

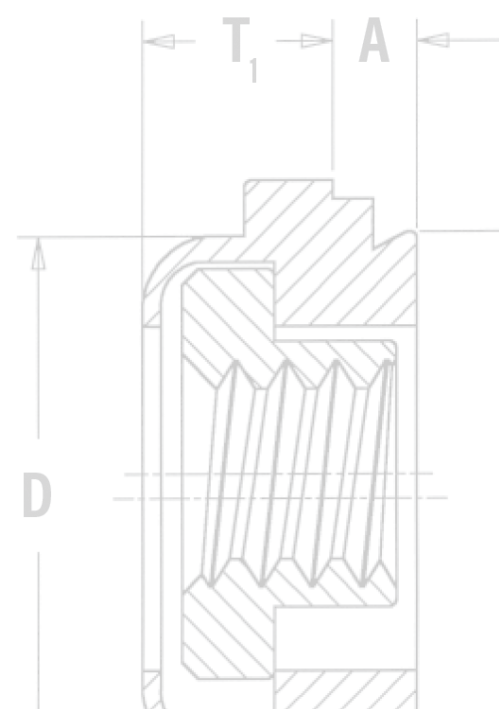
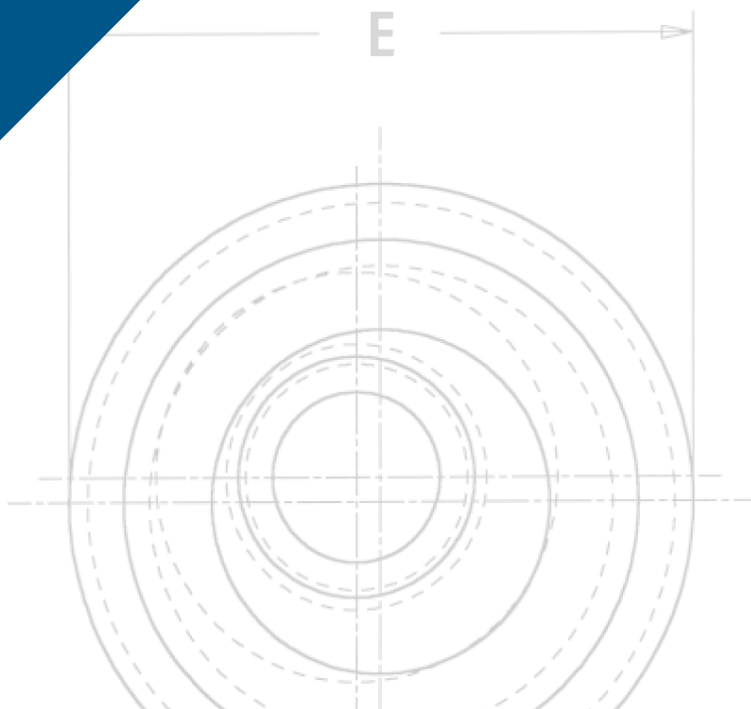


PEM® floating self-clinching fasteners are available with or without locking threads.



**ALA™**

**FLOATING  
SELF-CLINCHING  
FASTENERS**



# FLOATING SELF-CLINCHING FASTENERS

## 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

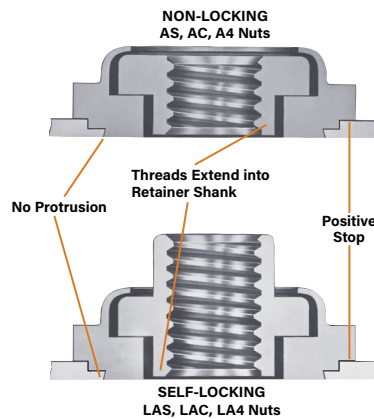
- Designed for clinching into steel or aluminum panels and sheets.
- Available with (LAC/LAS) or without (AC/AS) locking threads.

### A4™/LA4™ floating nuts

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



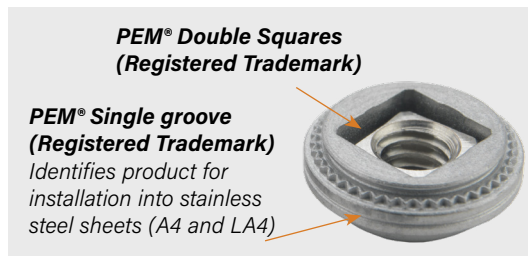
(1) To meet national aerospace standards and to obtain testing documentation, product must be ordered to US NASM45938/11 specifications. Check our web site for a complete Military Specification and National Aerospace Standards Reference Guide (Bulletin NASM). Screws for use with PEM self-clinching locking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



### PART NUMBER DESIGNATION

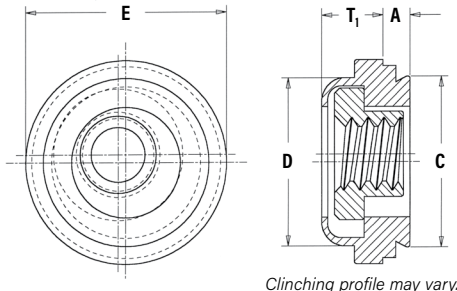
|    |   |   |     |   |   |    |
|----|---|---|-----|---|---|----|
| A  | C | - | 440 | - | 1 |    |
| A  | S | - | 440 | - | 1 | ZI |
| A  | 4 | - | 440 | - | 1 |    |
| LA | C | - | 440 | - | 1 | MD |
| LA | S | - | 440 | - | 1 | MD |
| LA | 4 | - | 440 | - | 1 | MD |

↓      ↓      ↓      ↓      ↓  
 Type   Retainer   Thread   Shank   Finish  
          Material   Size   Code   Code   Code

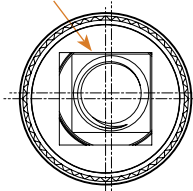


# FLOATING SELF-CLINCHING FASTENERS

## NON-LOCKING AS/AC/A4



PEM® Double Squares registered trademark.

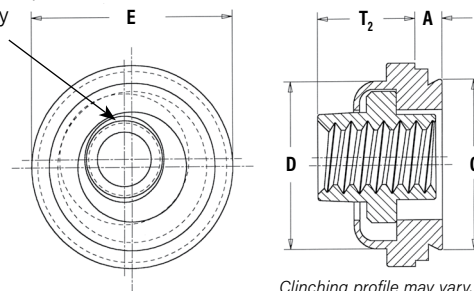


Float - .015"/0.38 mm minimum, in all directions from center, .030"/0.76 mm total.

Clinching profile may vary.

## SELF-LOCKING LAS/LAC/LA4

Threaded Top Elliptically Formed



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 -0.000 | C Max. | D Max. | E ±.015 | T <sub>1</sub> Max. | T <sub>2</sub> Max. | Min. Dist. Hole $\varnothing$ To Edge |
|------------------|-------------|-------------------|----------------------|----------------------|-------------------|----------------------|-------------|------------|----------------|----------------------|---------------------------------|--------|--------|---------|---------------------|---------------------|---------------------------------------|
|                  |             | Non-Locking       |                      |                      | Self-Locking      |                      |             |            |                |                      |                                 |        |        |         |                     |                     |                                       |
|                  |             | Fastener Material |                      |                      | Fastener Material |                      |             |            |                |                      |                                 |        |        |         |                     |                     |                                       |
|                  |             | Steel             | 300 Series Stainless | 400 Series Stainless | Steel             | 300 Series Stainless |             |            |                |                      |                                 |        |        |         |                     |                     |                                       |
| .112-40 (#4-40)  | AS          | AC                | A4                   | LAS                  | LAC               | LA4                  | 440         | 1          | .038           | .038                 | .290                            | .289   | .290   | .360    | .130                | .190                | .30                                   |
|                  |             |                   |                      |                      |                   |                      |             |            | .054           | .054                 |                                 |        |        |         |                     |                     |                                       |
| .138-32 (#6-32)  | AS          | AC                | A4                   | LAS                  | LAC               | LA4                  | 632         | 1          | .038           | .038                 | .328                            | .327   | .335   | .390    | .130                | .200                | .32                                   |
|                  |             |                   |                      |                      |                   |                      |             |            | .054           | .054                 |                                 |        |        |         |                     |                     |                                       |
| .164-32 (#8-32)  | AS          | AC                | A4                   | LAS                  | LAC               | LA4                  | 832         | 1          | .038           | .038                 | .368                            | .367   | .365   | .440    | .130                | .210                | .34                                   |
|                  |             |                   |                      |                      |                   |                      |             |            | .054           | .054                 |                                 |        |        |         |                     |                     |                                       |
| .190-24 (#10-24) | AS          | AC                | A4                   | LAS                  | LAC               | LA4                  | 024         | 1          | .038           | .038                 | .406                            | .405   | .405   | .470    | .170                | .270                | .36                                   |
|                  |             |                   |                      |                      |                   |                      |             |            | .054           | .054                 |                                 |        |        |         |                     |                     |                                       |
| .190-32 (#10-32) | AS          | AC                | A4                   | LAS                  | LAC               | LA4                  | 032         | 1          | .038           | .038                 | .406                            | .405   | .405   | .470    | .170                | .270                | .36                                   |
|                  |             |                   |                      |                      |                   |                      |             |            | .054           | .054                 |                                 |        |        |         |                     |                     |                                       |
| .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 $\varnothing$ To Edge |
|----------|---------------------|-------------------|----------------------|----------------------|-------------------|----------------------|-------------|------------|----------------|----------------------|--------------------------|--------|--------|---------|---------------------|---------------------|---------------------------------------|
|          |                     | Non-Locking       |                      |                      | Self-Locking      |                      |             |            |                |                      |                          |        |        |         |                     |                     |                                       |
|          |                     | Fastener Material |                      |                      | Fastener Material |                      |             |            |                |                      |                          |        |        |         |                     |                     |                                       |
|          |                     | Steel             | 300 Series Stainless | 400 Series Stainless | Steel             | 300 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                                  |
|          |                     |                   |                      |                      |                   |                      |             |            | 1.38           | 1.38                 |                          |        |        |         |                     |                     |                                       |
| 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                                  |
|          |                     |                   |                      |                      |                   |                      |             |            | 1.38           | 1.38                 |                          |        |        |         |                     |                     |                                       |
| 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                                  |
|          |                     |                   |                      |                      |                   |                      |             |            | 1.38           | 1.38                 |                          |        |        |         |                     |                     |                                       |
| 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.

## MATERIAL AND FINISH SPECIFICATIONS

| Type                           | Threads                                 |  | Fastener Materials    |                                     |                            |              | Standard Finishes          |                |                |          |          | For Use In Sheet Hardness (2) |                        |
|--------------------------------|---|--|-----------------------|-------------------------------------|----------------------------|--------------|----------------------------|----------------|----------------|----------|----------|-------------------------------|------------------------|
|                                | 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                           | HRB 70/ HB 125 or Less |
| AS                             | ■                                       |  | ■                     |                                     |                            |              | ■                          |                |                |          |          | ■                             |                        |
| AC                             | ■                                       |  |                       |                                     |                            |              |                            | ■              |                |          |          |                               | ■                      |
| A4                             |   |  |                       | ■                                   |                            |              |                            | ■              |                |          |          |                               | ■                      |
| LAS                            |   |  | ■                     |                                     |                            |              |                            |                | ■              |          |          |                               | ■                      |
| LAC                            |   |  |                       |                                     | ■                          |              |                            |                |                | ■        |          |                               | ■                      |
| LA4                            |   |  |                       |                                     | ■                          |              |                            |                |                |          | ■        |                               | ■                      |
| Part number codes for finishes |   |  |                       |                                     |                            |              | ZI                         | None           | MD             |          |          |                               |                        |

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

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

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



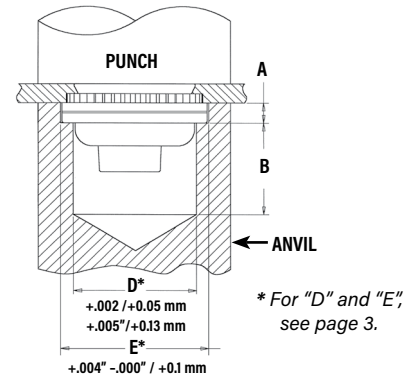
# FLOATING SELF-CLINCHING FASTENERS

## INSTALLATION

1. Prepare properly sized mounting hole in sheet. Do not perform any secondary operations such as deburring.
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     | ±.001"        | ±0.03mm | ±.005"                         | ±0.13mm |
| 440/M3      | H-131-4L            | H-108-0020L | 8013889                | 975200048 | .054"         | 1.37mm  | .258"                          | 6.55mm  |
| 632         | H-131-6L            | H-108-0020L | 8013890                | 975200048 | .054"         | 1.37mm  | .258"                          | 6.55mm  |
| 832/M4      | H-131-8L            | H-108-0020L | 8013891                | 975200048 | .054"         | 1.37mm  | .258"                          | 6.55mm  |
| 032/M5      | H-131-10L           | H-108-0020L | 8013892                | 975200048 | .071"         | 1.8mm   | .241"                          | 6.12mm  |
| 0420/M6     | H-131-04L           | H-108-0020L | 8021392                | 975200048 | .092"         | 2.34mm  | .220"                          | 5.59mm  |



### 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

Go to [haeger.com](http://haeger.com) to access the Auto and Manual Tooling Wizards

Or download the HAEGER WIZZARD Phone App

OneTouch 4e XYZ-R  
Tooling Wizard  
BTM Tooling  
Force Chart  
Machine Selection  
Machine Specification  
Request RMA  
myHaeger



# FLOATING SELF-CLINCHING FASTENERS

## 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           | 1500       | 215                 | 65                      | 3000                           | 300                 | 85                      |                                |
|         | 2           | 2000       | 225                 | 80                      |                                |                     | 150                     |                                |
| 632     | 1           | 2000       | 240                 | 140                     | 3000                           | 300                 | 150                     |                                |
|         | 2           |            | 250                 | 150                     |                                |                     | 175                     |                                |
| 832     | 1           | 2000       | 250                 | 140                     | 3000                           | 300                 | 150                     |                                |
|         | 2           |            | 265                 | 150                     |                                |                     | 400                     | 200                            |
| 032     | 1           | 2000       | 300                 | 150                     | 3500                           | 400                 | 150                     |                                |
|         | 2           |            | 350                 | 175                     |                                |                     | 450                     | 200                            |
| 0420    | 2           | 3000       | 400                 | 325                     | 5000                           | 500                 | 325                     |                                |
| 0428    |             |            |                     |                         |                                |                     |                         |                                |

| 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           | 6.7        | 956                 | 7.3                  | 13.3                      | 1334              | 9.6                  |                           |
|        | 2           | 8.9        | 1000                | 9                    | 13.3                      | 1334              | 16.9                 |                           |
| M4     | 1           | 8.9        | 1112                | 15.8                 | 13.3                      | 1334              | 16.9                 |                           |
|        | 2           | 8.9        | 1178                | 16.9                 | 13.3                      | 1779              | 22.6                 |                           |
| M5     | 1           | 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                 |                           |

### 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 | 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.

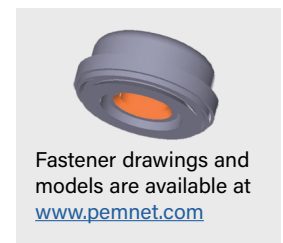
(1) Published installation forces are for general reference. Actual set-up and confirmation of complete installation should be made by observing proper seating of fastener as described in the installation steps. Other performance values reported are averages when all proper installation parameters and 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                        | Mating Screw             | Mating Screw                     |
|---------|-------------|--------------------------------|--------------------------|----------------------------------|
|         |             | Min. Axial Strength (1) (lbs.) | Strength Level (1) (ksi) | Tightening Torque (2) (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                      | Mating Screw             | Mating Screw                |
|--------|-------------|------------------------------|--------------------------|-----------------------------|
|        |             | Min. Axial Strength (1) (kN) | Strength Level (1) (MPa) | Tightening Torque (2) (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.



## 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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