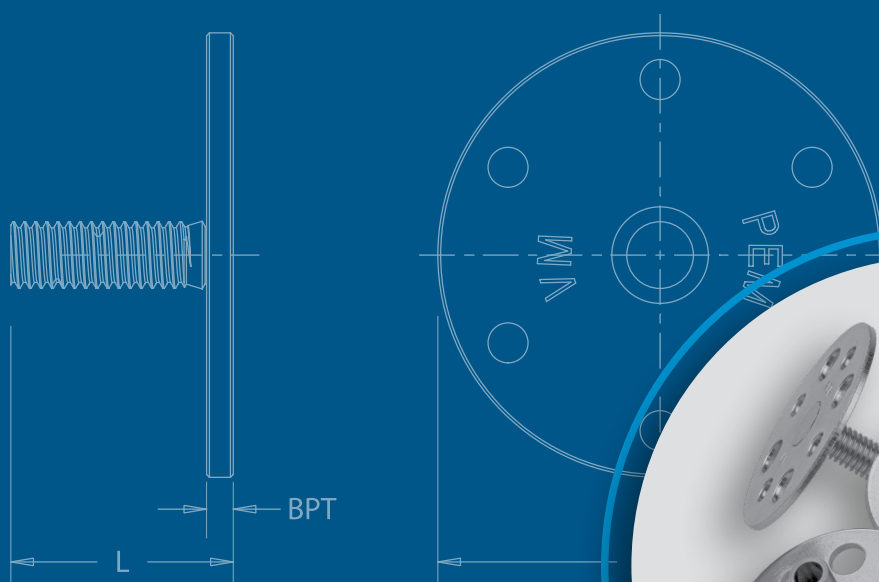




VM™

# PEM® VARIMOUNT® BONDING FASTENERS



PEM® VariMount® bonding fasteners are assemblies comprised of standard PEM® fasteners mounted permanently into base plates.

**Now Available! 20mm Diameter Base Plate.**

The PEM® VariMount® fastening system eliminates issues associated with welding. The assembly is comprised of a standard PEM® nut, stud or standoff mounted permanently into a base plate. The assembly can then be fastened or bonded to assorted panel types in a variety of ways:

**Mounting Methods:**

- Mold-in
- Laminate within composite layers
- Surface bonding
- Rivets
- Loose hardware (nuts, bolts, screws)
- Self-clinching fasteners
- Blind threaded rivets
- Adhesives or adhesive tape
- Hollow wall anchors
- Spot welding

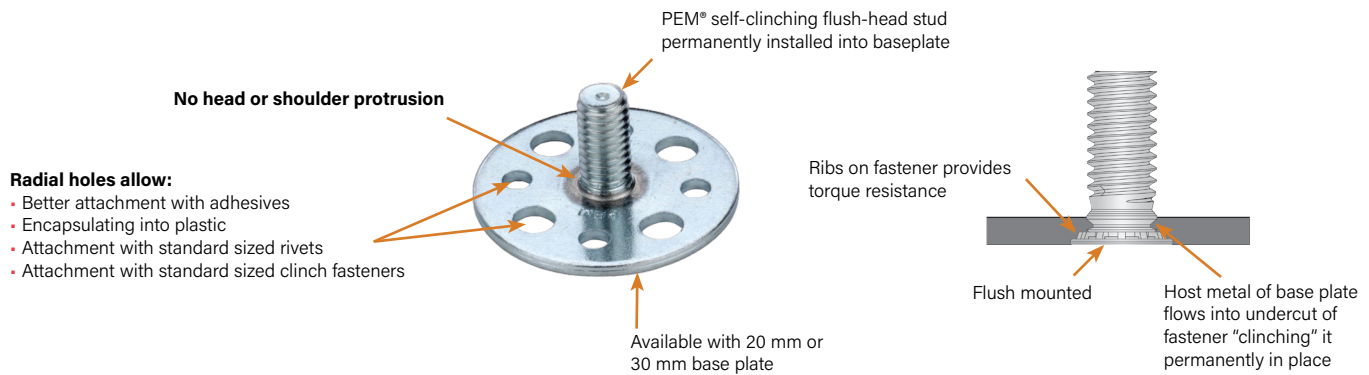
**Mounts on or in:**

- Composites (Carbon fiber, fiberglass)
- Plastics
- Metal
- Wall board
- Any rigid material or panel

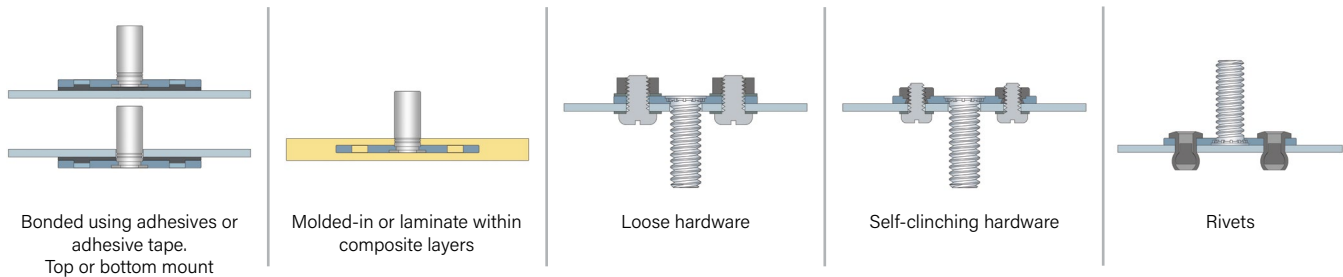
VariMount® assemblies are available with either steel or stainless steel base plates depending on the fastener that is selected. The VariMount® base plate's radial holes provide various mounting options.

Base plates can also be purchased separately. [See page 5](#) for dimensional data and part numbers.

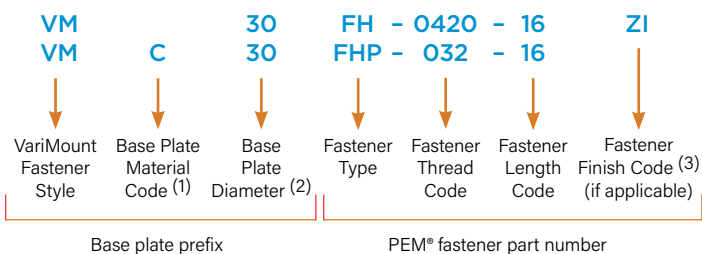
**Varimount® Assembly Using Self-Clinching Technology**



**Typical Mounting Methods**



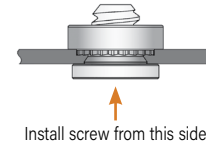
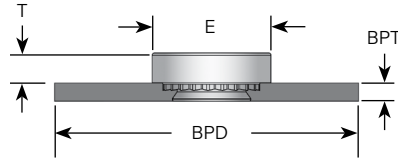
**Assembly Part Number Designation**



A VariMount® assembly part number includes a base plate prefix paired with a standard PEM® fastener part number.

(1) "Blank" equals steel base plate and "C" equals stainless steel base plate.  
 (2) [See page 5](#) for complete dimensional information.  
 (3) Required on steel assemblies.

The charts below show PEM® fastener types/sizes that are offered as standard VariMount® assemblies.



### Standard Nuts

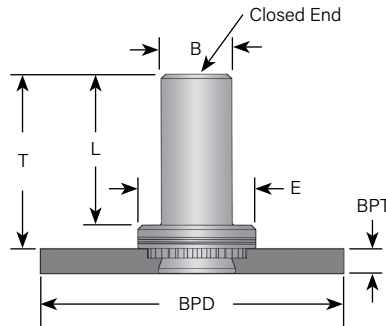
All dimensions are in inches.

| Unified | Thread Size         | Type and Material |                 | Thread Code | Shank Code | BPD<br>±.0165 | BPT<br>±.004 | E<br>±.010 | T<br>±.010 |
|---------|---------------------|-------------------|-----------------|-------------|------------|---------------|--------------|------------|------------|
|         |                     | Steel             | Stainless Steel |             |            |               |              |            |            |
|         | .112-40<br>(#4-40)  | VM20S             | VMC20SP         | 440         | 1          | .787          | .048         | .250       | .070       |
|         |                     | VM30S             | VMC30SP         |             |            |               |              |            |            |
|         | .138-32<br>(#6-32)  | VM20S             | VMC20SP         | 632         | 1          | .787          | .048         | .280       | .070       |
|         |                     | VM30S             | VMC30SP         |             |            |               |              |            |            |
|         | .164-32<br>(#8-32)  | VM20S             | VMC20SP         | 832         | 1          | .787          | .048         | .310       | .090       |
|         |                     | VM30S             | VMC30SP         |             |            |               |              |            |            |
|         | .190-32<br>(#10-32) | VM20SS            | VMC20SP         | 032         | 2          | .787          | .071         | .340       | .090       |
|         |                     | VM30SS            | VMC30SP         |             |            |               |              |            |            |

All dimensions are in millimeters.

| Metric | Thread Size<br>x Pitch | Type and Material |                 | Thread Code | Shank Code | BPD<br>±0.42 | BPT<br>±0.1 | E<br>±0.25 | T<br>±0.25 |
|--------|------------------------|-------------------|-----------------|-------------|------------|--------------|-------------|------------|------------|
|        |                        | Steel             | Stainless Steel |             |            |              |             |            |            |
|        | M3 x 0.5               | VM20S             | VMC20SP         | M3          | 1          | 20           | 1.2         | 6.35       | 1.5        |
|        |                        | VM30S             | VMC30SP         |             |            |              |             |            |            |
|        | M4 x 0.7               | VM20S             | VMC20SP         | M4          | 1          | 20           | 1.2         | 7.87       | 2          |
|        |                        | VM30S             | VMC30SP         |             |            |              |             |            |            |
|        | M5 x 0.8               | VM20SS            | VMC20SP         | M5          | 2          | 20           | 1.8         | 8.64       | 2          |
|        |                        | VM30SS            | VMC30SP         |             |            |              |             |            |            |

For more information on PEM® standard nuts, see [Bulletin CL](#) on our website.



### Blind Nuts

All dimensions are in inches.

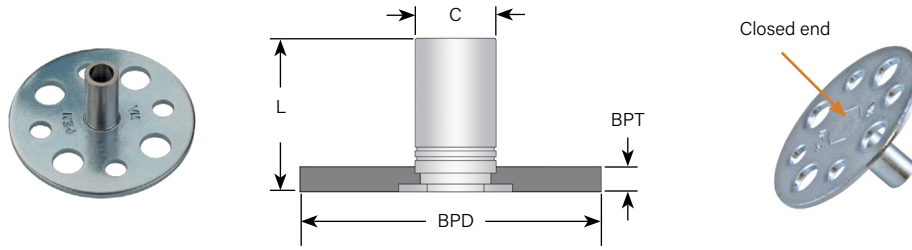
| Unified | Thread Size         | Type and Material | Thread Code | Shank Code | BPD<br>±.0165 | BPT<br>±.004 | B<br>Max. | E<br>±.010 | L<br>Max. | T<br>±.010 |
|---------|---------------------|-------------------|-------------|------------|---------------|--------------|-----------|------------|-----------|------------|
|         |                     | Steel             |             |            |               |              |           |            |           |            |
|         | .112-40<br>(#4-40)  | VM20B             | 440         | 1          | .787          | .048         | .150      | .250       | .335      | .380       |
|         |                     | VM30B             |             |            |               |              |           |            |           |            |
|         | .138-32<br>(#6-32)  | VM20B             | 632         | 1          | .787          | .048         | .169      | .280       | .335      | .380       |
|         |                     | VM30B             |             |            |               |              |           |            |           |            |
|         | .164-32<br>(#8-32)  | VM20B             | 832         | 1          | .787          | .048         | .204      | .310       | .385      | .440       |
|         |                     | VM30B             |             |            |               |              |           |            |           |            |
|         | .190-32<br>(#10-32) | VM20B             | 032         | 2          | .787          | .071         | .235      | .340       | .385      | .440       |
|         |                     | VM30B             |             |            |               |              |           |            |           |            |

All dimensions are in millimeters.

| Metric | Thread Size<br>x Pitch | Type and Material | Thread Code | Shank Code | BPD<br>±0.42 | BPT<br>±0.1 | B<br>Max. | E<br>±0.25 | L<br>Max. | T<br>±0.25 |
|--------|------------------------|-------------------|-------------|------------|--------------|-------------|-----------|------------|-----------|------------|
|        |                        | Steel             |             |            |              |             |           |            |           |            |
|        | M3 x 0.5               | VM20B             | M3          | 1          | 20           | 1.2         | 3.84      | 6.35       | 8.5       | 9.6        |
|        |                        | VM30B             |             |            |              |             |           |            |           |            |
|        | M4 x 0.7               | VM20B             | M4          | 1          | 20           | 1.2         | 5.2       | 7.95       | 9.8       | 11.2       |
|        |                        | VM30B             |             |            |              |             |           |            |           |            |
|        | M5 x 0.8               | VM20B             | M5          | 2          | 20           | 1.8         | 6.02      | 8.75       | 9.8       | 11.2       |
|        |                        | VM30B             |             |            |              |             |           |            |           |            |

For more information on PEM® blind nuts, see [Bulletin B](#) on our website.

The charts below show PEM® fastener types/sizes that are offered as standard VariMount® assemblies.



**Standoffs**

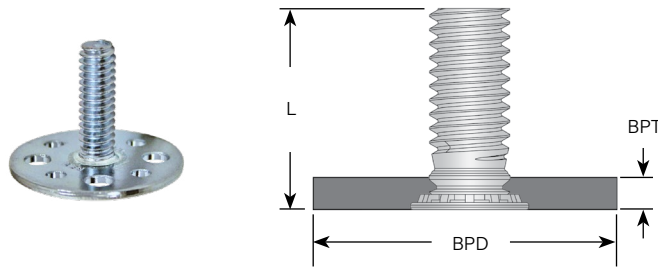
All dimensions are in inches.

| Unified            | Thread Size        | Type and Material | Thread Code | Length Code "L" +.002 -.005 (Length code in 32nds of an inch) |      |      |      |      |      |      | BPD<br>±.0165 | BPT<br>±.004 | C<br>+.000 -.005 |
|--------------------|--------------------|-------------------|-------------|---------------------------------------------------------------|------|------|------|------|------|------|---------------|--------------|------------------|
|                    |                    | Steel             |             | .375                                                          | .437 | .500 | .562 | .625 | .687 | .750 |               |              |                  |
|                    | .112-40<br>(#4-40) | VM20BSO           | 440         | 12                                                            | 14   | 16   | 18   | 20   | 22   | 24   | .787          | .048         | .165             |
| VM30BSO            |                    | 1.181             |             |                                                               |      |      |      |      |      |      |               |              |                  |
| .138-32<br>(#6-32) | VM20BSO            | 632               | 12          | 14                                                            | 16   | 18   | 20   | 22   | 24   | .787 | .048          | .212         |                  |
|                    | VM30BSO            |                   | 1.181       |                                                               |      |      |      |      |      |      |               |              |                  |

All dimensions are in millimeters.

| Metric     | Thread Size<br>x Pitch | Type and Material | Thread Code | Length Code "L" +0.05 -0.13<br>(Length code in millimeters) |    |    |    |     |      | BPD<br>±0.42 | BPT<br>±0.1 | C<br>-0.13 |
|------------|------------------------|-------------------|-------------|-------------------------------------------------------------|----|----|----|-----|------|--------------|-------------|------------|
|            |                        | Steel             |             | 12                                                          | 14 | 16 | 18 | 20  |      |              |             |            |
|            | M3 x 0.5               | VM20BSO           | M3          | 12                                                          | 14 | 16 | 18 | 20  | 1.2  | 4.2          |             |            |
| VM30BSO    |                        | 30                |             |                                                             |    |    |    |     |      |              |             |            |
| M3.5 x 0.6 | VM20BSO                | M3.5              | 12          | 14                                                          | 16 | 18 | 20 | 1.2 | 5.39 |              |             |            |
|            | VM30BSO                |                   | 30          |                                                             |    |    |    |     |      |              |             |            |

For more information on PEM® standoffs, see [Bulletin SQ](#) on our website.



**Studs**

All dimensions are in inches.

| Unified             | Thread Size        | Type and Material |                 | Thread Code | Length Code "L" ±.015 (Length code in 16ths of an inch) |      |      |      |      |      | BPD<br>±.0165 | BPT<br>±.004 |
|---------------------|--------------------|-------------------|-----------------|-------------|---------------------------------------------------------|------|------|------|------|------|---------------|--------------|
|                     |                    | Steel             | Stainless Steel |             | .500                                                    | .625 | .750 | .875 | 1.00 | 1.25 |               |              |
|                     | .164-32<br>(#8-32) | VM20FH            | VMC20FHP        | 832         | 8                                                       | 10   | 12   | 14   | 16   | 20   | .787          | .048         |
| VM30FH              |                    | VMC30FHP          | 1.181           |             |                                                         |      |      |      |      |      |               |              |
| .190-32<br>(#10-32) | VM20FH             | VMC20FHP          | 032             | 8           | 10                                                      | 12   | 14   | 16   | 20   | .787 | .048          |              |
|                     | VM30FH             | VMC30FHP          |                 | 1.181       |                                                         |      |      |      |      |      |               |              |
| .250-20<br>(1/4-20) | VM20FH             | —                 | 0420            | 8           | 10                                                      | 12   | 14   | 16   | 20   | .787 | .071          |              |
|                     | VM30FH             | —                 |                 | 1.181       | .063                                                    |      |      |      |      |      |               |              |

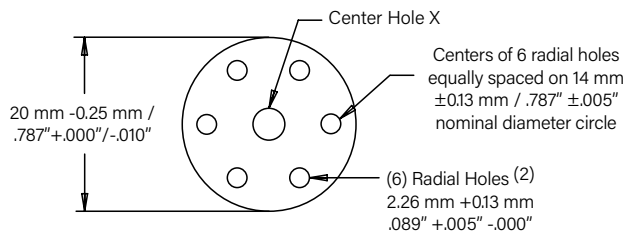
All dimensions are in millimeters.

| Metric   | Thread Size<br>x Pitch | Type and Material |                 | Thread Code | Length Code "L" ±0.4<br>(Length code in millimeters) |    |    |    |    |    | BPD<br>±0.42 | BPT<br>±0.1 |
|----------|------------------------|-------------------|-----------------|-------------|------------------------------------------------------|----|----|----|----|----|--------------|-------------|
|          |                        | Steel             | Stainless Steel |             | 10                                                   | 12 | 15 | 18 | 20 | 25 |              |             |
|          | M4 x 0.7               | VM20FH            | VMC20FHP        | M4          | 10                                                   | 12 | 15 | 18 | 20 | 25 | 20           | 1.2         |
| VM30FH   |                        | VMC30FHP          | 30              |             |                                                      |    |    |    |    |    |              |             |
| M5 x 0.8 | VM20FH                 | VMC20FHP          | M5              | 10          | 12                                                   | 15 | 18 | 20 | 25 | 20 | 1.2          |             |
|          | VM30FH                 | VMC30FHP          |                 | 30          |                                                      |    |    |    |    |    |              |             |
| M6 x 1   | VM20FH                 | VMC20FHP          | M6              | 10          | 12                                                   | 15 | 18 | 20 | 25 | 20 | 1.8          |             |
|          | VM30FH                 | VMC30FHP          |                 | 30          | 1.6                                                  |    |    |    |    |    |              |             |

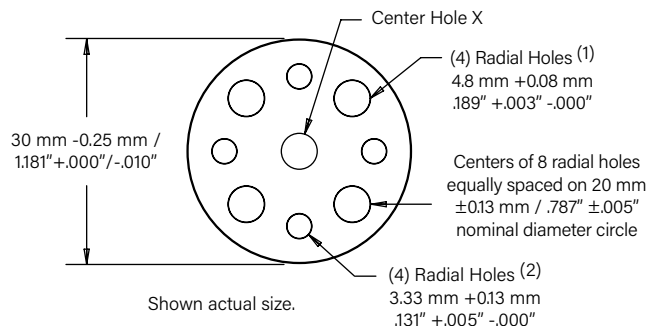
For more information on PEM® studs, see [Bulletin FH](#) on our website.

## Base Plate Part Number, Dimensions And Material Guide

20 mm Diameter Base Plate



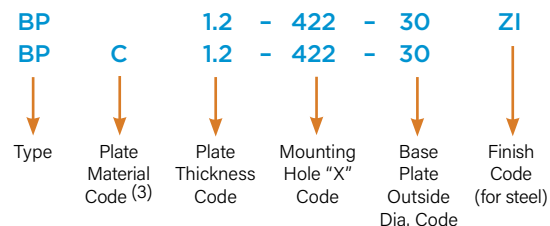
30 mm Diameter Base Plate



| Base Plate Part Number (4) |                |                     |               | Thickness<br>$\pm 0.1$ mm / $\pm 0.004$ " | Center Hole X Diameter<br>$+0.08$ mm / $+0.003$ " $-0.000$ " |
|----------------------------|----------------|---------------------|---------------|-------------------------------------------|--------------------------------------------------------------|
| Steel (5)                  |                | Stainless Steel (6) |               |                                           |                                                              |
| 20 mm Dia.                 | 30 mm Dia.     | 20 mm Dia.          | 30 mm Dia.    |                                           |                                                              |
| BP1.2-422-20ZI             | BP1.2-422-30ZI | BPC1.2-422-20       | BPC1.2-422-30 | 1.2 mm / .048"                            | 4.22 mm / .166"                                              |
| BP1.2-480-20ZI             | BP1.2-480-30ZI | BPC1.2-480-20       | BPC1.2-480-30 | 1.2 mm / .048"                            | 4.8 mm / .189"                                               |
| BP1.2-541-20ZI             | BP1.2-541-30ZI | BPC1.2-541-20       | BPC1.2-541-30 | 1.2 mm / .048"                            | 5.41 mm / .213"                                              |
| —                          | BP1.6-635-30ZI | —                   | BPC1.6-635-30 | 1.6 mm / .063"                            | 6.35 mm / .250"                                              |
| BP1.2-400-20ZI             | BP1.2-400-30ZI | BPC1.2-400-20       | BPC1.2-400-30 | 1.2 mm / .048"                            | 4 mm / .1575"                                                |
| BP1.2-500-20ZI             | BP1.2-500-30ZI | BPC1.2-500-20       | BPC1.2-500-30 | 1.2 mm / .048"                            | 5 mm / .1969"                                                |
| —                          | BP1.6-600-30ZI | —                   | BPC1.6-600-30 | 1.6 mm / .063"                            | 6 mm / .2362"                                                |
| BP1.8-600-20ZI             | —              | BPC1.8-600-20       | —             | 1.8 mm / .071"                            | 6 mm / .2362"                                                |
| BP1.8-635-20ZI             | —              | BPC1.8-635-20       | —             | 1.8 mm / .071"                            | 6.35 mm / .250"                                              |

- (1) Accepts standard M3.5 / #6-32 self-clinching nuts. Also flush-head studs #10-24 / #10-32 sizes. May also accept 4.8 mm / 3/16" rivet.
- (2) 30mm OD parts include standard holes sized for 3.2 mm / 1/8" rivets. 20mm OD parts include standard holes sized for 2 mm / 5/64" rivets
- (3) "Blank" equals steel base plate and "C" equals stainless steel base plate.
- (4) Use this part number if ordering base plate separately. Minimum quantities may apply.
- (5) Base plate is carbon steel, zinc plated per ASTM B633, SC1, Type III.
- (6) Base plate is 300 series stainless steel, passivated and/or tested per ASTM A380.

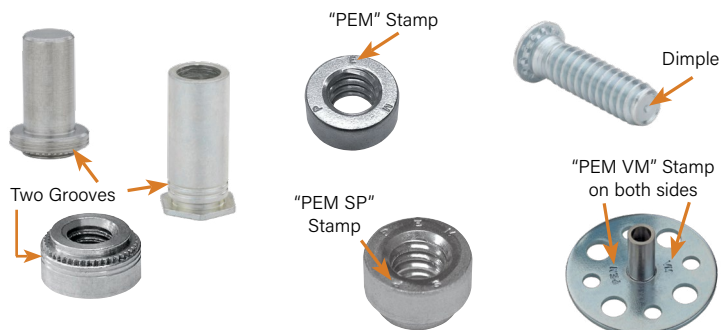
### Base Plate Part Number Designation



### NOTE ABOUT PERFORMANCE

General performance of PEM® fasteners in thin metal panels can be found in their respective PEM® Bulletins. Performance of the assembly (fastener and base plate) mounted to your specific material, in your application will have to be determined by testing. We recommend that you perform testing to be sure it is ideally suited to your application. We will be happy to provide technical assistance and/or samples to you for this purpose.

Look for the trademarks to identify genuine PEM® fasteners.



Drawings and models for parts listed on pages 3, 4 & 5 are available at [www.pemnet.com](http://www.pemnet.com)

## Other PEM® Fastener Types And Sizes Available\*

While we have listed the standard offering of assemblies on the charts ([page 3 and 4](#)), other PEM® fasteners can be provided pre-installed into one of the base plates listed on [page 5](#). The charts below give a review of these fastener types. To choose an assembly using one of these fasteners, simply create a part number as described on [page 2](#).

| PEM® Fastener Types         | Standard Size Codes                                      |
|-----------------------------|----------------------------------------------------------|
| <b>Self-clinching Nuts</b>  |                                                          |
| BS                          | 440 / 632 / 832 / 032 / M3 / M4 / M5                     |
| CLS                         | 256 / 348 / 440 / 632 / 832 / M2 / M2.5 / M3 / M3.5 / M4 |
| CLSS                        | 024 / 032 / M5                                           |
| LK, LKS                     | 440 / M3                                                 |
| PL, PLC                     | M3                                                       |
| S                           | 256 / 348 / M2 / M2.5 / M3.5                             |
| SL                          | 440 / 632 / 832 / 032 / M3 / M3.5 / M4 / M5              |
| SP                          | 256 / 024                                                |
| SS                          | 024                                                      |
| <b>Self-clinching Studs</b> |                                                          |
| FH                          | 024 / Non-threaded                                       |
| <b>FH4</b>                  | 832 / 032 / 0420 / M4 / M5 / M6                          |
| FHS                         | 832 / 024 / 032 / 0420<br>M4 / M5 / M6 / Non-threaded    |
| HFE                         | 032 / 0420 / M5 / M6                                     |
| HFH, HFHS                   | 0420 / M6                                                |

| PEM® Fastener Types                | Standard Size Codes                                 |
|------------------------------------|-----------------------------------------------------|
| <b>Self-clinching Standoffs</b>    |                                                     |
| BS0, BS0S, <b>BS04</b>             | 440 / 632 / 6440 / M3 / 3.5M3 / M3.5                |
| DS0, DS0S                          | 440 / M3                                            |
| SO, <b>SO4</b>                     | 6440 / 3.5M3 / M3.5 / Non-threaded                  |
| SOS                                | 440 / 632 / 6440 / 3.5M3 / M3 / M3.5 / Non-threaded |
| SOSG                               | 6440 / 3.5M3                                        |
| SSC, SSS                           | 156 / 4MM                                           |
| <b>Panel Fasteners</b>             |                                                     |
| N10                                | 440 / 632 / 832 / M3                                |
| PF11, PF12, PF11M, PF12M           | 632                                                 |
| <b>PF11MF, PF12MF</b>              | 440 / M3                                            |
| <b>PF11MW, PF12MW</b>              | 440 / M3                                            |
| PF11PM                             | 632                                                 |
| PF30                               | 832                                                 |
| PF31, PF32                         | 832 / M4                                            |
| PF50, PF51, PF52, PF60, PF61, PF62 | 832 / M4                                            |
| PF7M                               | 632                                                 |
| <b>PF7MF</b>                       | 440 / M3                                            |
| SCB, SCBJ                          | M4                                                  |
| SCBR                               | 832 / M4                                            |

Types shown in bold italics can be installed into stainless steel base plates. Other types are not recommended for installation into stainless steel base plates.



\* Other fasteners, base plate configurations and assemblies are available on special order. For questions, please contact our global technical support team using the contact information listed at the bottom of this page. Appropriate minimum quantities may apply.

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.



**North America:** Danboro, Pennsylvania USA | E-mail: [info@pemnet.com](mailto:info@pemnet.com) | Tel: +1-215-766-8853 | 800-237-4736 (USA)  
**Europe:** Galway, Ireland | E-mail: [europa@pemnet.com](mailto:europa@pemnet.com) | Tel: +353-91-751714  
**Asia/Pacific:** Singapore | E-mail: [singapore@pemnet.com](mailto:singapore@pemnet.com) | Tel: +65-6-745-0660  
**Kunshan, China:** E-mail: [salesgreaterchina@pemnet.com](mailto:salesgreaterchina@pemnet.com) | Tel: +86-512-5276-9300  
 Visit our PEMNET™ Resource Center at [www.pemnet.com](http://www.pemnet.com) • Technical support e-mail: [techsupport@pemnet.com](mailto:techsupport@pemnet.com)