Size		Height H (In.)	Maximum Across Corners A (In.)	Notch Design	Performance		Weight Lbs./M Pieces	Catalog No.
Thread No.	Hex Width W (In.)				Recommended Torque (In. Lbs.)	Average Resulting Tension (Lbs.)		
3/4-16	1-1/16	.225	1.227	4	350	1150	10.0	**RL 3416**
3/4-10	1-1/8	.246	1.299	3	530	1650	14.0	**RF 3410**
	1-1/8	.247	1.299	1	570	2200	15.2	**RZ 3410**
	1-1/4	.269	1.443	3	640	1650	22.0	**RH 3410**
7/8-20	1-1/8	.142	1.299	1	–	–	5.3	**RZ 001465**
7/8-14	1-1/4	.256	1.443	4	500	1400	15.7	**RL 7814**
1-8	1-5/8	.336	1.877	3	–	–	47.4	**RH 18**

Torque and tension values are not shown for some of the large size parts above. These sizes are primarily used as lock nuts on top of ordinary nuts, or as load carrying nuts on applications where joint loading is mainly in shear. In both situations the tensile (clamping) strength of the Palnut lock nut exceeds most conservative design requirements, and tightening is usually done manually.

• Inverted Type Lock Nuts





Size		Height H (In.)	Maximum Across Corners A (In.)	Performance		Weight Lbs./M Pieces	Catalog No.
Thread No.	Hex Width W (In.)			Recommended Torque (In. Lbs.)	Average Resulting Tension (Lbs.)		
6-32	5/16	.150	.361	15	130	0.5	**RI 632**
10-24	3/8	.166	.433	37	240	1.0	**RI 1024**

Threaded Applications

• Washer | Capped Washer Type Lock Nuts

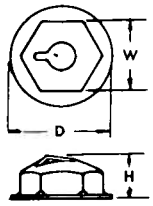
Style DE

Style DF

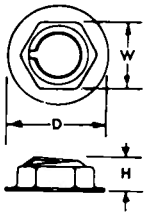

Style DS


Style K

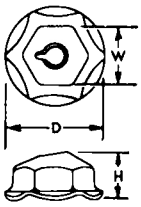

with integral sealer



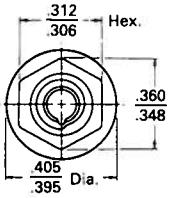
Style DO



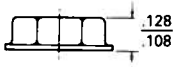
Style DE DL

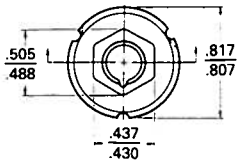


Style DF



Style DZ





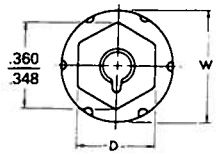
Style DZ

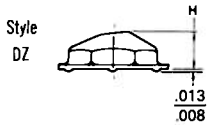
Size		Height H (In.)	Washer Diameter D (In.)	Performance		Weight Lbs./M Pieces	Catalog No.
Thread No.	Hex Width W (In.)			Recommended Torque (In. Lbs.)	Average Resulting Tension (Lbs.)		
6-32	5/16	.118	13/32	14	100	.84	DZ 001744
	5/16	.204	7/16	16	120	1.0	• DO 632007
	5/16	.212	17/32	16	110	1.3	DO 632085
	3/8	.266	3/4	25	100	2.5	DO 632612
8-32	11/32	.159	15/32	21	160	1.3	DE 832075
	11/32	.202	15/32	21	140	1.1	DG 832075
	11/32	.212	15/32	23	160	1.3	• DO 832075
	11/32	.234	5/8	28	130	1.9	• DO 832010
10-32	3/8	.164	15/32	22	160	1.3	DE 103275
	3/8	.166	1/2	26	180	1.5	DE 103208
	3/8	.218	1/2	30	200	1.4	DO 103208
	3/8	.239	5/8	34	180	2.0	DO 103210
10-24	3/8	.221	1/2	32	200	1.6	DG 102408
	3/8	.231	1/2	38	240	1.7	• DO 102408
	3/8	.237	9/16	42	230	2.0	DO 102409
	3/8	.249	5/8	42	200	2.4	• DO 102410
	3/8	.269	3/4	42	190	3.4	• DO 102412
	3/8	.285	7/8	42	180	4.3	DO 102414
12-28	3/8	.256	3/4	40	200	2.1	DO 128612
12-24	3/8	.230	9/16	42	250	2.0	DO 122469
	3/8	.262	3/4	42	220	3.4	DO 120612
1/4-14	7/16	.292	13/16	50	200	4.0	DO 141413
1/8-27NPS	9/16	.188	7/8	55	470	4.7	DE 182714
1/4-20	7/16	.248	19/32	54	300	2.4	DG 142095
1/4-20	7/16	.261	19/32	64	350	2.7	• DO 142095
	7/16	.276	11/16	64	300	3.4	• DO 142011
	7/16	.292	13/16	64	300	4.4	• DO 142013
	7/16	.304	7/8	70	300	5.2	DO 142014
	7/16	.320	1	64	260	6.5	• DO 142016
1/4-20	7/16	.292	.8125	70	250	4.4	DZ 001918
5/16-18	1/2	.299	13/16	110	470	4.8	• DO 561813
3/8-32	1/2	.155	5/8	40	200	1.6	DE 383210

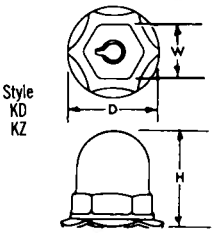
● Style DF also available with almost identical dimensions except for slightly greater height and faceted washer edges

Threaded Applications

Washer/Capped Washer Type Lock Nuts (continued)



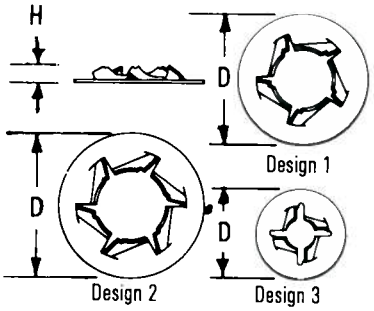




Size				Performance			
Thread No.	Hex Width W (In.)	Height H (In.)	Washer Diameter D (In.)	Recommended Torque (In. Lbs.)	Average Resulting Tension (Lbs.)	Weight Lbs./M Pieces	Catalog No.
3/8-24	5/8	.143	13/16	38	320	3.9	DL 382413
6-32	5/16	.145	.4375	16	125	.4	DZ 001973

Size				Screw Penetration		Performance			
Thread No.	Hex Width W (In.)	Height H (In.)	Washer Diameter D (In.)	Minimum (In.)	Maximum (In.)	Recommended Torque (In. Lbs.)	Average Resulting Tension (Lbs.)	Weight Lbs./M Pieces	Catalog No.
10-24	7/16	.562	5/8	.37	.45	42	200	8.3	KD 102410
	7/16	.796	5/8	.38	.69	42	200	10.6	KZ 102410

• Pushnut® Bolt Retainers

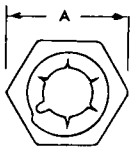


Bolt Diam. No.	Design	DIMENSIONS			Performance		Weight Lbs./M Pieces	Catalog No.
		Diam. D (In.)	Height H (In.)	Metal Thick (In.)	Push-On Force Lbs. (Max.)	Holding Strength Lbs. (Min.)		
6	3	11/32	.049	.010	17	40	0.2	PT 138055
8	3	3/8	.049	.010	22	50	0.3	PT 164006
8	3	.500	.049	.010	22	50	0.5	PT 164008
10	3	7/16	.065	.012	25	65	0.4	PT 190007
1/4	1	1/2	.078	.010	25	90	0.5	PT 250008
5/16	1	5/8	.082	.013	30	100	0.9	PT 312010
3/8	2	25/32	.093	.015	30	150	1.7	PT 375125
7/16	2	27/32	.103	.015	30	250	1.9	PT 438135
1/2	2	15/16	.122	.015	30	300	2.3	PT 500015
9/16	2	.984	.150	.015	50	310	2.8	PT 562157

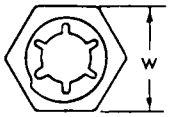
Threaded Applications

• Acorn Type Lock Nuts | Closed Top

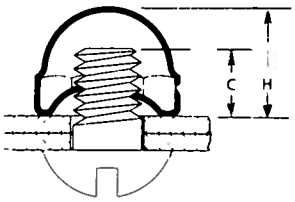
Style AC



Notch Design 2



Notch Design 3

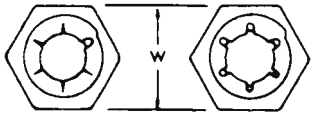


Size		Height H (In.)	Maximum Across Corners A (In.)	Notch Design	Maximum Screw Penetration C (In.)	Performance		Weight Lbs./M Pieces	Catalog No.
Thread No.	Hex Width W (In.)					Recommended Torque (In. Lbs.)	Average Resulting Tension (Lbs.)		
6-32	5/16	.261	.361	2	.21	9	130	1.3	**AC 632**
8-32	11/32	.297	.397	2	.24	11	150	1.5	**AC 832**
10-32	3/8	.324	.433	2	.25	15	150	2.0	**AC 1032**
10-24	3/8	.324	.433	2	.25	18	210	2.2	**AC 1024**
1/4-20	7/16	.380	.505	3	.28	38	350	3.8	**AC 1420**
1/8-27NPS	9/16	.474	.650	3	.32	60	350	5.4	**AC 1827**

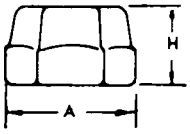
• Acorn Type Lock Nuts | Open Top

Style AK

Notch Design 1



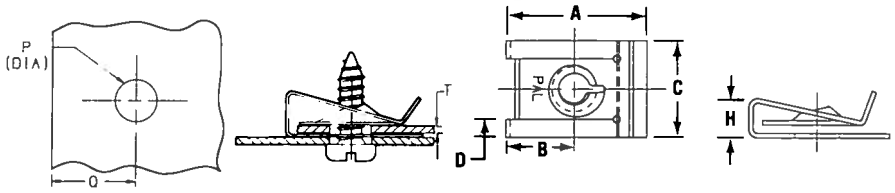
Notch Design 2 Notch Design 3



Size		Height H (In.)	Maximum Across Corners A (In.)	Notch Design	Performance			Weight Lbs./M Pieces	Catalog No.
Thread No.	Hex Width W (In.)				Average Prevailing Torque (In. Lbs.)	Recommended Torque (In. Lbs.)	Average Resulting Tension (Lbs.)		
6-32	5/16	.235	.361	2	0.4	9	130	1.2	**AK 632**
8-32	11/32	.256	.397	2	0.5	11	150	1.6	**AK 832**
10-32	3/8	.255	.433	2	0.8	15	150	2.1	**AK 1032**
10-24	3/8	.262	.433	2	1.0	18	240	2.3	**AK 1024**
1/4-20	7/16	.300	.505	3	1.6	38	350	3.7	**AK 1420**

Threaded Applications

• Single-Thread U-Nut



*Part shown – other styles vary

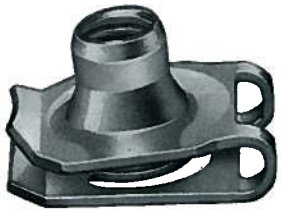
Recommended Installation

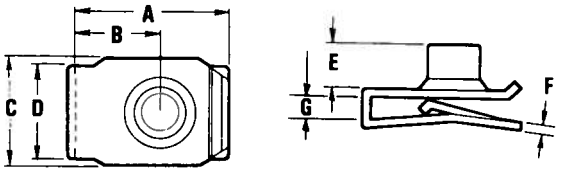
Part No.		A	B	C	D	H	P	Q	T
	Thd	**Length**	**Throat**	**Nut Width**	**Leg Width**	**Height**	**Dia.**	**Distance To Edge**	**Panel Range**
US420018	#8-18	0.717/0.705	0.360/0.340	0.646/0.650	0.079	0.154/0.142	0.315	0.340	0.142/0.122
US818249	#8-18	0.775/0.755	0.390/0.350	0.551/0.520	0.079	0.195/0.165	0.315	0.315	0.075/0.025
US818035	#8-18	0.775/0.755	0.390/0.350	0.551/0.520	0.079	0.195/0.165	0.315	0.315	0.150/0.070
US420519	#8-18	0.783/0.763	0.360/0.340	0.551/0.520	0.079	0.189/0.150	0.275	0.340	0.150/0.026
US420619	#8-18	0.783/0.736	0.360/0.340	0.551/0.520	0.079	0.280/0.260	0.270	0.319	0.250/0.126
US420419	#8-18	0.783/0.736	0.360/0.340	0.551/0.520	0.079	0.189/0.150	0.275	0.340	0.150/0.026
US420020	#8-18	0.785/0.755	0.365/0.335	0.551/0.520	0.079	0.180/0.160	0.220	0.300	0.150/0.060
UG630019	1/4-14	0.783/0.736	0.360/0.340	0.650/0.618	0.079	0.189/0.150	0.373	0.339	0.150/0.026
US254020	1/4-14	0.785/0.755	0.365/0.335	0.650/0.620	0.079	0.280/0.260	0.280	0.319	0.250/0.126

Performance Requirements

Thread Size	Performance Requirements Recommended Installation Torque	Minimum Clamp Load at Recommended Installation Torque
In.	Max. In. Lbs.	Min. Lbs.
8-18	19.5	400.2
1/4-14	62.0	750.9

• Multi-Thread U-Nuts





Screw Size	A	B	C	D	E	F	G	Panel Hole Dia. ±.015	Panel Thickness Range	Catalog Number
10-32	.600	.310	.510	.450	.210	.026	.120	.260	.070-.100	**LUG 103239**
1/4 -20	.920	.540	.560	.500	.240	.035	.180	.375	.025-.150	**LUG 142059****
5/16-18	.980	.570	.670	.560	.315	.040	.180	.437	.025-.150	**LUG 561863****
5/16-18	.980	.570	.670	.560	.315	.040	.220	.437	.050-.200	**LUG 565763****
3/8 -16	1.290	.730	.930	.700	.370	.050	.230	.562	.050-.200	**LUG 381683****

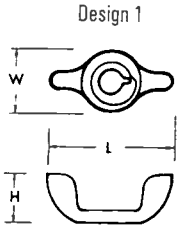
**Also available in metric equivalent sizes.

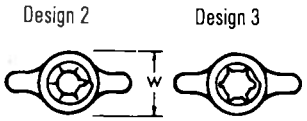
Threaded Applications

• Wing Type Lock Nuts

Style JN

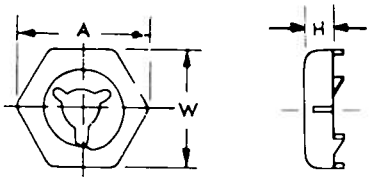
Style JO





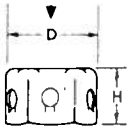
Thread Size No.	Size: Wing Height H (In.)	Size: Wing Length L (In.)	Size: Width W (In.)	Notch Design	Performance: Finger Recommended Torque (In. Lbs.)	Performance: Finger Average Resulting Tension (Lbs.)	Performance: Wrench Recommended Torque (In. Lbs.)	Performance: Wrench Average Resulting Tension (Lbs.)	Weight Lbs./M Pieces	Catalog No.
6-32	.344	3/4	.344	2	6	80	9	130	1.6	**JO 632**
8-32	.359	13/16	.400	2	9	100	12	150	2.0	**JO 832**
10-24	.375	7/8	.432	1	11	120	20	280	2.7	**JN 1024**
10-24	.375	7/8	.432	2	11	120	20	210	2.4	**JO 1024**
1/4-20	.422	1-1/16	.524	3	15	150	38	350	4.2	**JO 1420**
1/4-20	.469	1.297	.617	1	17	75	55	400	6.1	**JZ 001731**
5/16-18	.469	1-1/4	.617	1	21	180	70	650	6.1	**JN 51618**

• Tension Nuts

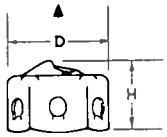


Size: Thread No.	Size: Hex Width W (In.)	Height H (In.)	Maximum Across Corners A (In.)	Performance: Recommended Nut Tightening Torque Range (In. Ozs.)	Performance: Resulting Screw Torque: Cad. Plated Steel Screw (In. Ozs.)	Performance: Resulting Screw Torque: Unplated Brass Screw (In. Ozs.)	Weight Lbs./M Pieces	Catalog No.
2-56	1/4	.075	.289	15-30	6-13	4-9	0.2	**TO 256004**
3-48	1/4	.075	.289	15-30	6-13	4-9	0.2	**TO 348004**
4-48	1/4	.075	.289	20-35	8-15	6-11	0.2	**TO 448004**
5-40	1/4	.075	.289	15-30	8-15	6-12	0.2	**TO 540004**
6-56	1/4	.075	.289	15-30	8-15	6-12	0.2	**TO 656004**
6-32	1/4	.075	.289	20-35	8-15	6-12	0.2	**TO 632004**
	5/16	.085	.361	25-45	10-18	11-19	0.3	**TO 632005**
8-32	5/16	.085	.361	35-60	15-25	11-19	0.3	**TO 832005**
10-32	5/16	.085	.361	35-60	20-30	15-23	0.3	**TO 103205**
	3/8	.095	.433	35-60	20-30	15-23	0.5	**TO 103206**

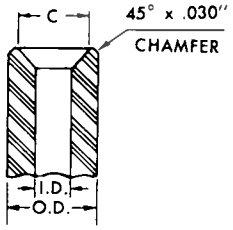
• On-Sert® Fasteners



Design 1
Screw enters through top of boss



Design 2
Screw enters through bottom of boss



Thread Size No. (see Note 1)	On-Sert Fasteners				Plastic Boss			Applicator Tool Part No. (see Note 3)	Catalog No.
	Design	Height H (In.)	Diam. D (In.)	Weight Lbs./M Pieces	O.D. (In.)	I.D. (In.) (see Note 2)	Min. Diam. of Ctsk. C (In.)		
4-40	1	.220	.284	1.0	.247-.253	.096-.100	.180	WW 100250	NR 440004
6-20 & 6-18	1	.230	.354	1.5	.309-.315	.116-.120	.250	WW 100312	NR 620005
6-32	1	.230	.354	1.4	.309-.315	.116-.120	.250	WW 100312	NR 632005
8-18 & 8-15	1	.230	.354	1.4	.309-.315	.140-.144	.290	WW 100312	NR 818005
8-18 & 8-15	1	.230	.328	1.3	.279-.285	.140-.144	.220	WW 100312	NR 818045
8-18 & 8-15	1	.260	.544	3.5	.497-.503	.140-.144	.290	WW 100500	NR 818008
8-18 & 8-15	1	.254	.556	3.0	.509-.515	.140-.144	.290	WW 160500	NR 818085
8-18 & 8-15	1	.220	.422	1.9	.372-.378	.140-.144	.290	WW 100375	NR 818006
	2	.280	.422	1.9	.372-.378	.185-.250	NONE	WDK 170438	NI 818006
8-32	1	.220	.422	1.9	.372-.378	.140-.144	.290	WW 100375	NR 832006
	2	.270	.422	1.9	.372-.378	.185-.250	NONE	WDK 170438	NI 832006
10-12 & 10-16	1	.230	.422	1.8	.372-.378	.160-.164	.290	WW 100375	NR 101606

Screw Size No. (driven to 5/16" penetration)	Hole Size (I.D.) (In.)	High Impact Styrene		Polycarbonate		ABS		Acetal		Catalog No.
		Maximum Torque (In. Lbs.)	Average Pull-Out (Lbs.)	Maximum Torque (In. Lbs.)	Average Pull-Out (Lbs.)	Maximum Torque (In. Lbs.)	Average Pull-Out (Lbs.)	Maximum Torque (In. Lbs.)	Average Pull-Out (Lbs.)	
8-18	.142	10	150	10	162	15	375	25	530	none
	inter. fit	27	280	30	370	33	438	53	680	NR 818006
	.250	Assembly not possible								none
	clear. fit	15	118	20	129	15	68	15	107	NR 818006

NOTE 1. The thread form of Parts NR440004, NR 832006 and NI 832006 is designed to accept either a machine screw or Type F tapping screw of the thread size designated. Each of the other parts accommodates a tapping screw of the size indicated.

NOTE 2. For maximum screw pull-out resistance with Design 1 parts, the boss I.D. should be as specified above to provide an interference fit with the screw. On-sert fasteners can also be used where the screw clears the I.D. of the boss, but this arrangement reduces resistance to screw pull-out.

NOTE 3. Design 2 parts should always be installed with the appropriate applicator tool which is designed to protect the projecting thread form from deformation by pressure or a direct blow. Although Design 1 parts may be installed by tapping directly on the top of the fasteners with a hammer, the magentized applicator tool facilitates handling and positioning.

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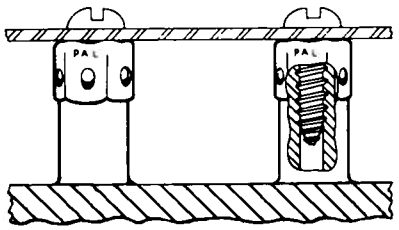
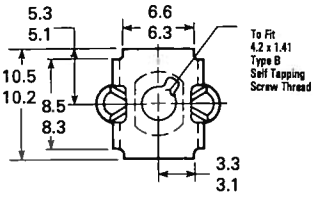
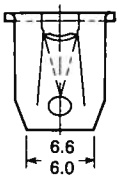


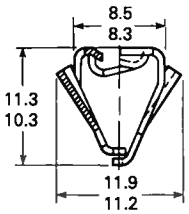
These distinctive fasteners with a single helical thread slip over hollow plastic bosses and prevent splitting when screws are driven. They also prevent cross-threading and resist screw pull-out. Yet screws may be removed without harming the fasteners or the boss. On-sert fasteners thus perform the same function as solid inserts but cost only about one-fifth as much. One type is used when screws enter the top of a boss while another type is used when screws enter the bottom of the boss.

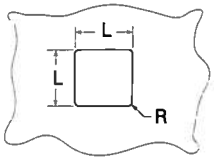
Threaded Applications

• Insert Panel Retained Nut – for thin metal panels









Part No.	Screw Size	A	B	C	D	E	F	G	H	I
IPTS 428101	4.2 mm x 1.4 lmm (8-18)	10.35 (.407)	5.18 (.204)	6.45 (.254)	7.75 (.305)	3.22 (.127)	6.85 (.270)	7.75 (.305)	11.0 (.433)	11.1 (.437)

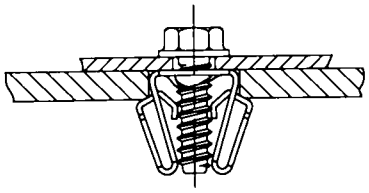
Palnut insert panel retained nut offers a heat treated, spring steel, single thread form in a snap-in style fastener. The nuts are recommended for application in metal panels of .70mm/lmm or .028-.039" thickness, with a hole dimension of 8mm or 5/16" square.

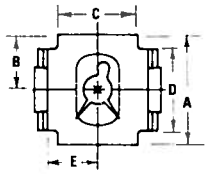
Recommended Panel Hole Dimensions

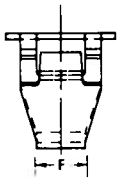
R	L
0-0.3	8.65-8.75
0.95-1.05	8.90-9.10
1.42-1.53	9.16-9.36

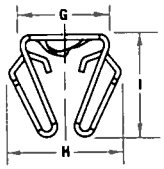
Deviation from the above R/L recommendations could adversely affect product function.

• Insert Panel Retained Nut – for plastic panels





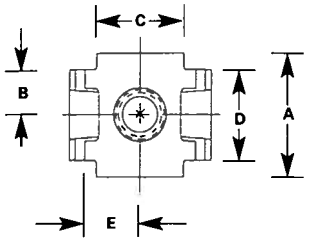


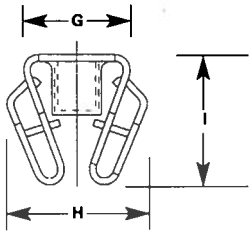


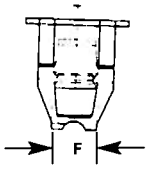
IPPS/IPPN

Part No.	Screw Size	A	B	C	D	E	F	G	H	I
IPPS 429925	4.2 mm x 1.4 lmm (8-18)	11.8 (.465)	5.9 (.232)	8.5 (.335)	8.75 (.344)	5.37 (.211)	5.0 (.196)	10.75 (.432)	13.55 (.533)	12.3 (.484)
IPPS 428025	4.2 mm x 1.4 lmm (8-18)	10.6 (.417)	5.3 (.209)	6.5 (.256)	7.70 (.303)	4.87 (.192)	4.2 (.165)	9.75 (.384)	12.55 (.494)	12.3 (.484)

• Insert Panel Retained Nut – for thin metal and plastic panels







IPOB

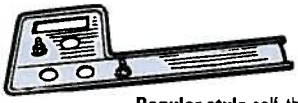
Part No.	Screw Size	A	B	C	D	E	F	G	H	I
IPPN 429925	4.2 mm x 1.4 lmm (8-18)	11.8 (.465)	5.9 (.232)	8.5 (.335)	8.75 (.344)	5.37 (.211)	5.0 (.196)	10.75 (.432)	13.55 (.533)	12.3 (.484)
IPOB 429925 Multi-Thread	4.2 mm x 1.4 lmm (8-18)	11.8 (.465)	5.9 (.232)	8.5 (.335)	8.75 (.344)	5.37 (.211)	5.0 (.196)	10.75 (.432)	13.55 (.533)	12.3 (.484)

Non-threaded applications

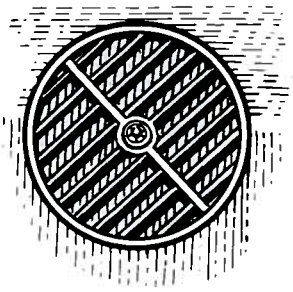
Palnut self-threading nuts and Pushnut® fasteners are respectively turned on and pushed on non-threaded projections, or "studs." These fasteners eliminate the cost of cutting threads and the problems of cross-threading. They permit simpler, more economical and usually better designs.

With these fasteners, there is no thread to find and no binding from dirt or damaged threads. Because of their prevailing torque, the fasteners provide excellent vibration resistance.

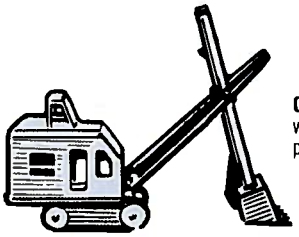
Stud materials, which must be appreciably softer than that of the fasteners, include die cast zinc, aluminum, molded plastics, steel and brass.



Regular style self-threading nuts are run down on molded studs of CB radio panel.



Air conditioner grille has circular air-flow directors that are mounted on the unthreaded shank of a plastic knob with an arched round Pushnut fastener.



Capped Pushnut® fastener secures wheels of toy crane. Cap offers protection against scratching.

• Washer | Capped Washer Type Self-Threaders

Styles SD and SH

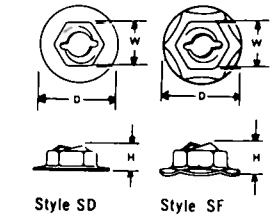
Style SF and SK

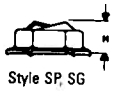
Style SP

Style SG

NOTE: Parts SP330012 and SP300016 are only for use on tough plastic such as ABS or polypropylene for which 45-50 in. lbs. torque develops approximate 100 lb. tension.

*At the tooth-engagement point when the fastener is seated, stud tolerance is .003".





DIMENSIONS						PERFORMANCE				
						Chrome-Plated Zinc Die Cast Studs		Steel Studs		
Steel Thick. (In.)	Hex Width W (In.)	Washer Diam. D (In.)	Overall Height H (In.)	Wgt. Lbs./M	Stud Diameter (In.)*	Torque In. Lbs.	Tension Lbs.	Torque In. Lbs.	Tension Lbs.	Catalog Number
.017	5/16	7/16	.186	1.2	1/8 (.125)	15	90	26	130	**SD 125007**
.017	5/16	17/32	.194	1.5		17	80	30	110	**SD 125085**
.018	3/8	1/2	.217	1.7	3/16 (.188)	38	210	50	330	**SD 188008**
.018	3/8	5/8	.235	2.3		46	160	60	280	**SD 188010**
.021	7/16	19/32	.232	2.5	1/4 (.250)	65	260	95	370	**SD 250095**
.021	7/16	11/16	.247	3.1		75	200	90	300	**SD 250011**
.023	.495	.875	.309	5.2	5/16 (.312)	115	300	165	450	**SF 312014**
.021	.432	.594	.219	2.2	.250	65	260	95	300	**SG 250095**
.023	1/2	3/4	.290	4.0	.330	See Footnote Below				**SP 330012**
.023	1/2	1	.314	5.8						**SP 300016**

NOTE: Parts SP330012 and SP300016 are only for use on tough plastic such as ABS or polypropylene for which 45-50 in. lbs. torque develops approximate 100 lb. tension.

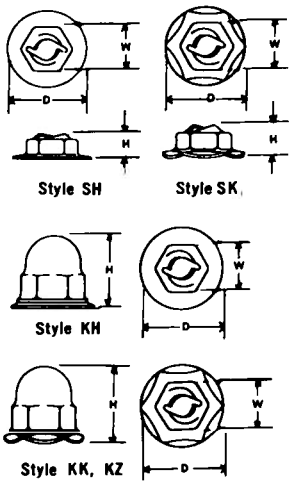
*At the tooth-engagement point when the fastener is seated, stud tolerance is ±.003".

Continued...

Non-Threaded Applications

For studs with heavy plating of between 0.003" and 0.005" nickel-chrome on die cast zinc, the following styles are recommended.

Washer/Capped Washer Type (continued)



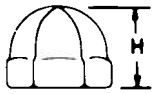
DIMENSIONS						PERFORMANCE				
						Chrome-Plated Zinc Die Cast Studs		Steel Studs		
Steel Thick. (In.)	Hex Width W (In.)	Washer Diam. D (In.)	Overall Height H (In.)	Wgt. Lbs./M	Stud Diameter (In.)*	Torque In. Lbs.	Tension Lbs.	Torque In. Lbs.	Tension Lbs.	Catalog Number
.020	3/8	5/8	.244	2.7	3/16 (.188)	46	160	60	280	**SH 188010**
.020	5/16	7/16	.189	1.3	1/8 (.125)	15	90	26	130	**SK 125007**
.020	3/8	1/2	.211	1.7	3/16 (.188)	44	210	60	330	**SK 188008**
.020	3/8	9/16	.229	2.1		46	180	60	300	**SK 188009**
.020	3/8	5/8	.239	2.4		55	160	72	280	**SK 188010**

* At the tooth-engagement point when the fastener is seated, stud tolerance is ±.003".

• Acorn Type Self-Threaders


Style SC

with integral sealer



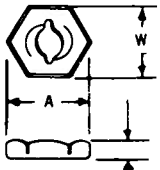
DIMENSIONS						PERFORMANCE				
						Chrome-Plated Zinc Die Cast Studs		Steel Studs		
Steel Thick (In.)	Hex Width W (In.)	Across Corners A Max. (In.)	Height H (In.)	Wgt. Lbs./M	Stud Diameter (In.)*	Torque In. Lbs.	Tension Lbs.	Torque In. Lbs.	Tension Lbs.	Catalog Number
.017	.360	5/16	.265	1.6	1/8 (.125)	11	65	18	130	**SC 125**
.021	.505	7/16	.380	3.7	3/16 (.188)	26	140	45	320	**SC 188**

Non-Threaded Applications

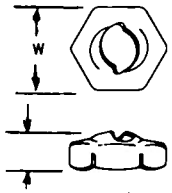
• Regular | Inverted Type Self-Threaders

Regular type


Inverted type



Regular type
Style SR, SP



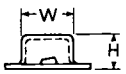
Inverted type
Style SI

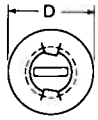
DIMENSIONS						PERFORMANCE				
						Chrome-Plated Zinc Die Cast Studs		Steel Studs		
Steel Thick (In.)	Hex Width W (In.)	Across Corners A Max. (In.)	Height H (In.)	Wgt. Lbs./M	Stud Diameter (In.)*	Torque In. Lbs.	Tension Lbs.	Torque In. Lbs.	Tension Lbs.	Catalog Number
.017	5/16	.360	100	1.7	3/32 (.094)	5	40	8	80	**SR 094005**
.015	1/4	.289	.088	0.4	1/8 (.125)	8	50	10	110	**SR 125004**
.017	5/16	.360	.100	0.7		11	65	16	130	**SR 125**
.017	11/32	.396	.110	0.8	.148	–	–	17	160	**SR 148**
.017	11/32	.396	.110	0.9	5/32 (.156)	18	100	30	250	**SR 156**
.020	3/8	.433	.116	1.1	3/16 (.188)	26	140	32	280	**SR 188006**
.019	1/2	.577	.129	2.1		30	140	38	250	**SR 188**
.016	7/16	.505	.118	1.2	7/32 (.219)	**For Use Only On Plastic Studs**				**SP 219**
.026	1/2	.578	.140	2.5	1/4 (.250)	70	280	90	525	**SR 250**
.027	11/16	.794	.166	4.3	3/8 (.375)	–	–	120	500	**SR 375011**

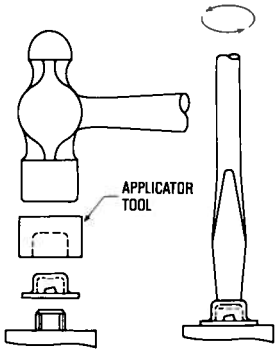
* At the tooth-engagement point when the fastener is seated, stud tolerance is ± .003"

Non-Threaded Applications

• Washer Cap Pushnut® Removable Type Fastener



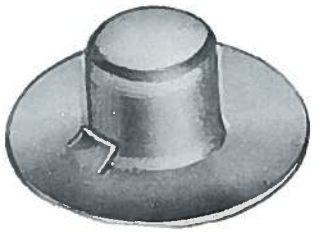




DIMENSIONS						PERFORMANCE		
						Pounds		
Steel Thickness (In.)	Height H (In.)	Cap Diameter W (In.)	Washer Diameter D (In.)	Weight Lbs./M	Stud Diameter (In.)	Push-On Force	Minimum Holding Strength	Catalog Number
.025	.235	.317	.625	3.5	5/16	100	410	**PWR 312010**

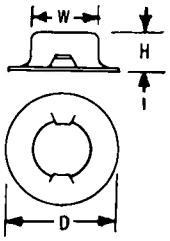
Non-Threaded Applications

• Washer Cap Type Pushnut® Fasteners



Style PW

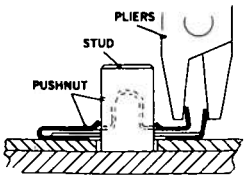
Part PZ001143 Rivet effect



DIMENSIONS				Weight Lbs./M	Stud Diameter (In.)*	PERFORMANCE Pounds		Catalog Number
Steel Thickness (In.)	Height H (In.)	Cap Diameter W (In.)	Washer Diameter D (In.)			Maximum Push-On Force	Minimum Holding Strength	
.015	.202	.220	7/16	1.1	3/16 (.188)	30	220	**PW 188007**
.021	.202	.230	7/16	1.3	3/16 (.188)	35	230	**PW 188907**
.015	.202	.220	1/2	1.3		30	220	**PW 188008**
.015	.202	.220	1/2	1.3		30	220	**PZ 001587 rivet effect**
.018	.205	.289	1/2	1.7	1/4 (.250)	65	280	**PW 250008**
.018	.205	.289	9/16	2.0		65	360	**PW 250009**
.018	.205	.289	9/16	1.8		65	360	**PZ 001143 rivet effect**
.020	.286	.358	9/16	2.8	5/16 (.312)	80	320	**PZ 001725**
.020	.236	.358	5/8	2.7		90	460	**PW 312010**
.020	.234	.419	11/16	3.3	3/8 (.375)	70	380	**PW 375011**
.025	.270	.431	3/4	4.7		90	700	**PW 375012**
.030	.328	.504	7/8	7.5	7/16 (.438)	150	960	**PW 438014**
.030	.328	.567	15/16	8.8	1/2 (.500)	150	800	**PW 500015**
.031	.413	.693	1-3/16	15.4	5/8 (.625)	230	1500	**PW 625019**
.030	.413	.818	1-3/8	19.5	3/4 (.750)	320	1500	**PW 750000**

*Recommended diameter tolerance of stud is ±.002" and .003". Surface hardness of stud must not exceed Rockwell 30T-78. Nickel-chrome plating or other hard finishes not recommended on steel studs.

• Removable Type Pushnut Fasteners



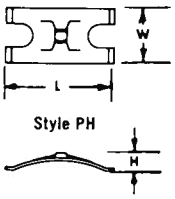
Stud Diameter (In.)*	PERFORMANCE Pounds			Applicator Tool No.	Catalog Number
	Push-On Force (Max.) (Steel; ABS and acetal plastic)	Clamping Force (Steel; ABS and acetal plastic)	Holding Strength (Min.) (Steel; ABS and acetal plastic)		
.177/.182	20	8	22	WZ 001814	**PZ 001791**
.122/.128	30	8	22	WZ 001814	****PZ 001845**
.172/.177	20	8	22	WZ 001814	**PZ 001907**
.185/.190	20	8	22	WZ 001814	**PZ 001935**

*Nickel-chrome plating must not exceed .002" on studs for PO fasteners. At the point of barb engagement when a fastener is seated, stud diameter tolerance is ±.003".
**With grounding barb

Non-Threaded Applications

• Arched Rectangular Type Pushnut Fasteners

Arched Rectangular
Style PH



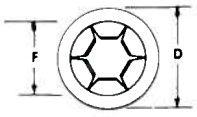
Style PH

DIMENSIONS						PERFORMANCE			
						Pounds			
Steel Thick. (In.)	Width W (In.)	Length L (In.)	Height H (In.)	Wgt. Lbs./M	Stud Diameter (In.)*	Push-On Force	Seat Force	Minimum Holding Strength	Catalog Number
.013	.281	.550	.096	0.5	1/16 (.062)	25	60	85	**PH 062**
.013	.328	.610	.104	0.7	3/32 (.094)	25	60	108	**PH 094**
.015	.375	.672	.116	1.0	1/8 (.125)	45	70	130	**PH 125**
.015	.375	.672	.126	0.9	5/32 (.152)	40	70	110	**PH 156**
.013	.375	.625	.107	0.8	3/16 (.188)	20	50	170	**PZ 001250**

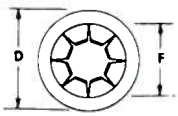
• Arched Round Type Pushnut Fasteners

Arched Round
Style PA

Style PA



Design 1



Design 2

DIMENSIONS							PERFORMANCE			
			Washer Diameter				Pounds			
Des. No.	Steel Thick. (In.)	Total Height H (In.)	Inside F (In.)	Outside D (In.)	Wgt. Lbs./M	Stud Diameter (In.)*	Push-On Force	Seat Force	Minimum Holding Strength	Catalog Number
1	.009	.063	.228	3/8	0.3	1/8 (.125)	15	15	130	**PA 125306**
2	.010	.087	.320	7/16	0.4	3/16 (.188)	15	50	100	**PA 188307**
2	.015	.095	.320	7/16	0.5		15	100	400	**PA 188007**
2	.012	.095	.388	17/32	0.7	1/4 (.250)	25	60	400	**PA 250385**
2	.017	.103	.388	17/32	1.0		30	115	600	**PA 250085**
2	.021	.114	.456	5/8	1.5	5/16 (.312)	60	120	900	**PA 312010**

*Recommended diameter tolerance of stud for PH fasteners is ±.005''; for PA fasteners, +.002'' and −.003''. Surface hardness of stud must not exceed Rockwell 30T-78. Nickel-chrome plating on studs for PH fasteners must not exceed .001''. Nickel-chrome plating or other hard finishes not recommended on steel studs for PA fasteners.

Non-Threaded Applications

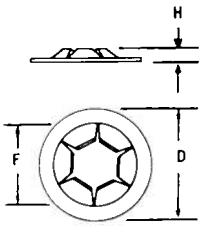
• Flat Round Type Pushnut Fasteners


Style PS

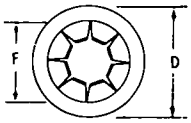

Style PV


Style PR

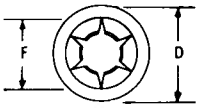
Style PG



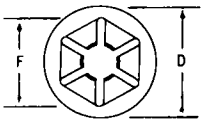
Design 1
Style PS



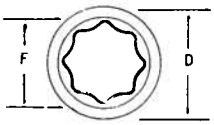
Design 2
Styles PS, PD and
Part PZ 001514



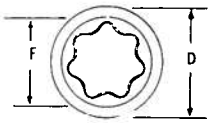
Design 3
Style PS



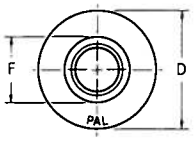
Style PV



Part PR 312075



Parts PR 375010
and PR 490013



Design 4
Style PG

DIMENSIONS							PERFORMANCE		
			Washer Diameter				Pounds		
Des. No.	Steel Thick. (In.)	Total Height H (In.)	Inside F (In.)	Outside D (In.)	Wgt. Lbs./M	Stud Diameter (In.)*	Push-On Force	Minimum Holding Strength	Catalog Number
3	.010	.038	.142	.195	0.1	1/16 (.062)	20	100	**PS 062032**
3	.010	.036	.142	.195	0.1	3/32 (.094)	25	180	**PS 094032**
1	.010	.045	.228	3/8	0.3	1/8 (.125)	15	130	**PS 125306**
1	.013	.052	.228	3/8	0.4		26	350	**PS 125006**
1	.012	.031	.183	1/4	0.1		35	250	**PZ 001996**
2	.010	.047	.320	7/16	0.4	5/32 (.156)	15	60	**PD 156307**
2	.013	.058	.320	7/16	0.5		25	180	**PD 156007**
2	.010	.056	.320	7/16	0.4	3/16 (.188)	15	200	**PS 188307**
2	.014	.064	.320	7/16	0.5		25	400	**PS 188007**
2	.012	.067	.388	17/32	0.7	7/32 (.219)	20	390	**PD 219385**
2	.021	.050	.420	3/4	2.5	.237	140	600	**PZ 001514**
2	.017	.069	.388	17/32	0.9	.240	30	600	**PS 240085**
2	.012	.057	.388	17/32	0.6	1/4 (.250)	25	400	**PS 250385**
2	.016	.066	.388	17/32	1.0		45	600	**PS 250085**
4	.022	.055	.350	5/8	1.2		—	—	**† PG 250010**
	.015	.083	.750	15/16	2.6		14	100	**PV 250015**
	.013	.040	.385	15/32	0.4	5/16 (.312)	40	270	**PR 312075**
2	.014	.062	.456	5/8	1.1		40	650	**PS 312310**
2	.021	.070	.456	5/8	1.5		60	900	**PS 312010**
	.015	.097	.750	15/16	2.5		18	250	**PV 312015**
	.015	.056	.500	5/8	0.9	3/8 (.375)	50	370	**PR 375010**
2	.017	.061	.546	3/4	1.7		50	700	**PS 375312**
2	.026	.079	.546	3/4	2.1		85	1100	**PS 375012**
	.015	.093	.750	15/16	2.4		22	350	**PV 375015**
2	.030	.097	.638	7/8	4.1	7/16 (.438)	75	1500	**PS 438014**
	.015	.075	.750	15/16	2.3		30	500	**PV 438015**
2	.035	.112	.730	59/64	5.1	1/2 (.500)	160	1800	**PZ 001752**
2	.035	.112	.730	1	6.4		160	2000	**PS 500016**
	.015	.064	.750	15/16	2.1		33	500	**PV 500015**
2	.017	.073	.730	1	2.5	5/8 (.625)	50	1400	**PZ 002015**
	.017	.056	.228	.375	0.7	1/8 (.125)	55	400	**PS 125906**
1	.017	.066	.388	.531	0.7	1/4 (.250)	45	600	**PZ 001880**
2	.015	.053	.456	.625	1.7	5/16 (.312)	60	500	**PZ 001824**

*Recommended diameter tolerance of stud is +.002" and −.003". Surface hardness of stud must not exceed Rockwell 30T-78. Nickel-chrome plating or other hard finishes not recommended on steel studs nor on studs smaller than 1/8". Plating is not recommended on studs for PV fasteners nor for the following: PS-125306, PD-156307, PD-219385, PS-312310 and PS-375312. On diecast studs, plating should not exceed .003".

PG 250010 ASSY & HOLDING SPECIFICATIONS

Test Rod OD/ ± .002	Test Washer/Hole ID	Max Assy/Force (Lb.)	Min Holding/Strength (Lbs.)
.250	.261	250	1000

In addition to push-on and holding strength, the PG type parts must be tested for impact strength.

IMPACT STRENGTH

Blow/Inch. Lbs.	Washer Action	Minimum # of Blows
18	Flat	10

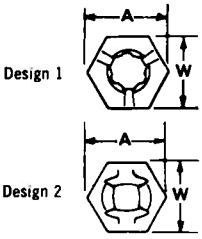
Non-Threaded Applications

• Acorn Type Pushnut Fasteners

Style PC
Closed top

Style PK
Open top

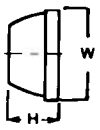
Style PC

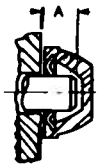


Des. No.	DIMENSIONS Steel Thick. (In.)	Height H (In.)	Hex. Width W (In.)	Across Corners A Max. (In.)	Wgt. Lbs./M	Rod Penet Min. (In.)	Rod Penet Max. (In.)	Stud Diameter (In.)*	PERFORMANCE Pounds Push-On Force	PERFORMANCE Pounds Minimum Holding Strenght	Catalog Number
2	.013	.261	5/16	.361	1.2	.13	.21	11 ga (.120)	40	234	**PC 120**
2	.012	.295	11/32	.397	1.5	.13	.24	9 ga (.148)	30	239	**PC 148**
2	.012	.295	11/32	.397	1.5	.13	.24	5/32 (.156)	32	300	**PC 156**
1	.015	.324	3/8	.433	2.2	.16	.26	3/16 (.188)	40	70	**PC 188006**
1	.021	.380	7/16	.505	3.8	.16	.30		50	185	**PC 188**
1	.017	.372	7/16	.505	3.2	.19	.28	1/4 (.250)	45	120	**PC 250007**
1	.021	.310	7/16	.505	3.8	.16	—	3/16 (.188)	50	185	**PK 188**
1	.024	.395	9/16	.650	7.2	.19	—	1/4 (.250)	45	220	**PK 250**

*Recommended diameter tolerance of stud is +.002" and −.003". Surface hardness of stud must not exceed Rockwell 30T-78. Nickel-chrome plating or other hard finishes not recommended on steel studs for PK fasteners. Nickel-chrome plating on studs for PC fasteners, and on diecast studs for PK fasteners, must not exceed .002".

• Colored Cap Type Pushnut Fasteners





Stud, Rod, or Wire Shaft Diameter (In.)	DIMENSIONS Cap Outside Diameter W (In.)	Height Overall H (In.)	Minimum Shaft Extension A (In.)	Steel Thickness (In.)	PERFORMANCE Pounds Tooth Design	PERFORMANCE Pounds Maximum Push-On Force	Minimum Holding Strength	Catalog Number
1/8	.656	.344	.150	.012	3	25 Lbs.	140 Lbs.	**KPS125105**
5/32	.656	.344	.150	.012	3	30 Lbs.	200 Lbs.	**KPS156105**
3/16	.656	.344	.150	.012	3	35 Lbs.	220 Lbs.	**KPS188105**
1/4	.656	.344	.150	.012	2	40 Lbs.	400 Lbs.	**KPS250105**
1/4	.835	.440	.175	.015	2	45 Lbs.	600 Lbs.	**KPS250135**
19/64	.835	.440	.175	.015	1	50 Lbs.	750 Lbs.	**KPS296135**
5/16	.835	.440	.175	.015	1	60 Lbs.	700 Lbs.	**KPS312135**
3/8	.835	.440	.175	.015	1	85 Lbs.	700 Lbs.	**KPS375135**
7/16	1.300	.645	.200	.018	1	110 Lbs.	700 Lbs.	**KPS438210**
3/8	1.300	.645	.200	.018	1	85 Lbs.	1200 Lbs.	**KPS375210**
1/2	1.300	.645	.200	.018	1	90 Lbs.	1200 Lbs.	**KPS500210**
5/8	1.300	.645	.200	.018	1	90 Lbs.	1200 Lbs.	**KPS625210**
3/4	1.300	.645	.200	.018	1	95 Lbs.	1200 Lbs.	**KPS750210**
8mm	21.2	11.2	4.4	.38	1	267 N	3115 N	**KPS008215**
9mm	21.2	11.2	4.4	.38	1	334 N	3115 N	**KPS009215**

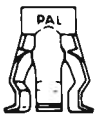
Non-Threaded Applications

• Blind Type Pushnut Fasteners

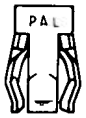
Style PB


Style PO


Style PO with integral sealer



Style PO



Style PB

DIMENSIONS						PERFORMANCE			
Panel			Fastener			Pounds Force Required			
Thick. Plus Recess Depth (See Note) (In.)	Hole Diameter (In.)	Steel Thick. (In.)	Length (In.)	Weight Lbs./M	Stud Diameter (In.)*	Push Onto Stud	Snap Assy. Into Panel	Remove Assy. From Panel	Catalog Number
.065-.075	.136/.142	.011	.296	0.3	3/32 (.094)	5	45	15	**PB 094070**
.065-.075	.184/.190	.014	.312	0.4	1/8 (.125)	5	60	22	**PB 125070**
.065-.075	.246/.252	.014	.344	0.6	3/16 (.188)	5	65	22	**PB 188070**
.036-.044	.184/.190	.014	.290	0.4	1/8 (.125)	25	35	35	**PO 125040**
.035-.100	.184/.190	.014	.324	0.5	1.8 (.125)	15	60	22	**PZ 001781**
.036-.044	.246/.252	.015	.325	0.7	3/16 (.188)	25	15	15	**PZ 001842**

NOTE: With no recess around the stud base, the column headed PANEL THICK., PLUS RECESS DEPTH, represents the actual panel thickness. Style PO parts are also available with integral sealer of clear PVC.

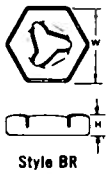
• Zip Twist Nuts

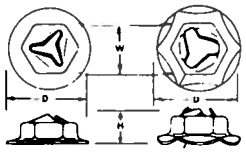

Regular type
Style BR


Washer type
Stype BD

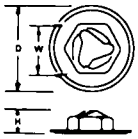
Washer type
Style BF

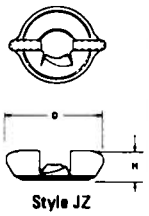
Zip Twist
self-threading nut
style JZ


Style BR


Style BD

Style BF

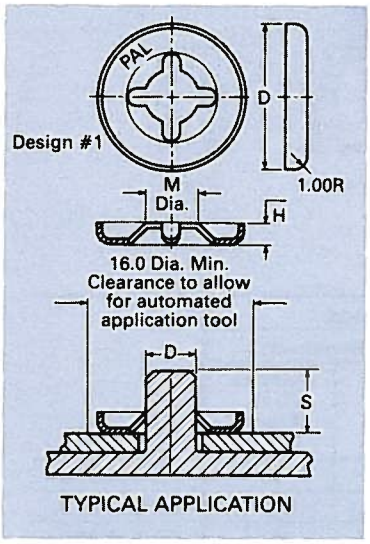

Style BZ


Style JZ

Stud Diameter (In.)*	Steel Thick. (In.)	Height H (In.)	Hex Width W (In.)	Washer Diameter D (In.)	Weight Lbs./M	Catalog Number
1/8 (.125)	.011	.095	3/8	None	1.5	**BR 125**
	.011	.095	5/16	None	1.4	**BR 125005**
	.010	.210	3/8	9/16	1.2	**BD 125009**
	.013	.211	3/8	3/4	2.1	**BZ 001620**
5/32 (.156)	.015	.211	3/8	3/4	2.4	**BZ 001678**
3/16 (.188)	.015	.247	3/8	5/8	2.0	**BF 188610**
.188	.013	.105	3/8	None	0.8	**BR 188006**
	.015	.232	—	.843	2.1	**JZ 002102**
1/4 (.250)	.015	.123	1/2	None	1.3	**BR 250**
	.015	.232	—	.843	2.1	**JZ 001663**

* Recommended stud diameter tolerance is ±.003". Surface hardness of stud must not exceed Rockwell B-80. Nickel-chrome plating or other hard finishes not recommended.

Pushnut® Auto Feed



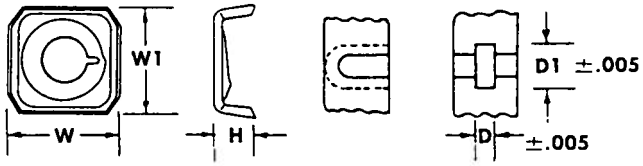
P/N	Stud/Rod Dia.	Inside Tooth Dia.		Matl Thk		Holding Push-On Strength Force	
PN125007	0.125	0.112	0.118	0.011	0.009	130	15
PN156007	0.156	0.137	0.143	0.011	0.009	150	15
PN188007	0.188	0.172	0.180	0.011	0.009	200	20
PN250007	0.250	0.232	0.240	0.011	0.011	350	28
	in	in	in	in	in	lbs	lbs

Optimum performance depends on adherence to these stud, rod or wire specifications:
1. Material may be mild steel, aluminum, zinc or other malleable metals.
2. Surface hardness must not exceed Rockwell 30T 78.
3. Recommended diameter tolerance $^{.08}_{.05}$
4. Ends must be free of distortion or burrs. Chamfer 0.8 x 45° for easier assembly.
5. Nickel, chromium or other hard finishes on steel are not recommended.
6. Nickel-chromium plating on die cast studs must not exceed .08 thickness.

Lock Nuts – Miscellaneous Types

Self-Retaining Types

Flared sides flex inward as parts are pressed into cavities of the dimensions shown. Spring action holds them in cavity, providing greater convenience in handling and assembly.



Thread Size	PALNUT Part No.	Width (Slides) W	Width (Slides) Wl	Height H	Cavity D	Cavity Dl
#6-32	YO 001394	.375"	23/64"	.122"	.135"	.355"
#8-32	YO 001095	.390	23/64	.140	.155	.370
#6-32	YO 001694	.300	1/4	.070	.083	.276

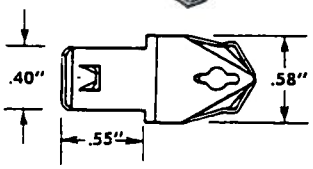
Self-Retaining Nuts (YO 001394), used as miniature wing nuts.

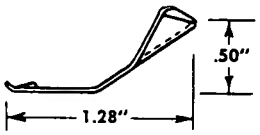
Specialty Fasteners

Recessed Fixture Retaining Clips

Plaster Frame Mounted Style

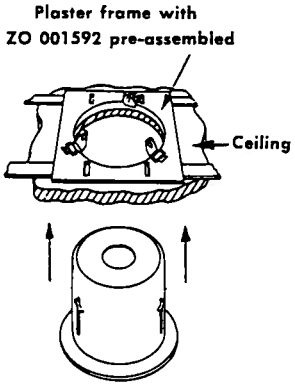
Part ZO 001592 mounts either round or rectangular housings. Only basic dimensions are given below, but complete details are shown on the drawing which accompanies all samples.





To Install

1. Slide housing through ceiling opening into plaster frame. Plaster frame must be fastened firmly in place, nailed, plastered or with hanger bars.
2. Twist housing until PALNUT Clips snap into slots in housing.
3. Push housing up until snug against ceiling.



To Remove

Round Housings

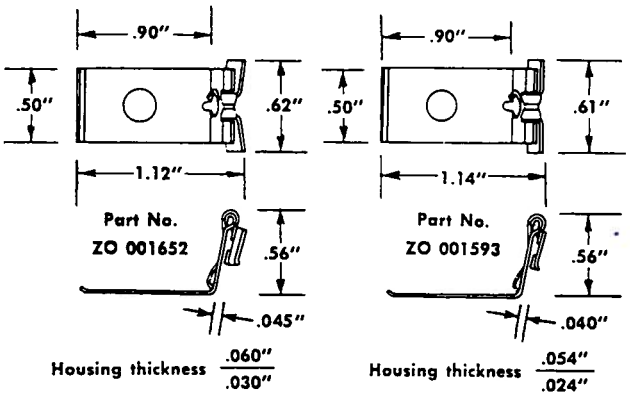
Each fastener, in succession, is pressed away from housing with screwdriver. As this is done, housing "walks" downward. When down enough to be grasped, the housing is rotated to free the Clips from slots. Housing is then pulled down and out.

Rectangular Housings

Housing is moved sideways until Clips are free of slots, then pulled down and out.

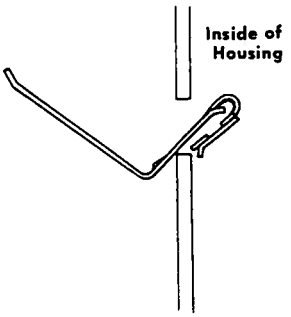
Housing Mounted Style

Part ZO 001652 mounts round; Part ZO 001593 mounts rectangular housings. Only basic dimensions are given below, but complete details are shown on the drawing which accompanies all samples.



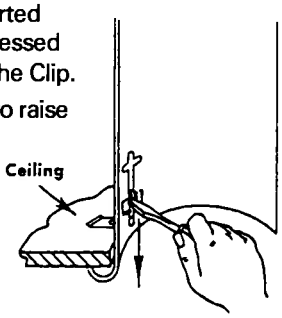
To Install

1. Clip is inserted through "T" slot from inside housing.
2. Downward force is then applied, with screwdriver on top of Clip or engaged in screwdriver slot in Clip's flange, until Clip is snugly seated.



To Remove

1. A small screwdriver is inserted through the Clip's slot and pressed against the opposite side of the Clip.
2. Push up with screwdriver to raise Clip to cross slot.



Engineering data and ordering information

• Dimensions and materials

1. Decimal dimensions shown in this catalog are ±.015 (0,4 mm) and fractional dimensions are ±1/32" (0,8 mm) unless otherwise indicated. All dimensions shown are subject to revision as tooling improvements are made.

2. Material of Palnut fasteners are mostly 1050 steel.

3. Hole and material thickness conditions vary for each specific application of panel fasteners. The items shown in this catalog may work in a broader hole diameter and minimum-maximum range than specified.

4. Maintaining exact dimensions in all details of the complicated design is difficult. Inspection should be based on suitability of the fasteners for the purpose intended and on their proper function rather than on exact dimensional accuracy.

• Ordering

Each item ordered should be listed by type, catalog number, hole diameter, application, material thickness and finish. All weights shown are only approximate. Because we cannot anticipate all variations and manufacturing equipment and methods, our products discussed herein are sold without warranty, expressed or implied, as to the results the user may obtain with them, and on the express understanding that purchasers will make their own test to determine for themselves the suitability of such products for their particular purchases.

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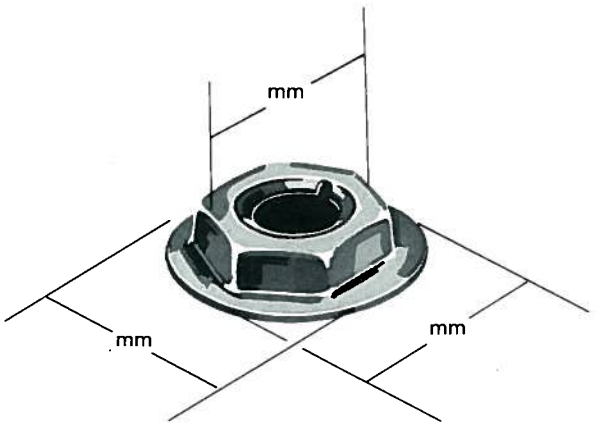
TINNERMAN PALNUT
ENGINEERED PRODUCTS, LLC

Catalog PAL 2000M

QS9000, 1998, 3rd Edition and ISO 9001, 1994

ANSI-RAB QMS ACCREDITED

Palnut metric fasteners



Palnut® Fasteners Available in Metric Dimensions

To help designers in planning fasteners on future projects with metric dimensions, this catalog differentiates between Palnut fasteners already tooled for production and those which have been designed and not yet tooled. The fasteners already available are indicated by part number and dimensions printed against a white background. Those fasteners planned for the future are indicated by dimensions printed against a green screen.

As the demand increases for fasteners with metric dimensions, tooling for these sizes will be added. There is no fixed schedule for bringing any particular new fasteners into production. If your plans call for using metric fasteners, it is suggested you contact a Palnut sales representative (see back cover) for information about when the sizes you need may be available.

Special Considerations with Single-Thread Fasteners

A special problem should be pointed out. If stamped single-thread fasteners, such as Palnut, are to provide the same level of torque-tension performance as they have with English dimensions, they require certain variations from the tentative metric standards proposed by the American National Standards Institute (ANSI) and the automotive industry. In smaller Palnut sizes particularly, some dimensions are therefore larger than proposed.

The dimensions where variations occur are those for stud diameters, thread sizes and hexagon sizes. The variations apply to hexagonal fasteners - locknuts, self-threaders, Pushnut® fasteners and multi-threads.

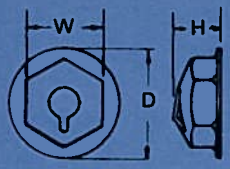
Special non-hexagonal products, such as On-sert® fasteners and wing nuts, have dimensions that are directly converted from their present inch fractions to the corresponding metric dimensions. Similar direct conversion will be necessary for bosses on which On-sert fasteners are applied.

The Palnut Company 152 Glen Road, Mountainside, NJ 07092
Ph: 908.233.3300 Fax: 908.233.3310

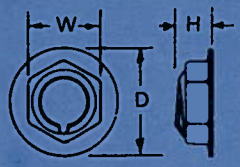
Contents

Locknuts

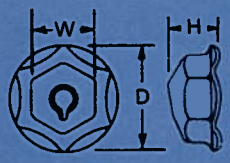

Washer Type



Style DO



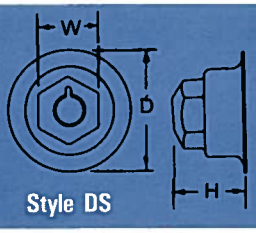
Style DE



Style DF

Nom. Dia. mm	Pitch mm	Hex – W mm	Flange Dia. – D mm	Height (Est.) – H mm	Material Thickness mm	Tightening Torque *Nm	Clamping Force *N	Part No.	
3	0.6	8	11	5.07	.28	1.4	445	DO 030011	•
3	0.6	8	12	5.19	.28	1.5	445	DO 030012	•
3	0.6	8	14	5.42	.28	1.5	445	DO 030014	•
3.5	0.6	8	11	4.92	.28	1.4	445	DO 350011	•
3.5	0.6	8	12	5.03	.28	1.5	445	DO 350012	•
3.5	0.6	8	14	5.27	.28	1.5	445	DO 350014	•
4	0.7	9	12	5.76	.36	2.3	578	DF 040012	
4	0.7	9	12	5.65	.36	2.3	578	DO 040012	•
4	0.7	9	16	6.24	.36	2.7	445	DO 040016	•
5	0.8	10	13	4.17	.36	3.14	890	DE 050013	
5	0.8	10	14	5.95	.38	3.4	890	DF 050014	
5	0.8	10	14	5.79	.38	3.4	890	DO 050014	•
5	0.8	10	18	6.56	.38	3.8	801	DO 050018	•
5	0.8	10	22	7.21	.38	4.5	801	DO 050022	•
6	1.0	11	18	5.99	.43	3.4	338	DZ 002005	
6	1.0	11	18	7.32	.43	5.6	1224	DF 060018	
6	1.0	11	24	8.31	.43	5.1	1112	DF 060024	
6	1.0	11	18	6.75	.46	5.6	1224	DO 060018	
6	1.0	11	21	7.34	.46	5.6	1224	DO 060021	•
6	1.0	11	24	7.92	.46	5.1	1112	DO 060024	
6.3	1.0	11	18	6.68	.46	5.6	1224	DO 630018	•
6.3	1.0	11	18	5.87	.46	5.6	1224	DZ 001972	
8	1.25	13	20	7.51	.53	9.0	2092	DO 080020	•
5	0.8	10.00	18	6.97	.38	3.8	890	DF 050018	
5	0.8	10.00	22	7.67	.38	4.5	801	DF 050022	
6.3	1.0	11.00	18	7.32	.43	5.6	1224	DF 630018	
6	1.0	11.00	24	7.24	.43	5.1	1112	DF 060024	
6	1.0	11.00	15	6.12	.46	5.6	1224	DO 060015	

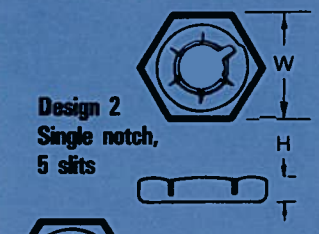
•Indicates parts available in "DF" style. Height will differ slightly.



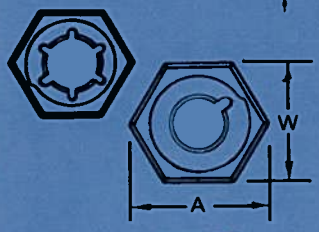
Style DS

Nom. Dia. mm	Pitch mm	Hex—W mm	Spacer		Flange Dia.—D mm	Height (Est.)—H mm	Material Thickness mm	Tightening Torque *Nm	Clamping Force *N	Part No.
			Inside Dia. mm	Depth mm						
4	0.7	9	12.85	6.1	19	11.1	.36	3.4	445	DS 040019
5	0.8	10	12.85	6.1	19	11.1	.46	3.8	801	DS 050019
6	1.0	11	14.38	6.1	22	12.7	.53	7.0	1112	DS 060022
6.3	1.0	11	14.38	6.1	22	12.4	.53	7.0	1112	DS 630022

Regular Type



Design 2
Single notch,
5 slits



Style RF

Nom. Dia. mm	Pitch mm	No. of Notches	Hex—W mm	Height—H mm	Material Thickness mm	Tightening Torque *Nm	Clamping Force *N	Part No.
3.5	0.6	1 Notch 5 Slits	8	2.36	.25	.8	445	RF 350008
4	0.7	1 Notch 5 Slits	9	2.56	.33	1.1	534	RF 040009
5	0.8	1 Notch 5 Slits	10	2.75	.33	1.7	668	RF 050010
5	0.8	6	13	3.46	.33	1.7	668	RF 050013
6	1.0	6	11	3.10	.46	3.7	1335	RF 060011
8	1.25	6	13	3.70/3.30	.5	6.1	1981	RD 080013
10	1.50	6	15	3.82	.53	9.0	2092	RF 100015
10	1.50	6	17	4.30/3.70	.5	8.9	1930	RF 100017
12	1.75	6	19	4.80	.58	18.1	3782	RF 120019
12	1.5	6	19	4.54	.58	18.1	3782	RZ 121519
14	2.00	6	24	5.44	.84	17.0	3338	RF 140024
16	2.00	6	24	5.44	.84	37.1	3230	RF 160024
20	2.50	6	30	6.25/5.75	.8	30.8	—	RF 200030
24	3.00	6	36	7.25/6.75	.9	34.3	—	RF 240036

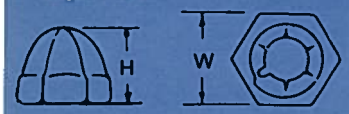
Available now Planned, not yet designed or tooled

*N — Newtons = 9.8 Kgm *Nm — Newton meters = 980 Kgm-Cm

Locknuts Continued

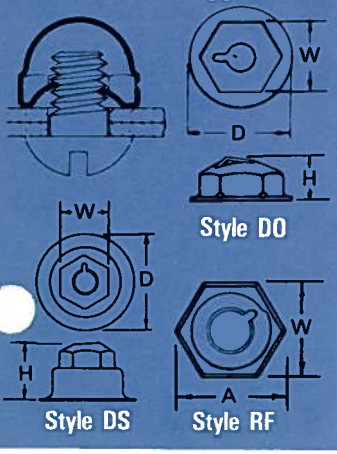
Acorn Type

Style AC



Nom. Dia. mm	Pitch mm	No. of Notches	Hex – W mm	Height – H mm	Material Thickness mm	Tightening Torque *Nm	Clamping Force *N	Part No.
3.5	0.6	1 Notch 5 Slits	8	6.60	.33	.8	445	AC 350008
4	0.7	1 Notch 5 Slits	9	7.65	.33	1.1	534	AC 040009
4	0.7	1 Notch 5 Slits	8	5.64	.33	1.1	534	AK 040008
5	0.8	1 Notch 5 Slits	10	8.25	.33	1.7	668	AC 050010
6	1.0	6	11	9.40	.43	3.7	1335	AC 060011
8	1.25	6	14	11.5	.53	7.3	2002	AC 080014
10	1.50	6	15	13.1	.53	9.0	2092	AC 100015

Fir-Tree Thread Type

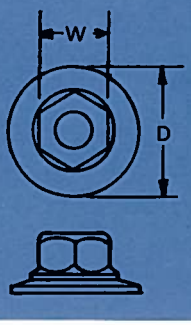


Nom. Dia. mm	Pitch mm	Hex—W mm	Flange Dia.—D mm	Height—H mm	Material Thickness mm	Tightening Torque *Nm	Clamping Force *N	Part No.
5	1.6	11	—	9.45	.46	2.25	1560	AC 051611
5	1.6	10	14	6.40	.46	4.50	1110	DO 051614
5	1.6	10	19	7.35	.46	6.80	1110	DO 051619
5	1.6	10	14	10.7	.43	4.50	1110	DS 051614
5	1.6	11	—	3.05	.43	2.25	1560	RF 051611

Multi-thread Nuts

Nom. Thread Dia. mm	Pitch mm	Hex-W mm	Max. Washer Dia.-D mm	± .05 Washer Thickness mm	± .05 Nut Material Thickness mm	Max. Tightening Torque *Nm	Min. Clamping Force *KN	Tensile Strength Proof *KN	Part No.
4	0.7	9.47/9.42	13.49	1.12	.89	4.1	1.50	-	MFD 040014000
4	0.7	9.63/9.42	16	.89	.89	5.1	1.78	-	MPD 040016000
6	1	11	19	1.84	1.17	6.8	4.0	19.1	MFD 060019009
6	1	11	16	1.17	1.17	6.8	4.0	11	MFG 060016005
6	1	11	19	1.84	1.17	6.8	4.0	19.1	MFG 060019009
6	1	11	19	1.84	1.17	6.8	4.0	19.1	MFX 060019009
6.3	1	11	19	1.84	1.17	6.8	4.0	22.4	MFD 630019009
6.3	1	11	16	1.17	1.17	6.8	4.0	12.9	MFG 630016005
6.3	1	11	19	1.84	1.17	6.8	4.0	22.4	MFG 630019009
6.3	1	11	19	1.84	1.17	6.8	4.0	22.4	MFX 630019009
6.3	1	11	16	1.45	1.17	6.8	4.0	22.4	MFD 630016009

Free Spinning Washer

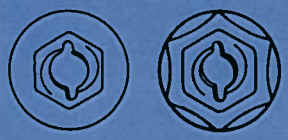


Available now Planned, not yet designed or tooled

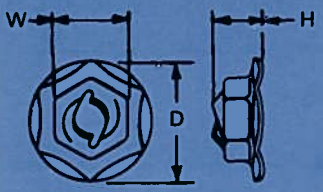
*N — Newtons = 9.8 Kgm *Nm — Newton meters = 980 Kgm-Cm

Self-threading Nuts

Washer Type



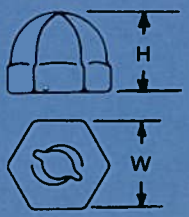
Style SD Style SF



Style SK

Nom. Stud Dia. mm†	Hex—W mm	Flange Dia.—D mm	Height—H mm	Material Thickness mm	Tightened Torque Tension				Part No.
					Die Cast Studs		Steel Studs		
					Torque *Nm	Clamping Force *N	Torque *Nm	Clamping Force *N	
3.2	8	11	4.71	.43	1.7	400	2.9	578	SD 320011
3.2	8	11	4.80	.43	1.7	400	2.9	578	SF 320011
3.2	8	11	4.78	.51	1.7	400	2.9	578	SK 320011
3.2	8	14	5.16	.43	1.9	356	3.4	490	SD 320014
3.2	8	14	5.16	.43	1.9	356	3.4	490	SF 320014
3.2	8	14	5.32	.51	1.9	356	3.4	490	SK 320014
4	9	15	5.52	.46	3.4	578	5.1	1068	SD 040015
4	9	15	5.52	.46	3.4	578	5.1	1068	SF 040015
4	9	15	5.83	.51	3.4	578	5.1	1068	SK 040015
5	10	15	5.40	.46	4.5	890	6.1	1335	SD 050015
5	10	15	5.85	.51	5.2	890	6.8	1335	SK 050015
5	10	18	est. 6.45	.46	5.2	712	6.8	1246	SF 050018
5	10	18	6.35	.51	5.2	712	6.8	1246	SK 050018
5	10	21	6.55	.46	5.7	712	7.2	1246	SD 050021
5	10	21	6.55	.46	7.2	712	8.8	1246	SF 050021
5	10	21	6.84	.51	7.2	712	8.8	1246	SK 050021
6	11	18	est. 6.58	.53	8.5	890	10.2	1335	SD 060018
6	11	21	est. 7.30	.53	8.7	801	10.7	1112	SD 060021
6	11	24	est. 7.73	.53	9.0	712	11.3	890	SD 060024
6	11	15	6.35	.53	est. 7.2	est. 1157	est. 10.7	est. 1646	SF 060015
6	11	18	7.18	.53	8.6	890	10.2	1335	SF 060018
6	11	21	est. 7.77	.53	8.7	801	10.7	1112	SF 060021
6.3	11	15	6.40	.53	7.2	1157	10.7	1646	SF 630015
6.3	11	18	6.74	.53	8.5	890	10.2	1335	SD 630018
6.3	11	18	7.06	.53	8.5	890	10.2	1335	SF 630018
6.3	11	21	7.17	.53	8.7	801	10.7	1112	SD 630021
6.3	11	21	7.64	.53	8.7	801	10.7	1112	SF 630021
6.3	11	24	7.60	.53	9.0	712	11.3	890	SD 630024
6.3	11	24	8.12	.53	9.0	712	11.3	890	SF 630024
8	13	20	7.85	.58	est. 13.6	est. 1070	17.0	1335	SF 080020
8	13	32	9.04	.51	est. 13.6	est. 1070	17.0	1335	SF 080032

Acorn Type



Style SC

Nom. Stud Dia. mm†	Hex—W mm	Height—H mm	Material Thickness mm	Tightened Torque Tension				Part No.
				Die Cast Studs		Steel Studs		
				Torque *Nm	Clamping Force *N	Torque *Nm	Clamping Force *N	
3.2	8	6.75	.43	1.2	289	2.0	578	SC 320008
3.2	10	8.35	.43	1.6	356	2.8	712	SC 320010
3.2	11	9.40	.43	1.8	400	3.2	934	SC 320011
4	9	7.76	.43	2.0	445	3.4	1112	SC 040009
5	11	9.55	.53	2.0	445	4.3	1112	SC 050011
5	13	11.10	.51	2.9	623	5.1	1424	SC 050013
5	14	11.50	.51	3.6	623	7.3	1780	SC 050014
6.3	14	11.65	.61	6.0	801	8.7	2225	SC 630014

†At the tooth-engagement point when the fastener is seated, stud tolerance is ±.003".

Available now Planned, not yet designed or tooled

*N — Newtons = 9.8 Kgm *Nm — Newton meters = 980 Kgm-Cm

Self-threading Nuts Continued

Regular Type

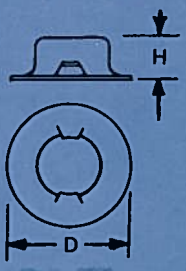
Style SR

Nom. Stud Dia. mm	Hex—W mm	Height—H mm	Material Thickness mm	Tightened Torque Tension				Part No.
				Die Cast Studs		Steel Studs		
				Torque *Nm	Clamping Force *N	Torque *Nm	Clamping Force *N	
3	8	2.65	.43	est. 1.2	est. 289	est. 2.0	est. 578	SR 030008
3.2	7	2.37	.36	.9	222	1.1	490	SR 320007
3.2	8	2.65	.43	1.2	289	2.0	578	SR 320008
4	9	2.75	.43	2.0	445	3.4	1112	SR 040009
5	10	2.75	.48	2.9	623	3.6	1246	SR 050010
5.6	11	3.00	.41	For use on plastic studs				SP 560011
6	13	3.35	.48	3.4	623	4.3	1112	SR 060013
6.3	13	3.40	.66	7.2	890	11.3	2225	SR 630013
8	16	3.80	.53	est. 7.5	est. 1000	13.6	2225	SR 080016
8	17	4.70	.69	est. 8.2	est. 1000	est. 15.0	est. 2225	SR 080017
10	17	3.80	.69	est. 9.3	est. 1000	est. 17.0	est. 2225	SR 100017

Pushnut® Fasteners

Nom. Stud Dia. mm†	Cap Dia. mm	Washer Dia.—D mm	Overall Height—H mm	Material Thickness mm	Max. Push-On Force *N	Min. Holding Strength *N	Part No.
4	4.8	10.13	5.3	.33	222	445	PW 040010
5	5.8	11.60	5.3	.38	134	979	PW 050011
5	5.8	12.85	5.3	.38	134	979	PW 050013
6	7.0	12.70	5.2	.46	289	1246	PW 060013
6	7.0	14.43	5.2	.45	289	1602	PW 060014
6.3	7.3	13	5.2	.46	289	1246	PW 630013
6.3	7.3	14	5.2	.46	289	1602	PW 630014
8	9.1	16	6.0	.51	401	2047	PW 080016
10	11.4	19.20	6.9	.61	401	3115	PW 100019
11	12.8	22.20	8.3	.79	668	4272	PW 110022
12	13.7	22.38	8.3	.81	668	4727	PW 120022
13	14.7	24	8.3	.79	668	3560	PW 130024
16	17.7	30	10.5	.79	1024	7565	PW 160030

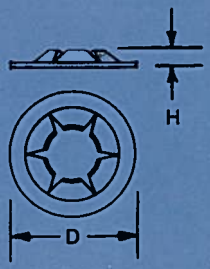
Washer Cap Type



Style PW

Nom. Stud Dia. mm	Series	Outside Dia.—D mm	Height—H mm	Material Thickness mm	Max. Push-On Force *N	Min. Holding Strength *N	Part No.
3.2	light	9.5	1.14	.25	66.7	578.5	PS 320309
3.2	medium	9.5	1.32	.36	115.7	1557.5	PS 320009
4	light	11.0	1.19	.25	66.7	267.0	PS 040311
4	medium	11.0	1.47	.36	111.2	712.0	PS 040011
5	light	11.0	1.32	.25	66.7	890.0	PS 050311
5	medium	11.0	1.52	.36	111.2	1780.0	PS 050011
6	medium	13.5	1.75	.41	200.2	2670.0	PS 060013
6	heavy	13.5	1.91	.51	267.0	2890.0	PS 060913
6.3	light	13.5	1.45	.30	111.2	1780.0	PS 630313
6.3	medium	13.5	1.68	.43	200.2	2670.0	PS 630013
8	light	15.9	1.50	.38	178.0	2892.5	PS 080316
8	medium	15.9	1.78	.51	267.0	4000.5	PS 080016

Flat Round Type



Style PS

†Recommended diameter tolerance of stud is +.002" and −.003". Surface hardness of stud must not exceed Rockwell 30T-78. Nickel-chrome plating or other hard finishes not recommended on steel studs smaller than 1/8". Plating is not recommended on studs for PV fasteners nor for the following: PS-125306, PD-156307, PD-219385, PS-312310 and PS-375312. On diecast studs, plating should not exceed .003".

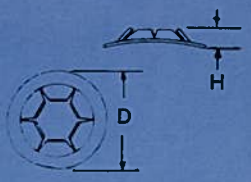
Available now — Planned, not yet designed or tooled

*N — Newtons = 9.8 Kgm *Nm — Newton meters = 980 Kgm-Cm

Pushnut® Fasteners Continued

Nom. Stud Dia. mm	Series	Outside Dia.—D mm	Height—H mm	Material Thickness mm	Max. Push-On Force *N	Min. Holding Strength *N	Part No.
4.0	light	11.1	2.13	.25	68	267.0	PA 040311
6	light	13.5	1.45	.25	111.0	1780.0	PS 060313
10	light	19.0	2.54	.43	222.5	3115.0	PA 100319
10	light	19.0	1.40	.43	222.5	3115.0	PS 100319
10	heavy	19.0	1.88	.69	378.2	4895.0	PS 100019
11	—	22.2	2.46	.76	333.7	6675.0	PS 110022
13	—	25.4	est. 2.80	.89	445.0	8900.0	PS 130025

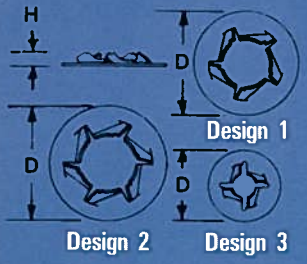
Arched Round Type



Style PA

Pushnut® Bolt Retainers

Parts fit all pitches for given nominal diameter.



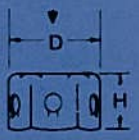
Nom. Dia. mm	Design	Outside Dia.-D mm	± .8mm Height- H mm	Material Thickness mm	Max. Push-On Force *N	Min. Holding Strength *N	Part No.
3.5	2	8.7	1.19	.20	75.7	178.0	PT 350009
4	3	9.52	1.27	.25	97.9	222.5	PT 040010
4	3	12.7	1.27	.25	97.9	222.5	PT 040013
5	3	11.1	1.70	.30	111.2	289.2	PT 050011
6	1	12.7	2.18	.25	111.2	400.5	PT 060013
6	1	15.8	2.18	.25	111.2	400.5	PT 060016
6	1	16.9	2.18	.25	111.0	400.5	PT 060017
6.3	1	12.7	1.98	.25	111.2	400.5	PT 630013
8	1	15.9	2.10	.36	155.7	445.0	PT 080016
8	1	29.0	2.10	.36	155.7	445.0	PT 080029
8	1	23.9	2.55	.34	133.4	1224.0	PZ 002020
10	2	20.0	2.74	.76	155.7	445.0	PT 100920
10	2	19.9	2.46	.38	155.7	667.5	PT 100020
10	2	23.9	2.62	.36	155.7	1335.0	PZ 001957
11	2	20.9	2.62	.38	155.7	1224.0	PT 110021
12	2	21.3	2.95	.38	111.2	1335.0	PT 120021
14	2	25.0	3.42	.38	111.2	1335.0	PT 140025

Available now Planned, not yet designed or tooled

*N — Newtons = 9.8 Kgm *Nm — Newton meters = 980 Kgm-Cm

On-sert® Fasteners

Tapping Screw Dia. mm	Pitch mm	For Boss Dia. mm	Dia.—D mm	Height (Est.)—H mm	Boss Hole Size mm	Boss With or Without Fastener	High Impact Styrene Maximum Torque *Nm	High Impact Styrene Average Pull-out *N	ABS Maximum Torque *Nm	ABS Average Pull-out *N	Acetal Maximum Torque *Nm	Acetal Average Pull-out *N	Part No.
3.5	1.27	8	8.99	5.84	3	With	—	—	2.5	1602	2.5	2225	NR 620005
					3	Without	—	—	1.5	1112	1.5	1691	
					5.4	With	1.8	222	1.8	267	1.8	222	
					5.4	Without	Assembly not possible.						
4.2	1.41	8	8.33	5.84	3.6	With	Application not recommended.		3.1	890	3.1	1847	NR 818045
					3.6	Without	Material brittle for thin		1.7	846	2.3	1099	
					5	With	wall thickness		1.7	267	1.7	187	
					5	Without	Assembly not possible.						
4.2	1.41	8	8.99	5.84	3.6	With	3.1	890	3.4	1099	3.4	2078	NR 818005
					3.6	Without	1.8	578	1.7	868	2.8	1691	
					5.4	With	1.7	400	1.7	303	1.7	258	
					5.4	Without	Assembly not possible.						
4.2	1.41	9.52	10.72	5.84	3.6	With	3.1	1246	3.7	1949	3.7	2358	NR 818006
					3.6	Without	1.1	668	1.7	1669	2.8	2358	
					6.3	With	1.7	525	1.7	303	1.7	476	
					6.3	Without	Assembly not possible.						
4.2	1.41	12.7	13.82	6.60	3.6	With	—	—	3.7	2448	3.7	3115	NR 818008
					3.6	Without	—	—	1.7	1780	2.8	2670	
					7.9	With	—	—	1.7	445	1.7	534	
					7.9	Without	Assembly not possible.						
4.2	1.41	13	14.1	6.45	3.6	With	—	—	3.7	2448	3.7	3115	NR 818085
					3.6	Without	—	—	1.7	1780	2.8	2670	
					7.9	With	—	—	1.7	445	1.7	534	
					7.9	Without	Assembly not possible.						
4.8	1.59	9.52	10.72	5.84	4.1	With	3.7	1513	3.7	1824	3.7	3827	NR 101606
					4.1	Without	3.7	1513	2.3	1655	2.3	3827	
					6.3	With	3.1	445	3.1	445	3.1	445	
					6.3	Without	Assembly not possible.						



J.I.S. Metric

Thread Size mm	Pitch mm	For Boss Dia.	Dia. D mm	Height (Est.)—H mm	Boss I.D. Clearance Hole I.D. (mm) Min.	Boss I.D. Clearance Hole I.D. (mm) Max.	Boss I.D. Interference Hole I.D. (mm) Min.	Boss I.D. Interference Hole I.D. (mm) Max.	Countersink Plastic Boss "C" Min Dia.	P Min. Screw Projection	Part No.
3	1.06	6.35	7.21	5.58	3.32	4.16	2.59	2.69	5.00	6.35	NR 030063
4	0.70	9.52	10.72	5.84	4.70	6.35	3.56	3.66	7.37	7.94	NR 040095
5	1.59	9.52	10.72	5.84	5.33	6.35	4.06	4.16	7.35	9.52	NR 050095

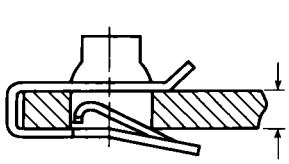
Zip Twist Nuts

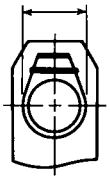
Style BR

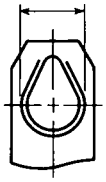
Formed hole M

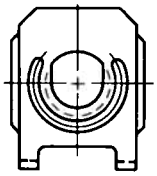
Nominal Stud Size†	Hex W	Hex A	Overall Height H	M	Steel Thickness	Part No.
3.2	8.00/7.86	9.24/8.92	2.41	2.64/2.82	.28	BR 320008
3.2	10.00/9.84	11.55/11.15	2.41	2.64/2.82	.28	BR 320010
5	10.00/9.84	11.55/11.15	2.67	4.29/4.47	.33	BR 050010
6.3	13.00/12.81	15.02/14.50	3.12	5.66/5.84	.38	BR 630013
8	16.00/15.70	18.48/17.84	3.68	7.26/7.42	.53	BR 080016

U-nuts

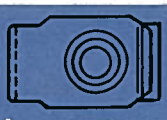



Design #1


Design #2


Design #3

Multi-Thread Type



Nom. Dia. Thread mm	Pitch	Leg Length mm	Width mm	Barrel Ht. Above Leg mm	Panel Thickness Range "T" mm	Material Thickness mm	Tensile Strength Ultimate *KN	Retention In Panel Minimum *N	Lower Tab Design	Part No.
M4	.7	17.3	12.5	5.6	.5/2.4	.65	10.1	10.4	2	LUGS040016
M5	.8	15.2	11.4	5.3	1.8/2.5	.65	10.1	10.4	3	LUGZ050015
M6	1.0	23.4	14.2	6.1	.8/4.0	.89	18.2	13.4	1	LUGS060023
M6	1.0	29.5	14.5	6.0	.8/4.0	.89	18.2	13.4	1	LUGS064730
M6	1.0	29.5	14.5	6.0	.8/4.0	.89	18.2	13.4	1	LUGS060030
M6.3	1.0	23.4	14.2	6.1	.8/4.0	.89	18.2	13.4	1	LUGS630023
M8	1.25	25.0	17.0	8.0	.8/4.0	1.02	32.9	13.4	1	LUGS080025
M8	1.25	25.0	17.0	8.0	1.5/5.5	1.02	32.9	13.4	1	LUGS085725
M10	1.5	32.7	18.5	9.4	1.5/5.5	1.40	52.2	13.4	1	LUGS100033

Prevailing Torque Type

Nom. Dia. Thread mm	Pitch	Leg Length mm	Width mm	Barrel Ht. Above Leg mm	Panel Thickness Range "T" mm	Material Thickness mm	Tensile Strength Ultimate *KN	Retention In Panel Minimum *N	Part No.
6	1.0	23.4	14.2	6.1	.80/4.00	.89	18.16	13.4	LPGS060023
6.3	1.0	23.4	14.2	6.1	.80/4.00	.89	18.16	13.4	LPGS630023
8	1.25	24.9	17.0	8.0	1.5/5.5	1.02	32.94	13.4	LPGS085725
8	1.25	24.9	17.0	8.0	.80/4.00	1.02	32.94	13.4	LPGS080025
8	1.25	24.9	17.0	8.0	1.3/4.00	.99	32.94	13.4	LPGS002132
6	1.0	23.5	14.5	6.0	.30/3.00	.89	18.16	13.4	LPGS060024

Prevailing torque: max. on *NM is 3; fifth off *NM is 0.3

Available now Planned, not yet designed or tooled

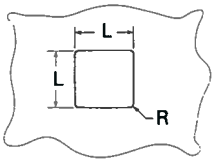
*N — Newtons = 9.8 Kgm *Nm — Newton meters = 980 Kgm-Cm

Insert Fasteners

†Recommended stud diameter tolerance is ±.003". Surface hardness of stud must not exceed Rockwell B-80. Nickel-chrome plating or other hard finishes not recommended.

Screw Size	A	B	C	D	E	F	G	H	I	Panel Hole Dimension	Panel Thickness Range	Part No.
4.2mm x 1.41mm (8-18)	5.18 (.204)	5.20 (.205)	6.45 (.254)	7.75 (.305)	3.22 (.127)	6.85 (.270)	7.75 (.305)	11.0 (.433)	11.1 (.437)	(Below left)	.70-1.00mm (.028-.039")	PTS-428101
4.2mm x 1.41mm (8-18)	11.8 (.465)	5.9 (.232)	8.5 (.335)	8.75 (.344)	5.37 (.211)	6.0 (.236)	10.75 (.423)	13.35 (.526)	12.3 (.484)	9 x 11mm (.354 x .433)	2.3/2.8mm (.090-.110)	IPPS 429925
4.2mm x 1.41mm (8-18)	10.6 (.417)	5.3 (.209)	6.5 (.256)	7.70 (.303)	4.87 (.192)	4.2 (.165)	9.75 (.384)	12.55 (.494)	12.3 (.484)	8 x 10mm (.315 x .394)	2.1/2.5mm (.083-.098)	IPPS 428025

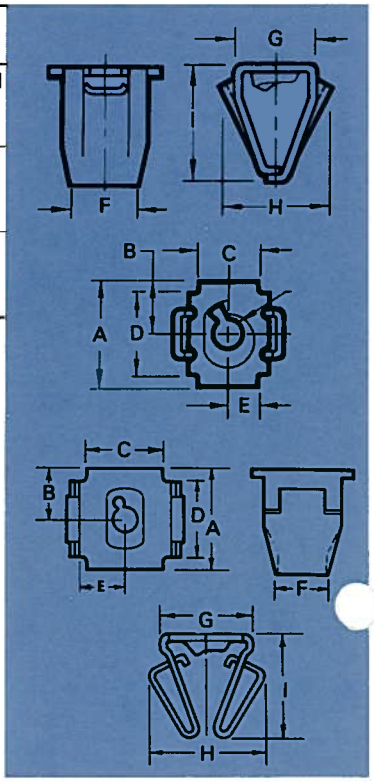
Palnut insert panel retained nut offers a heat treated, spring steel, single thread form in a snap-in style fastener. The nuts are recommended for application in metal panels of .70 mm/1mm or .028-.039" thickness, with a hole dimension of 8mm or 5/16" square.



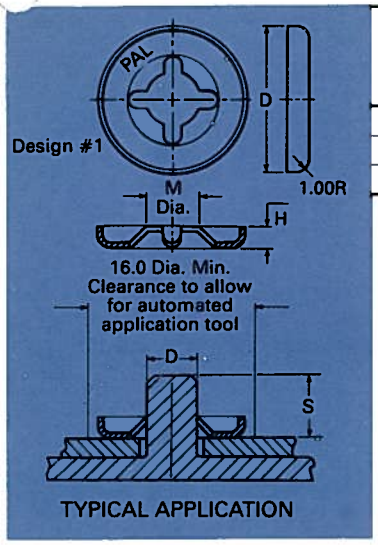
Recommended Panel Hole Dimensions

R	L
0-0.3	8.65-8.75
0.95-1.05	8.90-9.10
1.42-1.53	9.16-9.36

Deviation from the above R/L recommendations could Adversely affect product function.



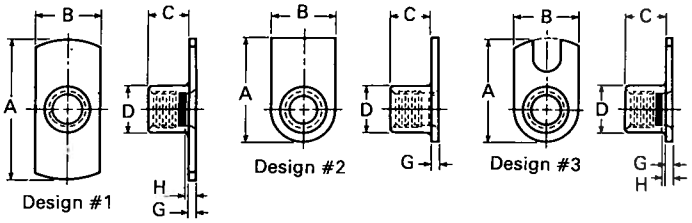
Pushnut® Auto Feed



Stud, Rod or Wire Dia. d	TRW Part No.	Design Type	Overall Shell Height H	Outside Shell Diameter D	Inside Tooth Diameter M	Material Thickness T	Stud Height S
4	PN040011	1	1.78/1.40	11.30/11.00	3.61/3.76	0.28/0.23	3.60/25.40
5	PN050011	1	1.78/1.40	11.30/11.00	4.62/4.78	0.38/0.33	3.60/25.40
6	PN060011	1	1.78/1.40	11.30/11.00	5.74/5.59	0.49/0.43	3.60/25.40

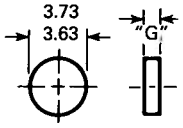
Optimum performance depends on adherence to these stud, rod or wire specifications:
1. Material may be mild steel, aluminum, zinc or other malleable metals.
2. Surface hardness must not exceed Rockwell 30T 78.
3. Recommended diameter tolerance $^{+.08}_{-.05}$
4. Ends must be free of distortion or burrs. Chamfer 0.8 x 45° for easier assembly.
5. Nickel, chromium or other hard finishes on steel are not recommended.
6. Nickel-chromium plating on die cast studs must not exceed .08 thickness.

Mold Insert Nuts



Thread Size	TRW Part No.	Design Type	Plug	"A" Base Length	"B" Base Width	"C" Barrel Ht.	"D" Barrel O.D.	"E" Slot Width	"F" Slot Depth	"G" ±.10 Steel Thk.	"H" Plug Depth
M4x0.7	MI040412	2	NO	11.68/11.44	7.62/7.11	4.36/3.86	5.25/5.13	—	—	.89	—
M4x0.7	MI040612 / MIP040612	3	NO / YES	11.81/11.43	7.62/7.11	6.25/5.75	5.26/5.13	3.42/2.92	4.06/3.56	.89	1.3/0.7
M4x0.7	MI040712 / MIP040712	3	NO / YES	11.81/11.43	7.62/7.11	7.39/6.89	5.26/5.13	3.42/2.92	4.06/3.56	.89	1.3/0.7
M4x0.7	MI040516 / MIP040516	1	NO / YES	16.13/15.63	7.62/7.11	4.85/4.35	5.26/5.13	—	—	.89	1.3/0.7
M4x0.7	MI040616 / MIP040616	1	NO / YES	16.13/15.63	7.62/7.11	5.80/5.30	5.26/5.13	—	—	.89	1.3/0.7
M4x0.7	MI040716 / MIP040716	1	NO / YES	16.13/15.63	7.62/7.11	7.39/6.89	5.26/5.13	—	—	.89	1.3/0.7

Barrel Plug



Plastic and Metal Caps

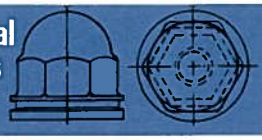
Plastic Pushnuts

Unthreaded

Stud Rod or Wire Shaft	Outside Dia. W mm	Overall Height H mm	Shaft Extension Min A mm	Shaft Extension Max Cap Penetration B mm	Steel Thick mm	Tooth Design	Performance Max Push-On Force *N	Performance Min Holding Strength *N	Part No.
4	16.7	8.7	3.8	6.4	.30	3	134	890	KPS 004167
8	21.2	11.2	4.4	8.9	.38	1	267	3115	KPS 008215
9	21.2	11.2	4.4	8.9	.38	1	334	3115	KPS 009215
16	32.6	16.4	5.1	13.3	.46	1	400	8900	KPS 016325

Threaded

Thread Dia.	Outside Dia.—D mm	Overall Height—H mm	Bolt Extension Min A mm	Bolt Extension Max B mm	Steel Thick. mm	Performance Max Push-On Force *N	Performance Min Holding Strength *N	Part No.
8	24.5	19.45	11.9	18.0	0.33	155	900	KPTZ 080245
8	24.5	16.45	8.9	15.0	0.33	155	900	KTP 080245



Metal Caps

Thread Size mm	Pitch mm	Washer Dia. mm	Hex Size mm	Overall Height	Steel Thickness Cap mm	Steel Thickness Nut mm	Part No.
4	0.7	13.59/13.38	11	12.75	.61	.89	KMF 040014

Available now Planned, not yet designed or tooled

*N — Newtons = 9.8 Kgm *Nm — Newton meters = 980 Kgm-Cm

Let us help you early enough

Our engineers and sales representatives can be most helpful when they discuss your fastening needs in the design stage. Samples at no charge are available from our headquarters and sales offices.

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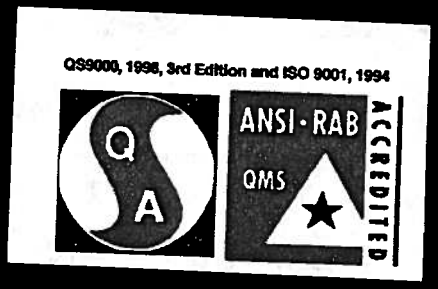

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