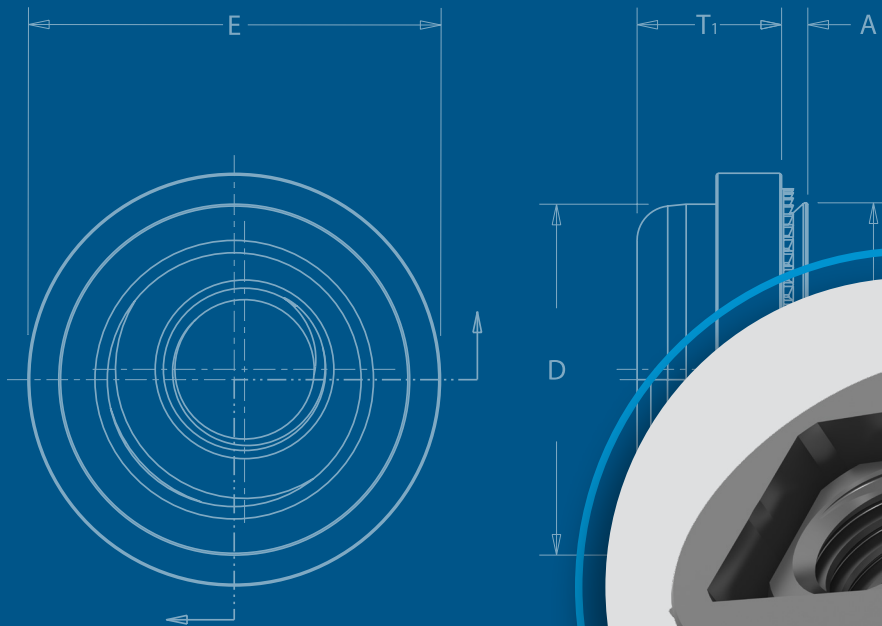




# ALA<sup>TM</sup>

## FLOATING SELF-CLINCHING FASTENERS



PEM® floating self-clinching fasteners are available with or without locking threads.

## Locking and Non-locking Threads

- Provide load-bearing threads in thin sheets
- Permit a total of .030"/0.76 mm adjustment for mating hole misalignment.
- Sheet remains flush on one side, and the fastener is permanently locked in place.
- Threads of the floating nut extend into the retainer shank for extra strength and support in assembly.

### AC™/AS™/LAC™/LAS™ floating Nuts

- Designed for clinching into steel or aluminum panels and sheets.
- Available with (LAC/LAS) or without (AC/AS) locking threads.

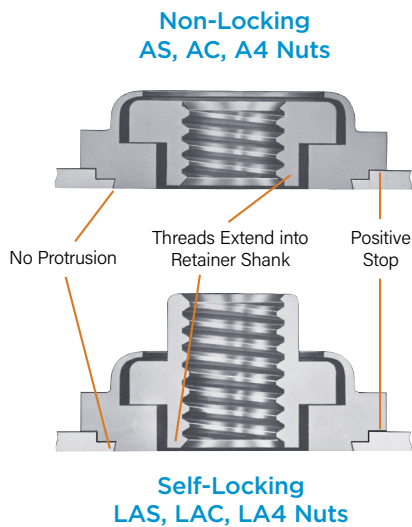
### A4™/LA4™ floating nuts

- Provide prevailing torque locking threads with performance equivalent to applicable NASM25027 specifications(1).
- Designed for clinching into stainless steel panels and sheets.
- Available with (LA4) or without (A4) locking threads.



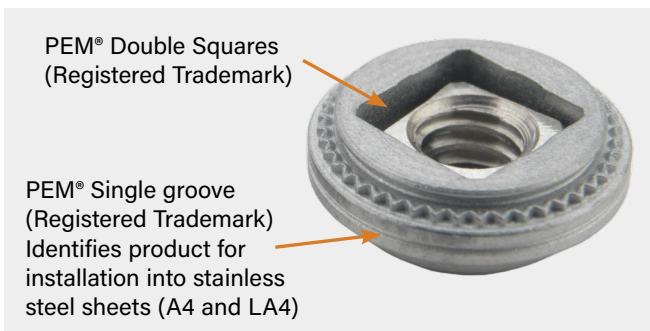
Fastener drawings and models are available at [www.pemnet.com](http://www.pemnet.com). Custom sizes are available on special order. [Contact us](#) for more information.

(1) To meet national aerospace standards and to obtain testing documentation, product must be ordered to US NASM45938/11 specifications. Check our web site for a complete Military Specification and National Aerospace Standards Reference Guide (Bulletin NASM). Screws for use with PEM self-clinching locking fasteners should be Class 3A/4h fit or no smaller than Class 2A/6g.



### Part Number Designation

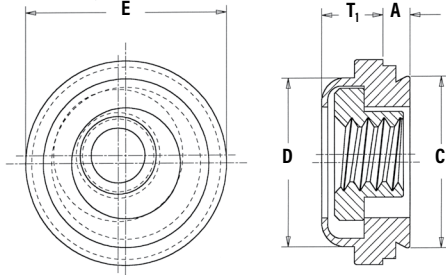
A	C	-	440	-	1	
A	S	-	440	-	1	ZI
A	4	-	440	-	1	
LA	C	-	440	-	1	MD
LA	S	-	440	-	1	MD
LA	4	-	440	-	1	MD
↓	↓	↓	↓	↓	↓	
Type	Retainer Material Code	Thread Size Code	Shank Code	Finish Code		



Custom sizes are available on special order. [Contact us](#) for more information.

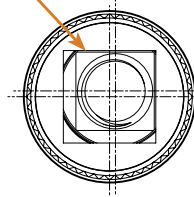
# Floating Self-Clinching Fasteners

## Non-Locking AS/AC/A4



Clinching profile may vary.

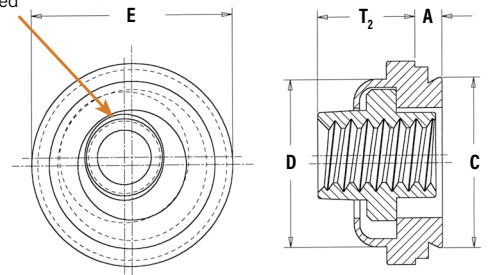
PEM® Double Squares registered trademark.



Float - .015"/0.38 mm minimum, in all directions from center, .030"/0.76 mm total.

Threaded Top Elliptically Formed

## Self-Locking LAS/LAC/LA4



Clinching profile may vary.

All dimensions are in inches.

Unified	Thread Size	Type					Thread Code	Shank Code	A (Shank) Max.	Min. Sheet Thickness	Hole Size in Sheet +.003 -.000	C Max.	D Max.	E ±.015	T <sub>1</sub> Max.	T <sub>2</sub> Max.	Min. Dist. Hole C/L to Edge (2)	
		Non-Locking			Self-Locking													
		Fastener Material			Fastener Material													
		Steel	300 Series Stainless	400 Series Stainless	Steel	300 Series Stainless												400 Series Stainless
.112-40 (#4-40)	AS	AC	A4	LAS	LAC	LA4	440	1	.038	.038	.290	.289	.290	.360	.130	.190	.30	
																		2 <sup>(1)</sup>
.138-32 (#6-32)	AS	AC	A4	LAS	LAC	LA4	632	1	.038	.038	.328	.327	.335	.390	.130	.200	.32	
																		2 <sup>(1)</sup>
.164-32 (#8-32)	AS	AC	A4	LAS	LAC	LA4	832	1	.038	.038	.368	.367	.365	.440	.130	.210	.34	
																		2 <sup>(1)</sup>
.190-24 (#10-24)	AS	AC	A4	LAS	LAC	LA4	024	1	.038	.038	.406	.405	.405	.470	.170	.270	.36	
																		2 <sup>(1)</sup>
.190-32 (#10-32)	AS	AC	A4	LAS	LAC	LA4	032	1	.038	.038	.406	.405	.405	.470	.170	.270	.36	
																		2 <sup>(1)</sup>
.250-20 (1/4-20)	AS	AC	-	LAS	LAC	-	0420	2	.054	.054	.515	.514	.510	.600	.210	.310	.42	
.250-28 (1/4-28)	AS	AC	-	LAS	LAC	-	0428	2	.054	.054	.515	.514	.510	.600	.210	.310	.42	

All dimensions are in millimeters.

Metric	Thread Size x Pitch	Type					Thread Code	Shank Code	A (Shank) Max.	Min. Sheet Thickness	Hole Size in Sheet +0.08	C Max.	D Max.	E ±0.38	T <sub>1</sub> Max.	T <sub>2</sub> Max.	Min. Dist. Hole C/L to Edge (2)	
		Non-Locking			Self-Locking													
		Fastener Material			Fastener Material													
		Steel	300 Series Stainless	400 Series Stainless	Steel	300 Series Stainless												400 Series Stainless
M3 x 0.5	AS	AC	A4	LAS	LAC	LA4	M3	1	0.97	0.97	7.37	7.35	7.37	9.14	3.31	4.83	7.62	
																		2 <sup>(1)</sup>
M4 x 0.7	AS	AC	A4	LAS	LAC	LA4	M4	1	0.97	0.97	9.35	9.33	9.28	11.18	3.31	5.34	8.64	
																		2 <sup>(1)</sup>
M5 x 0.8	AS	AC	A4	LAS	LAC	LA4	M5	1	0.97	0.97	10.31	10.29	10.29	11.94	4.32	6.86	9.14	
																		2 <sup>(1)</sup>
M6 x 1	AS	AC	-	LAS	LAC	-	M6	2	1.38	1.38	13.08	13.06	12.96	15.24	5.34	7.88	10.67	

(1) This shank code is not available for A4 and LA4 nuts.

(2) For more information on proximity to bends and distance to other clinch hardware, see PEM® Tech Sheet C/L To Edge.

## Material And Finish Specifications

Type	Threads		Fastener Materials					Standard Finishes					For Use In Sheet Hardness (3)				
	Non-locking	Self-locking	Retainer			Nut		Non-locking		Self-locking							
			Internal, ASME B1.1, 2B/ ASME B1.13M, 6H	Internal, UNJ Class 3B per ASME B1.15 / MJ Class 4H6H per ASME B1.21M (M6 thread 4H5H)	Hardened Carbon Steel	Hardened 400 Series Stainless Steel	300 Series Stainless Steel	Carbon Steel	300 Series Stainless Steel	Retainer & Nut	Retainer & Nut	Retainer			Retainer	Nut	
AS	•																
AC	•																
A4	•																
LAS		•															
LAC			•														
LA4				•													
Part number codes for finishes								ZI	None	MD							

(3) HRB - Hardness Rockwell "B" Scale. HB - Hardness Brinell.

(4) See PEM Technical Support section of our web site ([www.pemnet.com](http://www.pemnet.com)) for related plating standards and specifications.

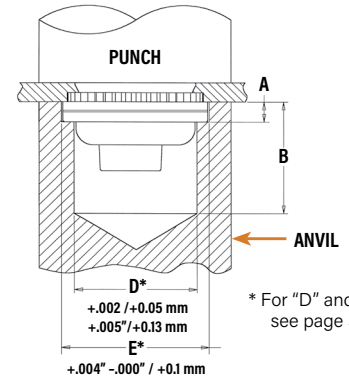
(5) Temperature limit 400° F / 204° C.

## Installation

1. Prepare properly sized mounting hole in sheet. Do not perform any secondary operations such as deburring. For A4 and LA4 fasteners, maintain the hole punch diameter to no greater than  $+.001"/.025\text{mm}$  over the minimum recommended mounting hole.
2. Place fastener into the anvil hole and place the mounting hole (preferably the punch side) over the shank of the fastener.
3. With installation punch and anvil surfaces parallel, apply sufficient squeezing force until anvil contacts the mounting sheet.

## Installation Tooling - AC, AS, LAC, LAS, A4, and LA4 Nuts

Thread Code	HAEGER® Part Number		PEMSERTER® Part Number		Counterbore A		Hole Depth Below Counterbore B	
	Anvil	Punch	Anvil	Punch	$\pm .001"$	$\pm 0.03\text{mm}$	$\pm .005"$	$\pm 0.13\text{mm}$
440/M3	H-131-4L	H-108-0020L	8013889	975200048	.054"	1.37mm	.315"	8mm
632	H-131-6L	H-108-0020L	8013890	975200048	.054"	1.37mm	.315"	8mm
832/M4	H-131-8L	H-108-0020L	8013891	975200048	.054"	1.37mm	.315"	8mm
024/032/M5	H-131-10L	H-108-0020L	8013892	975200048	.071"	1.8mm	.315"	8mm
0420/0428/M6	H-131-04L	H-108-0020L	8021392	975200048	.092"	2.34mm	.315"	8mm



## Installation Notes

- For best results we recommend using a HAEGER® or PEMSERTER® machine for installation of PEM® self-clinching fasteners. See our [website](#) for more information.
- Visit the [Animation Library](#) on our website to view the installation process.



For Additional HAEGER® and PEMSERTER® Tooling Information/Part Numbers visit our [tooling wizard](#)



Performance Data<sup>(1)(2)</sup>

AC/AS/LAC/Las Nuts

Unified	Thread Code	Shank Code	Test Sheet Material					
			5052-H34 Aluminum			Cold-Rolled Steel		
			Installation (lbs.)	Retainer Pushout (lbs.)	Retainer Torque-out (in. lbs.)	Installation (lbs.)	Retainer Pushout (lbs.)	Retainer Torque-out (in. lbs.)
440	1	2	1500	215	65	3000	300	85
	2		2000	225	80			150
632	1	2	2000	240	140	3000	300	150
	2			250	150			175
832	1	2	2000	250	140	3000	300	150
	2			265	150			200
032	1	2	2000	300	150	3500	400	150
	2			350	175			200
0420		2	3000	400	200	5000	500	325
0428								

A4/LA4<sup>(3)</sup> Nuts

Unified	Thread Code	Test Sheet Material		
		300 Series Stainless Steel		
		Installation (lbs.)	Retainer Pushout (lbs.)	Retainer Torque-out (in. lbs.)
440		9000	200	85
632		10000	200	85
832		12000	200	85
032		13000	250	125

Metric	Thread Code	Shank Code	Test Sheet Material					
			5052-H34 Aluminum			Cold-Rolled Steel		
			Installation (kN)	Retainer Pushout (N)	Retainer Torque-out (N-m)	Installation (kN)	Retainer Pushout (N)	Retainer Torque-out (N-m)
M3	1	2	6.7	956	7.3	13.3	1334	9.6
	2		8.9	1000	9	13.3	1334	16.9
M4	1	2	8.9	1112	15.8	13.3	1334	16.9
	2		8.9	1178	16.9	13.3	1779	22.6
M5	1	2	8.9	1334	16.9	15.6	1779	16.9
	2		8.9	1556	19.7	15.6	2001	22.6
M6		2	13.3	1779	36.7	22.2	2224	36.7

Metric	Thread Code	Test Sheet Material		
		300 Series Stainless Steel		
		Installation (kN)	Retainer Pushout (N)	Retainer Torque-out (N-m)
M3		40	890	9.6
M4		53	890	9.6
M5		57	1100	14.1

(3) Specifically designed for installation into stainless steel.

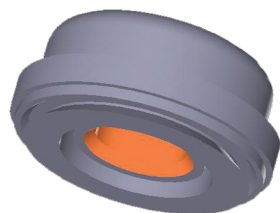
- (1) Published installation forces are for general reference. Actual set-up and confirmation of complete installation should be made by observing proper seating of fastener as described in the installation steps. Other performance values reported are averages when all proper installation parameters and procedures are followed. Variations in mounting hole size, sheet material, and installation procedure may affect performance. Performance testing this product in your application is recommended. We will be happy to provide technical assistance and/or samples for this purpose.
- (2) For LAC, LAS and LA4 nuts, thread locking performance is equivalent to applicable NASM25027 specifications. Consult document PEM-REF25027 for details.

Axial Strength And Tightening Torque - Types LAC/LAS/LA4

Unified	Thread Code	Locknut Min. Axial Strength (1)	Mating Screw Strength Level (1)	Mating Screw Tightening Torque (2)
		(lbs.)	(ksi)	(in. lbs.)
	440	1085	180	15.8
	632	1636	180	29.4
	832	2522	180	53.8
	032	3600	180	88.9
	0420	5728	180	186

Metric	Thread Code	Locknut Min. Axial Strength (1)	Mating Screw Strength Level (1)	Mating Screw Tightening Torque (2)
		(kN)	(MPa)	(N-m)
	M3	6.14	1220	2.39
	M4	10.71	1220	5.57
	M5	17.3	1220	11.2
	M6	24.55	1220	19.1

- (1) All LAC, LAS and LA4 locknuts have axial strength exceeding the minimum tensile strength of 180 ksi/Property Class 12.9 screws. Contact techsupport regarding assemble strength for higher strength screws.
- (2) Tightening torque shown will induce preload of 65% of locknut minimum axial strength with K or nut factor is equal to 0.20. In some applications tightening torque may need to be adjusted based on the actual K value. All tightening torques shown are based on 180 ksi/ Property Class 12.9 screws. For lower strength screws the tightening torque is proportionately less. For example, for 120 ksi screws, torque is 67% value shown. For 900 MPa screws (Property Class 9.8) torque value is 74% of value shown.



Fastener drawings and models are available at [www.pemnet.com](http://www.pemnet.com)

## A Note About Hardened 400 Series Stainless Steel

In order for self-clinching fasteners to work properly, the fastener must be harder than the sheet into which it is being installed. In the case of stainless steel panels, fasteners made from 300 Series Stainless Steel do not meet this hardness criteria. It is for this reason that A4 and LA4 400 series fasteners are offered. However, while these 400 Series fasteners install and perform well in 300 Series stainless sheets they should not be used if the end product:

- Will be exposed to any appreciable corrosive presence.
- Requires non-magnetic fasteners.
- Will be exposed to any temperatures above 300°F (149°C)

If any of the these are issues, please contact [techsupport@pemnet.com](mailto:techsupport@pemnet.com) for other options.

All PEM® products meet our stringent quality standards. If you require additional industry or other specific [quality certifications](#), special procedures and/or part numbers are required. Please contact your local sales office or representative for further information.

Regulatory [compliance information](#) is available in Technical Support section of our website. Specifications subject to change without notice. See our website for the most current version of this bulletin.



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