



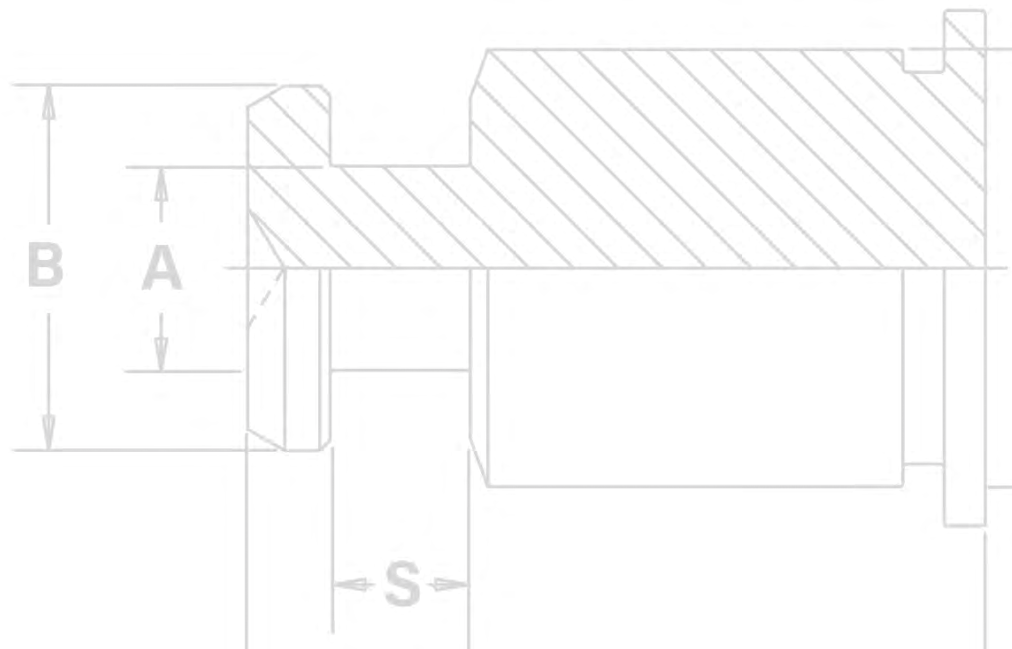
PEM® KEYHOLE® fasteners are designed for quick panel attachment and reduction of loose hardware.

NEW - SKS-R™ Fasteners
Provide high side-load in verticle component mounting applications



SK™

**SELF-CLINCHING
KEYHOLE® FASTENERS**

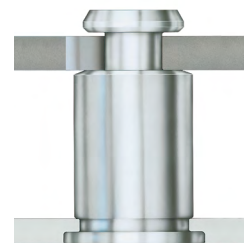


KEYHOLE® STANDOFFS AND FASTENERS

PEM® KEYHOLE® Standoffs and sheet joining fasteners are designed so that a PC board or panel can be quickly slipped into place and then removed from an assembly by simply sliding the board sideways and lifting it off. These standoffs and fasteners can save valuable time and dramatically reduce the amount of loose hardware required.

SKC™/SK4™ standoffs can be used for spacing or mounting of replaceable components. Typically, several standoffs are used with one standard PEM® threaded standoff which accepts a screw to secure the board or component against any unwanted movement.

- Allow detachable spacing of two sheets
- Clinch feature mounts fastener permanently and flush into metal sheet
- Unique barrel design allows for quick attachment and detachment
- Makes horizontal or vertical component mounting possible
- SK4™ standoffs are available for installation into stainless steel sheets



SKC-F™/SK4-F™/SKS-R™ fasteners are designed so that two sheets can be quickly joined flat against each other. Typically, several fasteners are used with one standard PEM® threaded F™ flush nut ([PEM® Bulletin F](#)) which accepts a screw to secure the sheets against any unwanted movement.

- Allow detachable spacing of two sheets
- Clinch feature mounts fastener permanently and flush or sub-flush into metal sheet
- Unique barrel design allows for quick "panel-on-panel" attachment and detachment
- Can be clinched into blind hole where concealed head is required
- Makes horizontal or vertical component mounting possible
- SK4-F™ fasteners are available for installation into stainless steel sheets
- SKS-R™ fasteners are designed to provide high side-load in vertical component mounting applications
- SKS-R™ fasteners are available for various top sheet thicknesses and hole sizes



SKC-F™/SK4-F™ Fasteners



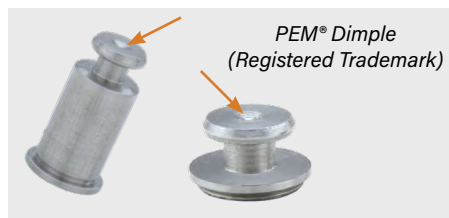
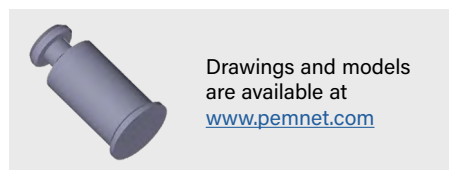
SKS-R™ Fasteners



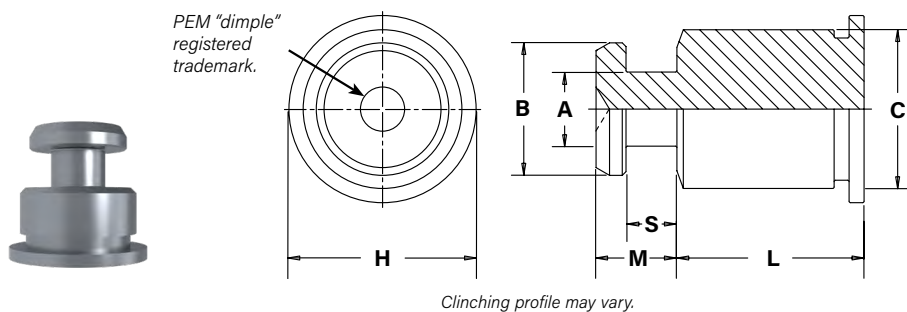
SKC™/SK4™ Standoffs



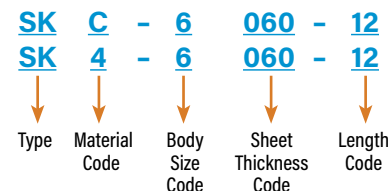
SKC-F™/SK4-F™ Fasteners



SKC™/SK4™ STANDOFF DIMENSIONAL DATA



PART NUMBER DESIGNATION



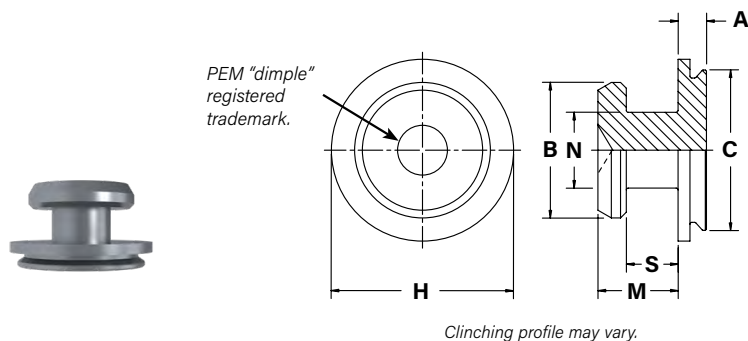
All dimensions are in inches.

| UNIFIED | Type | | Body Size - Sheet Code | Length "L" ± .005 (Length Code in 32nds of an inch) | | | | | | | | | | | | | A | B | C | S | M | H |
|---------|----------------------------|----------------------------|------------------------|--|------|------|------|------|------|------|------|------|------|------|------|------|--------|--------|------|--------|------|------|
| | 300 Series Stainless Steel | 400 Series Stainless Steel | | .063 | .125 | .188 | .250 | .312 | .375 | .437 | .500 | .562 | .625 | .750 | .875 | 1.00 | ± .003 | ± .003 | Max. | ± .003 | Max. | Nom. |
| | SKC | SK4 | 6060 | 2 | 4 | 6 | 8 | 10 | 12 | 14 | 16 | 18 | 20 | 24 | 28 | 32 | .099 | .177 | .212 | .068 | .108 | .250 |

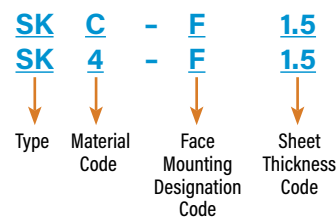
All dimensions are in millimeters.

| METRIC | Type | | Body Size - Sheet Code | Length "L" ± 0.13 (Length Code in millimeters) | | | | | | | | | | | | | A | B | C | S | M | H |
|--------|--------------------------------|--------------------------------|------------------------|---|---|---|---|----|----|----|----|----|----|----|----|--------|--------|------|--------|------|------|---|
| | 300 Series Stainless Steel (1) | 400 Series Stainless Steel (2) | | 2 | 4 | 6 | 8 | 10 | 12 | 14 | 16 | 18 | 20 | 22 | 25 | ± 0.08 | ± 0.08 | Max. | ± 0.08 | Max. | Nom. | |
| | SKC | SK4 | 61.5 | 2 | 4 | 6 | 8 | 10 | 12 | 14 | 16 | 18 | 20 | 22 | 25 | 2.51 | 4.5 | 5.39 | 1.73 | 2.75 | 6.35 | |

SKC-F™/SK4-F™ FASTENER DIMENSIONAL DATA



PART NUMBER DESIGNATION



All dimensions are in inches.

| UNIFIED | Type | | Face Mounting Designation Code | Top Sheet Thickness Code | A | B | C | H | M | N | S |
|---------|----------------------------|----------------------------|--------------------------------|--------------------------|------|--------|------|------|------|--------|--------|
| | 300 Series Stainless Steel | 400 Series Stainless Steel | | | Max. | ± .003 | Max. | Nom. | Max. | ± .003 | ± .003 |
| | SKC | SK4 | F | 1.5 | .039 | .177 | .212 | .237 | .108 | .099 | .068 |

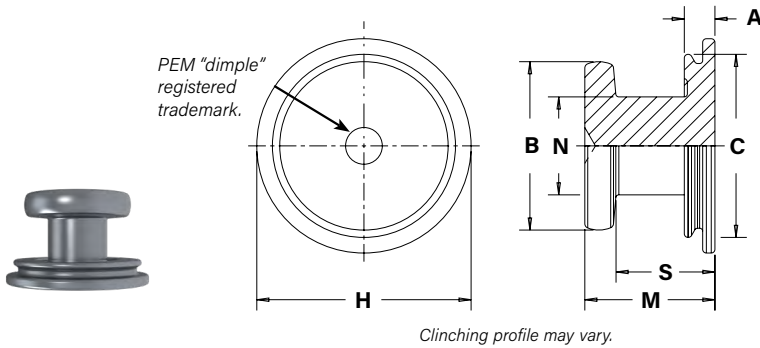
All dimensions are in millimeters.

| METRIC | Type | | Face Mounting Designation Code | Top Sheet Thickness Code | A | B | C | H | M | N | S |
|--------|----------------------------|----------------------------|--------------------------------|--------------------------|------|--------|------|------|------|--------|--------|
| | 300 Series Stainless Steel | 400 Series Stainless Steel | | | Max. | ± 0.08 | Max. | Nom. | Max. | ± 0.08 | ± 0.08 |
| | SKC | SK4 | F | 1.5 | 1 | 4.5 | 5.39 | 6.02 | 2.75 | 2.5 | 1.73 |

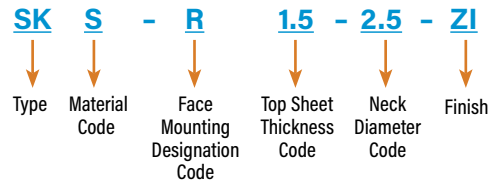


NEW

SKS-R™ FASTENER DIMENSIONAL DATA



PART NUMBER DESIGNATION



All dimensions are in inches.

| UNIFIED | Type | Face Mounting Designation Code | Top Sheet Thickness Code | Neck Diameter Code | A (Shank) Max. | B ±.003 | C Max. | H Nom. | M Max. | N ±.003 | S +.003 - .008 |
|---------|----------------|--------------------------------|--------------------------|--------------------|----------------|---------|--------|--------|--------|---------|----------------|
| | Hardened Steel | | | | | | | | | | |
| UNIFIED | SKS | R | 1.5 | 2.5 | .039 | .177 | .212 | .236 | .148 | .099 | .107 |
| | | | | 3.2 | | .217 | .235 | .276 | | .126 | |
| | | | | 4.0 | | .256 | .275 | .307 | | .157 | |
| | SKS | R | 2 | 2.5 | .039 | .177 | .212 | .236 | .167 | .099 | .127 |
| | | | | 3.2 | | .217 | .235 | .276 | | .126 | |
| | | | | 4.0 | | .256 | .275 | .307 | | .157 | |
| | SKS | R | 2.5 | 2.5 | .039 | .177 | .212 | .236 | .187 | .099 | .147 |
| | | | | 3.2 | | .217 | .235 | .276 | | .126 | |
| | | | | 4.0 | | .256 | .275 | .307 | | .157 | |

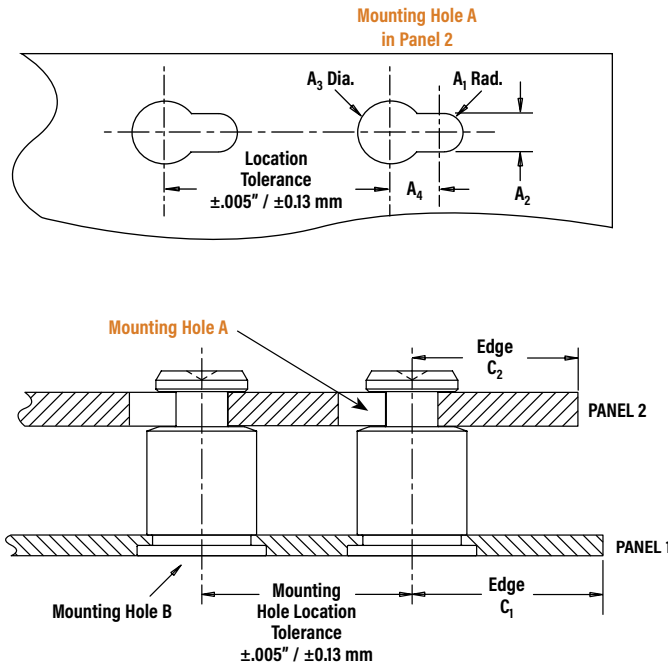
All dimensions are in millimeters.

| MILLIMETERS | Type | Face Mounting Designation Code | Top Sheet Thickness Code | Neck Diameter Code | A (Shank) Max. | B ±0.08 | C Max. | H Nom. | M Max. | N ±0.08 | S +0.08 -0.21 |
|-------------|----------------|--------------------------------|--------------------------|--------------------|----------------|---------|--------|--------|--------|---------|---------------|
| | Hardened Steel | | | | | | | | | | |
| MILLIMETERS | SKS | R | 1.5 | 2.5 | 1 | 4.5 | 5.39 | 6 | 3.75 | 2.5 | 2.73 |
| | | | | 3.2 | | 5.5 | 5.98 | 7 | | 3.2 | |
| | | | | 4.0 | | 6.5 | 6.98 | 7.8 | | 4 | |
| | SKS | R | 2 | 2.5 | 1 | 4.5 | 5.39 | 6 | 4.25 | 2.5 | 3.23 |
| | | | | 3.2 | | 5.5 | 5.98 | 7 | | 3.2 | |
| | | | | 4.0 | | 6.5 | 6.98 | 7.8 | | 4 | |
| | SKS | R | 2.5 | 2.5 | 1 | 4.5 | 5.39 | 6 | 4.75 | 2.5 | 3.73 |
| | | | | 3.2 | | 5.5 | 5.98 | 7 | | 3.2 | |
| | | | | 4.0 | | 6.5 | 6.98 | 7.8 | | 4 | |

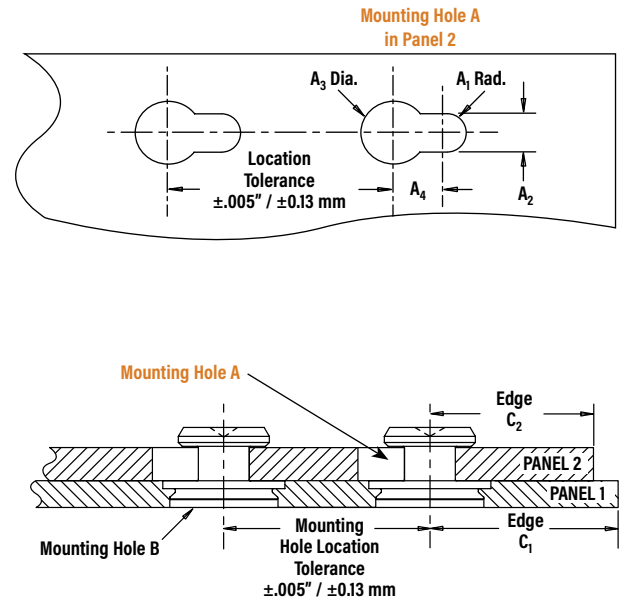


APPLICATION DATA

SKC™/SK4™ STANDOFF



SKC-F™/SK4-F™ FASTENER



All dimensions are in inches.

| UNIFIED | Type | PANEL 1 | | | | PANEL 2 | | | | | | |
|---------|----------|--|----------------------------|----------------------|-----------------------------------|---------------------|----------------------|----------------------|---------------------|----------|-----------------|-----------------------------------|
| | | Bottom Mounting Hole B +.003 -.000 | Sheet Hardness Max. (1) | Min. Sheet Thickness | Edge Distance C ₁ Min. | Top Mounting Hole A | | | | Material | Thickness Range | Edge Distance C ₂ Min. |
| | | | | | | A ₁ Nom. | A ₂ ±.003 | A ₃ ±.003 | A ₄ Min. | | | |
| | SKC-6060 | .213 | HRB 70 / HB 125 | .040 | .260 | .059 | .118 | .197 | .148 | ANY | .057 - .064 | .160 |
| | SK4-6060 | .213 | HRB 88 / HB 183 | .040 | .260 | .059 | .118 | .197 | .148 | ANY | .057 - .064 | .160 |
| | SKC-F1.5 | .213 | HRB 70 / HB 125 | .040 ⁽²⁾ | .150 | .059 | .118 | .197 | .148 | ANY | .057 - .064 | .160 |
| | SK4-F1.5 | .213 | HRB 88 / HB 183 | .040 ⁽²⁾ | .150 | .059 | .118 | .197 | .148 | ANY | .057 - .064 | .160 |

All dimensions are in millimeters.

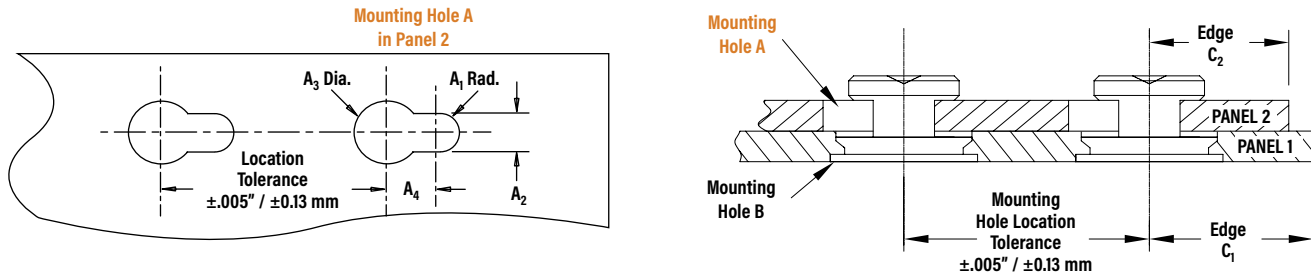
| METRIC | Type | PANEL 1 | | | | PANEL 2 | | | | | | |
|--------|----------|---------------------------------|----------------------------|----------------------|-----------------------------------|---------------------|-----------------------|-----------------------|---------------------|----------|-----------------|-----------------------------------|
| | | Bottom Mounting Hole B +0.08 | Sheet Hardness Max. (1) | Min. Sheet Thickness | Edge Distance C ₁ Min. | Top Mounting Hole A | | | | Material | Thickness Range | Edge Distance C ₂ Min. |
| | | | | | | A ₁ Nom. | A ₂ ± 0.08 | A ₃ ± 0.08 | A ₄ Min. | | | |
| | SKC-61.5 | 5.41 | HRB 70 / HB 125 | 1 | 6.6 | 1.5 | 3 | 5 | 3.75 | ANY | 1.45 - 1.62 | 4.1 |
| | SK4-61.5 | 5.41 | HRB 88 / HB 183 | 1 | 6.6 | 1.5 | 3 | 5 | 3.75 | ANY | 1.45 - 1.62 | 4.1 |
| | SKC-F1.5 | 5.41 | HRB 70 / HB 125 | 1 ⁽²⁾ | 3.8 | 1.5 | 3 | 5 | 3.75 | ANY | 1.45 - 1.62 | 4.1 |
| | SK4-F1.5 | 5.41 | HRB 88 / HB 183 | 1 ⁽²⁾ | 3.8 | 1.5 | 3 | 5 | 3.75 | ANY | 1.45 - 1.62 | 4.1 |

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

(2) SKC-F™/SK4-F™ fasteners may also be installed into a .043" / 1.1 mm minimum depth blind milled hole in a .062" / 1.6 mm minimum sheet thickness.

APPLICATION DATA

SKS-R™ FASTENER



All dimensions are in inches.

| UNIFIED | PANEL 1 | | | | PANEL 2 | | | | | | | |
|-----------------|---------|--------------------------------------|-------------------------|-----------------|-----------------------------------|---------------------|----------------------|----------------------|---------------------|----------|----------------|-----------------------------------|
| | Type | Bottom Mounting Hole B +.003-.000 | Sheet Hardness Max. (1) | Thickness Range | Edge Distance C ₁ Min. | Top Mounting Hole A | | | | Material | Thickness Max. | Edge Distance C ₂ Min. |
| | | | | | | A ₁ Nom. | A ₂ ±.003 | A ₃ ±.003 | A ₄ Min. | | | |
| SKS-R1.5-2.5-ZI | .213 | HRB 80 / HB 150 | .040 - .047 | .236 | .059 | .118 | .197 | .148 | ANY | .060 | .160 | |
| SKS-R1.5-3.2-ZI | .236 | HRB 80 / HB 150 | .040 - .047 | .236 | .073 | .146 | .236 | .181 | ANY | .060 | .201 | |
| SKS-R1.5-4.0-ZI | .276 | HRB 80 / HB 150 | .040 - .047 | .236 | .089 | .177 | .276 | .217 | ANY | .060 | .240 | |
| SKS-R2.0-2.5-ZI | .213 | HRB 80 / HB 150 | .040 - .047 | .236 | .059 | .118 | .197 | .148 | ANY | .080 | .160 | |
| SKS-R2.0-3.2-ZI | .236 | HRB 80 / HB 150 | .040 - .047 | .236 | .073 | .146 | .236 | .181 | ANY | .080 | .201 | |
| SKS-R2.0-4.0-ZI | .276 | HRB 80 / HB 150 | .040 - .047 | .236 | .089 | .177 | .276 | .217 | ANY | .080 | .240 | |
| SKS-R2.5-2.5-ZI | .213 | HRB 80 / HB 150 | .040 - .047 | .236 | .059 | .118 | .197 | .148 | ANY | .100 | .160 | |
| SKS-R2.5-3.2-ZI | .236 | HRB 80 / HB 150 | .040 - .047 | .236 | .073 | .146 | .236 | .181 | ANY | .100 | .201 | |
| SKS-R2.5-4.0-ZI | .276 | HRB 80 / HB 150 | .040 - .047 | .236 | .089 | .177 | .276 | .217 | ANY | .100 | .240 | |

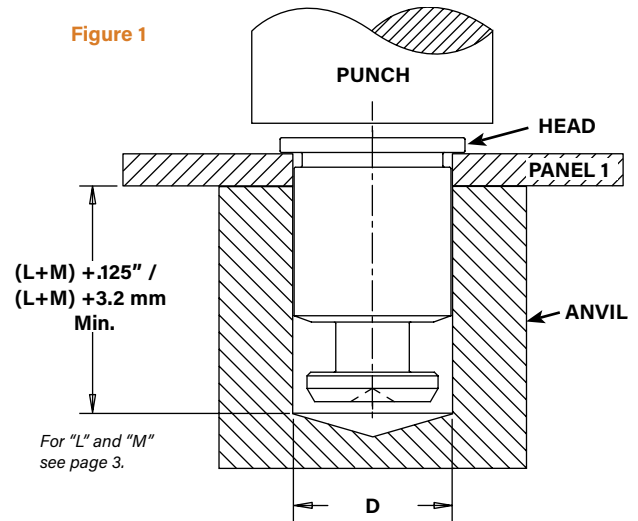
All dimensions are in millimeters.

| MILLIMETERS | PANEL 1 | | | | PANEL 2 | | | | | | | |
|-----------------|---------|----------------------------------|-------------------------|-----------------|-----------------------------------|---------------------|-----------------------|-----------------------|---------------------|----------|----------------|-----------------------------------|
| | Type | Bottom Mounting Hole B + 0.08 | Sheet Hardness Max. (1) | Thickness Range | Edge Distance C ₁ Min. | Top Mounting Hole A | | | | Material | Thickness Max. | Edge Distance C ₂ Min. |
| | | | | | | A ₁ Nom. | A ₂ ± 0.08 | A ₃ ± 0.08 | A ₄ Min. | | | |
| SKS-R1.5-2.5-ZI | 5.41 | HRB 80 / HB 150 | 1 - 1.19 | 6 | 1.5 | 3 | 5 | 3.75 | ANY | 1.54 | 4.1 | |
| SKS-R1.5-3.2-ZI | 6 | HRB 80 / HB 150 | 1 - 1.19 | 6 | 1.85 | 3.7 | 6 | 4.6 | ANY | 1.54 | 5.1 | |
| SKS-R1.5-4.0-ZI | 7 | HRB 80 / HB 150 | 1 - 1.19 | 6 | 2.25 | 4.5 | 7 | 5.5 | ANY | 1.54 | 6.1 | |
| SKS-R2.0-2.5-ZI | 5.41 | HRB 80 / HB 150 | 1 - 1.19 | 6 | 1.5 | 3 | 5 | 3.75 | ANY | 2.04 | 4.1 | |
| SKS-R2.0-3.2-ZI | 6 | HRB 80 / HB 150 | 1 - 1.19 | 6 | 1.85 | 3.7 | 6 | 4.6 | ANY | 2.04 | 5.1 | |
| SKS-R2.0-4.0-ZI | 7 | HRB 80 / HB 150 | 1 - 1.19 | 6 | 2.25 | 4.5 | 7 | 5.5 | ANY | 2.04 | 6.1 | |
| SKS-R2.5-2.5-ZI | 5.41 | HRB 80 / HB 150 | 1 - 1.19 | 6 | 1.5 | 3 | 5 | 3.75 | ANY | 2.54 | 4.1 | |
| SKS-R2.5-3.2-ZI | 6 | HRB 80 / HB 150 | 1 - 1.19 | 6 | 1.85 | 3.7 | 6 | 4.6 | ANY | 2.54 | 5.1 | |
| SKS-R2.5-4.0-ZI | 7 | HRB 80 / HB 150 | 1 - 1.19 | 6 | 2.25 | 4.5 | 7 | 5.5 | ANY | 2.54 | 6.1 | |

INSTALLATION

SKC™/SK4™ STANDOFFS

1. Prepare properly sized mounting hole in Panel 1.
2. Place the fastener through (punched side of) the mounting hole and into anvil as shown in figure 1.
3. With installation punch and anvil surfaces parallel, apply only enough squeezing force to embed the head flush with the panel.



PEMSERTER® Installation Tooling

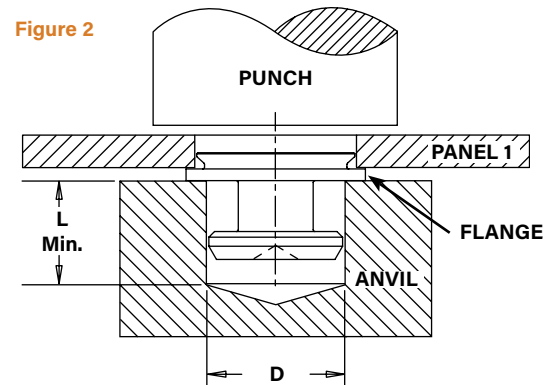
| UNIFIED | Body Size Sheet Code | Anvil Dimension (in.) | | Anvil Part Number | Punch Part Number |
|---------|----------------------|-----------------------|--------------|-------------------|-------------------|
| | | D | +0.003 -.000 | | |
| | 6060 | .216 | | 970200012300 | 975200048 |

| METRIC | Body Size Sheet Code | Anvil Dimension (mm) | | Anvil Part Number | Punch Part Number |
|--------|----------------------|----------------------|-------|-------------------|-------------------|
| | | D | +0.08 | | |
| | 61.5 | 5.49 | | 970200012300 | 975200048 |

SKC-F™/SK4-F™ FASTENERS

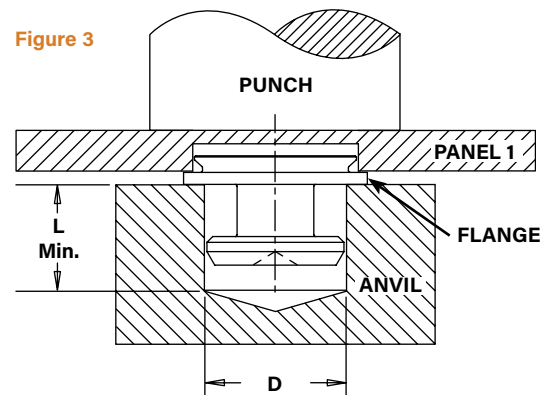
Through Hole Installation Procedure

1. Prepare properly sized mounting hole in Panel 1.
2. Place the fastener into anvil hole as shown in Figure 2.
3. Place the (punch side of) mounting hole over the shank of the fastener.
4. With installation punch and anvil surfaces parallel, apply only enough squeezing force until flange is flush with panel.



Blind Hole Installation Procedure

1. Mill a properly sized blind hole into Panel 1 to .043"/1.1 mm minimum depth.
2. Place the fastener into anvil hole as shown in Figure 3.
3. Place the panel mounting hole over the shank of the fastener.
4. With installation punch and anvil surfaces parallel, apply only enough squeezing force to embed the flange flush with the panel.



PEMSERTER® Installation Tooling

| UNIFIED | Sheet Thickness Code | Anvil Dimensions (in.) | | Anvil Part Number | Punch Part Number |
|---------|----------------------|------------------------|------|-------------------|-------------------|
| | | L Min. | D | | |
| | 1.5 | .233 | .184 | 8012608 | 975200048 |

| METRIC | Sheet Thickness Code | Anvil Dimensions (mm) | | Anvil Part Number | Punch Part Number |
|--------|----------------------|-----------------------|------|-------------------|-------------------|
| | | L Min. | D | | |
| | 1.5 | 5.95 | 4.67 | 8012608 | 975200048 |

End Mill Information

Double-ended, two-flute H.S.S. center-cutting end mills are available from stock. PennEngineering does not manufacture center-cutting end mills, but we do keep a supply in stock for your convenience.



| Fastener Type | Required Size End Mill | PEM Part No. |
|---------------|------------------------|--------------|
| SKC-F/SK4-F | .213" | CHM-213 |



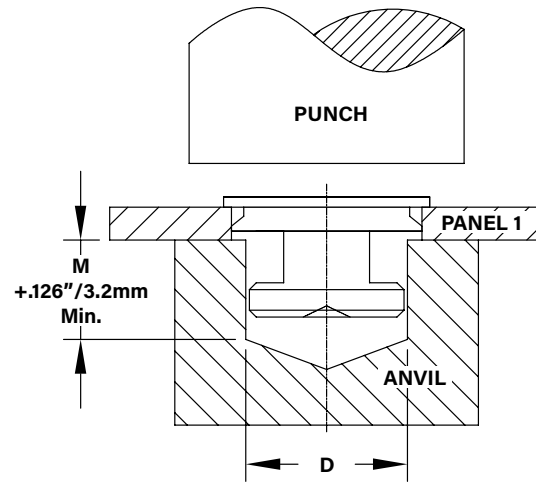
SKS-R™ FASTENERS

1. Prepare properly sized mounting hole in Panel 1.
2. Place the fastener through (punch side of) the mounting hole and into anvil as shown.
3. With installation punch and anvil surfaces parallel, apply only enough squeezing force to embed the head flush with the panel.

PEMSERTER® Installation Tooling

| UNIFIED | Neck Diameter Code | Anvil Dimensions (in.) | | Anvil Part Number | Punch Part Number |
|---------|--------------------|------------------------|---------------|-------------------|-------------------|
| | | D | +0.003 -0.000 | | |
| | 25 | .183 | | 8026244 | 975200048 |
| | 32 | .222 | | 8026245 | |
| | 40 | .262 | | 8026246 | |

| METRIC | Neck Diameter Code | Anvil Dimensions (mm) | | Anvil Part Number | Punch Part Number |
|--------|--------------------|-----------------------|-------|-------------------|-------------------|
| | | D | +0.08 | | |
| | 25 | 4.65 | | 8026244 | 975200048 |
| | 32 | 5.65 | | 8026245 | |
| | 40 | 6.65 | | 8026246 | |



INSTALLATION NOTES

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

MATERIAL AND FINISH SPECIFICATIONS

| Type | Fastener Materials | | | Standard Finish | | For Use in Sheet Hardness: ⁽¹⁾ | | |
|-------------------------------|--------------------|----------------------------|-------------------------------------|--|---|---|-------------------------|-------------------------|
| | Hardened Steel | 300 Series Stainless Steel | Hardened 400 Series Stainless Steel | Passivated and/or Tested per ASTM A380 | Zinc Plated per ASTM B633, SC1 (5um) Type III, Colorless ⁽²⁾ | HRB 88 / HB 183 or less | HRB 80 / HB 150 or less | HRB 70 / HB 125 or less |
| SKC | | ▪ | | ▪ | | | | ▪ |
| SK4 | | | ▪ | ▪ | | ▪ | | |
| SKC-F | | ▪ | | ▪ | | | | ▪ |
| SC4-F | | | ▪ | ▪ | | ▪ | | |
| SKS-R | ▪ | | | | ▪ | | ▪ | |
| Part Number Code For Finishes | | | | None | ZI | | | |

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

(2) See PEM Technical Support section of our web site for related plating standards and specifications.

A NOTE ABOUT 400 SERIES FASTENERS FOR STAINLESS STEEL PANELS

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 400 series fasteners (SK4 and SK4-F) 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 these are issues, please contact techsupport@pemnet.com for other options.

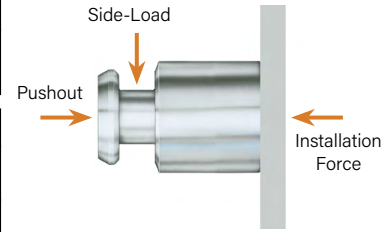
PERFORMANCE DATA⁽¹⁾

SKC™/SK4™ STANDOFFS

Installation and pushout

| Test Sheet Material → | | .060" 5052-H34 Aluminum | | .060" Cold-Rolled Steel | | .060" 300 Series Stainless Steel | |
|-----------------------|------------------------|-------------------------|----------------|-------------------------|----------------|----------------------------------|----------------|
| UNIFIED | Body Size - Sheet Code | Installation (lbs.) | Pushout (lbs.) | Installation (lbs.) | Pushout (lbs.) | Installation (lbs.) | Pushout (lbs.) |
| | SKC-6060 | 1600 | 250 | 3200 | 600 | — | — |
| | SK4-6060 | — | — | — | — | 9015 | 720 |

| Test Sheet Material → | | 1.52 mm 5052-H34 Aluminum | | 1.52 mm Cold-Rolled Steel | | 1.52 mm 300 Series Stainless Steel | |
|-----------------------|------------------------|---------------------------|-------------|---------------------------|-------------|------------------------------------|-------------|
| METRIC | Body Size - Sheet Code | Installation (kN) | Pushout (N) | Installation (kN) | Pushout (N) | Installation (kN) | Pushout (N) |
| | SKC-61.5 | 71 | 1100 | 14.2 | 2600 | — | — |
| | SK4-61.5 | — | — | — | — | 40.1 | 3200 |



SKC™/SK4™ STANDOFFS

Side-load

| | | Test Sheet Thick. → | .040" ⁽²⁾ | | .060" | | | | | | | | | | |
|---------|------------------------|----------------------------|-----------------------------|-----|-------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| UNIFIED | Body Size - Sheet Code | Test Sheet Material | Length Codes | | | | | | | | | | | | |
| | | | -2 | -4 | -6 | -8 | -10 | -12 | -14 | -16 | -18 | -20 | -24 | -28 | -32 |
| | | | Side-Load Force Max. (lbs.) | | | | | | | | | | | | |
| | SKC-6060 | 5052-H34 Aluminum | 130 | 95 | 82 | 63 | 52 | 44 | 38 | 34 | 30 | 27 | 22 | 19 | 17 |
| | SKC-6060 | Cold-Rolled Steel | 185 | 120 | 197 | 153 | 126 | 106 | 92 | 81 | 71 | 66 | 55 | 47 | 42 |
| | SK4-6060 | 300 Series Stainless Steel | 400 | 300 | 220 | 180 | 160 | 140 | 120 | 110 | 100 | 100 | 80 | 70 | 50 |

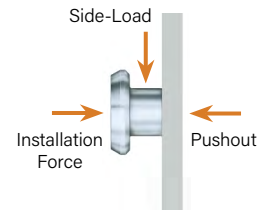
| | | Test Sheet Thick. → | 1 mm ⁽²⁾ | | 1.52 mm | | | | | | | | | | |
|--------|------------------------|----------------------------|--------------------------|------|---------|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| METRIC | Body Size - Sheet Code | Test Sheet Material | Length Codes | | | | | | | | | | | | |
| | | | -2 | -4 | -6 | -8 | -10 | -12 | -14 | -16 | -18 | -20 | -22 | -25 | |
| | | | Side-Load Force Max. (N) | | | | | | | | | | | | |
| | SKC-61.5 | 5052-H34 Aluminum | 545 | 370 | 296 | 228 | 184 | 156 | 136 | 116 | 104 | 96 | 88 | 76 | |
| | SKC-61.5 | Cold-Rolled Steel | 735 | 490 | 696 | 540 | 440 | 372 | 320 | 280 | 252 | 228 | 208 | 184 | |
| | SK4-61.5 | 300 Series Stainless Steel | 1690 | 1140 | 860 | 710 | 610 | 540 | 480 | 440 | 400 | 380 | 320 | 250 | |

SKC-F™/SK4-F™ FASTENERS

Installation, Pushout and Side-load

| Test Sheet Material → | | .060" 5052-H34 Aluminum | | | .060" Cold-Rolled Steel | | | .060" 300 Series Stainless Steel | | | |
|-----------------------|------|-------------------------|----------------|-----------------------------|-------------------------|----------------|-----------------------------|----------------------------------|----------------|-----------------------------|-----|
| UNIFIED | Type | Installation (lbs.) | Pushout (lbs.) | Side-Load Force Max. (lbs.) | Installation (lbs.) | Pushout (lbs.) | Side-Load Force Max. (lbs.) | Installation (lbs.) | Pushout (lbs.) | Side-Load Force Max. (lbs.) | |
| | | SKC-F | 1100 | 120 | 120 | 2100 | 160 | 185 | — | — | — |
| | | SK4-F | — | — | — | — | — | — | 10210 | 292 | 202 |

| Test Sheet Material → | | 1.52 mm 5052-H34 Aluminum | | | 1.52 mm Cold-Rolled Steel | | | 1.52 mm 300 Series Stainless Steel | | | |
|-----------------------|------|---------------------------|-------------|--------------------------|---------------------------|-------------|--------------------------|------------------------------------|-------------|--------------------------|-----|
| METRIC | Type | Installation (kN) | Pushout (N) | Side-Load Force Max. (N) | Installation (kN) | Pushout (N) | Side-Load Force Max. (N) | Installation (kN) | Pushout (N) | Side-Load Force Max. (N) | |
| | | SKC-F | 4.9 | 533 | 533 | 9.3 | 711 | 822 | — | — | — |
| | | SK4-F | — | — | — | — | — | — | 45.4 | 1300 | 900 |



(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) .040" / 1 mm test sheet material thickness was used for the -2 and -4 SKC/SK4 standoffs due to the short length of the parts.

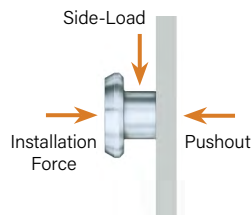
PERFORMANCE DATA

SKS-R™ FASTENERS

Installation, Pushout and Side-load

| Test Sheet Material → | | .040" Cold-Rolled Steel HRB 67 | | |
|-----------------------|-----------------|--------------------------------|----------------|-----------------------------|
| UNIFIED | Type | Installation (lbs.) | Pushout (lbs.) | Side-Load Force Max. (lbs.) |
| | SKS-R1.5-2.5-ZI | 3200 | 160 | 191 |
| | SKS-R1.5-3.2-ZI | 4000 | 180 | 213 |
| | SKS-R1.5-4.0-ZI | 5000 | 180 | 258 |
| | SKS-R2.0-2.5-ZI | 3200 | 160 | 169 |
| | SKS-R2.0-3.2-ZI | 4000 | 180 | 191 |
| | SKS-R2.0-4.0-ZI | 5000 | 180 | 225 |
| | SKS-R2.5-2.5-ZI | 3200 | 160 | 124 |
| | SKS-R2.5-3.2-ZI | 4000 | 180 | 137 |
| | SKS-R2.5-4.0-ZI | 5000 | 180 | 182 |

| Test Sheet Material → | | 1 mm Cold-Rolled Steel HRB 67 | | |
|-----------------------|-----------------|-------------------------------|-------------|--------------------------|
| METRIC | Type | Installation (kN) | Pushout (N) | Side-Load Force Max. (N) |
| | SKS-R1.5-2.5-ZI | 14.2 | 711 | 850 |
| | SKS-R1.5-3.2-ZI | 17.8 | 800 | 950 |
| | SKS-R1.5-4.0-ZI | 22.3 | 800 | 1150 |
| | SKS-R2.0-2.5-ZI | 14.2 | 711 | 750 |
| | SKS-R2.0-3.2-ZI | 17.8 | 800 | 850 |
| | SKS-R2.0-4.0-ZI | 22.3 | 800 | 1000 |
| | SKS-R2.5-2.5-ZI | 14.2 | 711 | 550 |
| | SKS-R2.5-3.2-ZI | 17.8 | 800 | 610 |
| | SKS-R2.5-4.0-ZI | 22.3 | 800 | 810 |



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