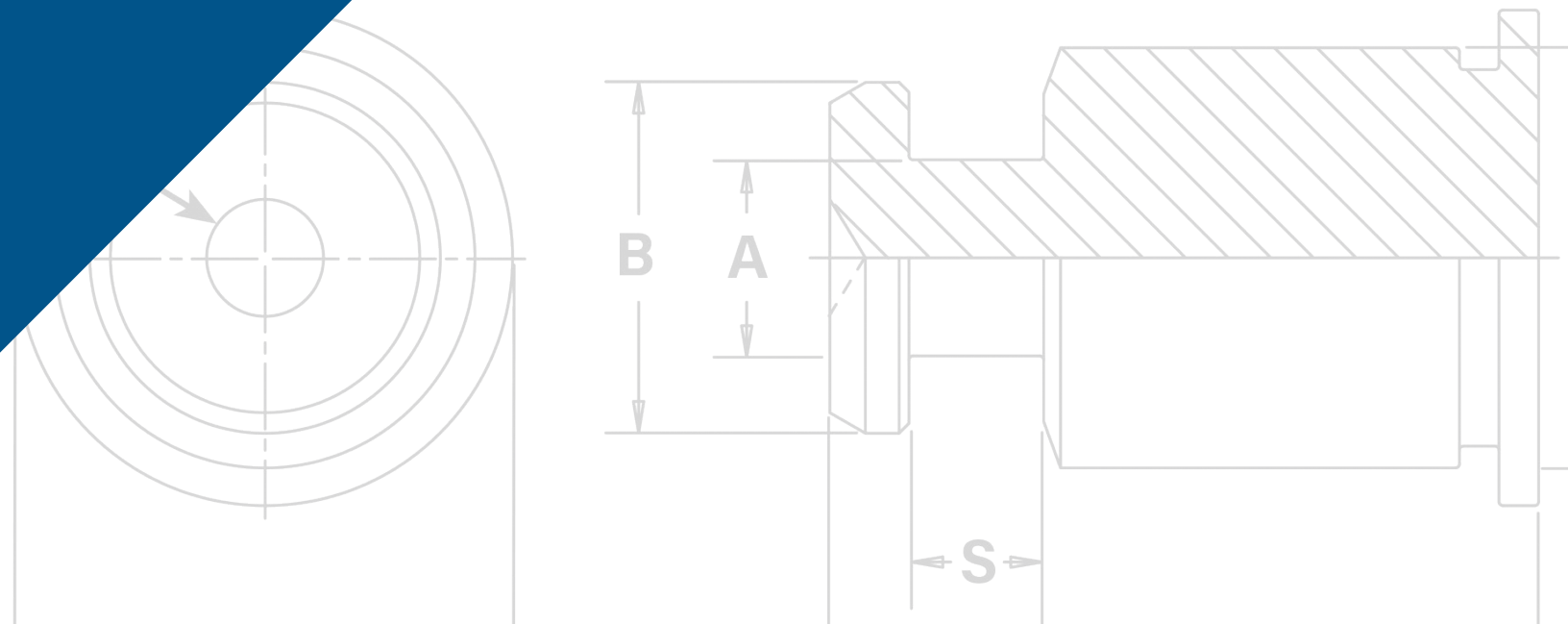
PEM® KEYHOLE® fasteners are designed for quick panel attachment and removal.

SK™

SELF-CLINCHING KEYHOLE® FASTENERS



KEYHOLE® STANDOFFS AND FASTENERS

PEM® SKC™ KEYHOLE® Standoffs and SKC-F™ 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. PEM® KEYHOLE® fasteners can save valuable time and dramatically reduce the amount of loose hardware required. SKC™ standoffs can be used for spacing or mounting of replaceable components. Typically, several SKC™ standoffs are used with one standard PEM® threaded standoff which accepts a screw to secure the board or component against any unwanted movement. SKC-F™ fasteners are designed so that two sheets can be quickly joined flat against each other. Typically, several SKC-F™ 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.

SKC™ Standoffs - 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.

SKC-F™ Fasteners - Allow detachable joining 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.

SKC™ Standoffs

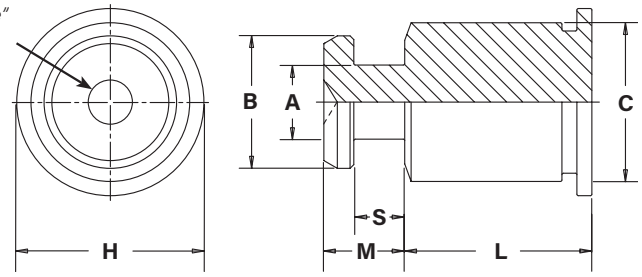
SKC-F™ Fasteners

Drawings and models are available at www.pemnet.com

PEM® Dimple (Registered trademark)

SKC™ STANDOFF DIMENSIONAL DATA

PEM "dimple" registered trademark.



Clinching profile may vary.

PART NUMBER DESIGNATION

SK C - 6 060 - 12

- SK: Type
- C: Material Code
- 6: Body Size Code
- 060: Sheet Thickness Code
- 12: Length Code

All dimensions are in inches.

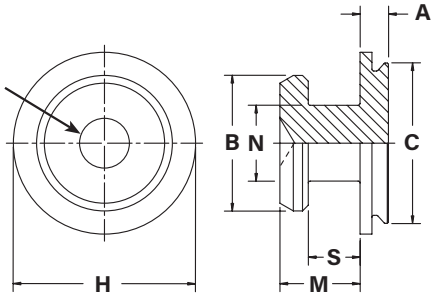
	Type	Body Size - Sheet Code	Length "L" ± .005 (Length Code in 32nds of an inch)													A ± .003	B ± .003	C Max.	S ± .003	M Max.	H Nom.
UNIFIED	Stainless Steel (1)		.063	.125	.188	.250	.312	.375	.437	.500	.562	.625	.750	.875	1.00						
	SKC	6060	2	4	6	8	10	12	14	16	18	20	24	28	32	.099	.177	.212	.068	.108	.250

All dimensions are in millimeters.

	Type	Body Size - Sheet Code	Length "L" ± 0.13 (Length Code in millimeters)											A ± 0.08	B ± 0.08	C Max.	S ± 0.08	M Max.	H Nom.
METRIC	Stainless Steel (1)																		
	SKC	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™ FASTENER DIMENSIONAL DATA

PEM "dimple" registered trademark.



Clinching profile may vary.

PART NUMBER DESIGNATION

SK C - F 1.5

- SK: Type
- C: Material Code
- F: Face Mounting Designation Code
- 1.5: Sheet Thickness Code

All dimensions are in inches.

	Type	Face Mounting Designation Code	Top Sheet Thickness Code	A Max.	B ± .003	C Max.	H Nom.	M Max.	N ± .003	S ±.003
UNIFIED	Stainless Steel (1)									
	SKC	F	1.5	.039	.177	.212	.237	.108	.099	.068

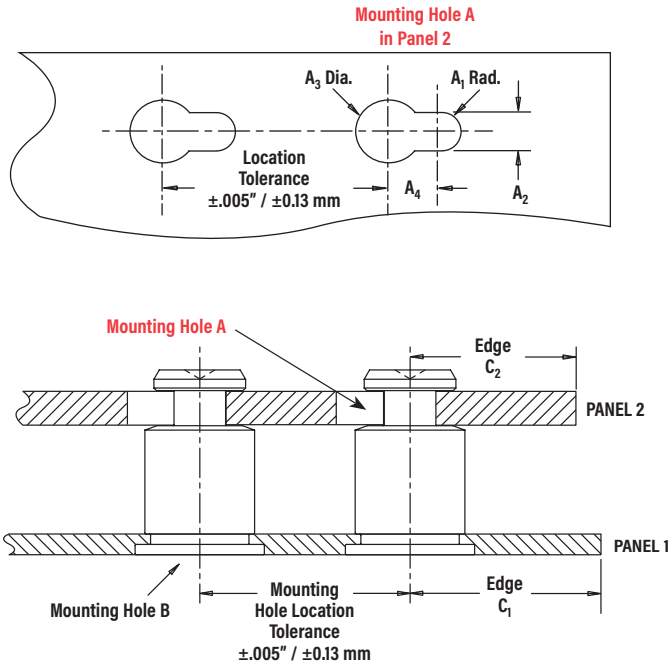
All dimensions are in millimeters.

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

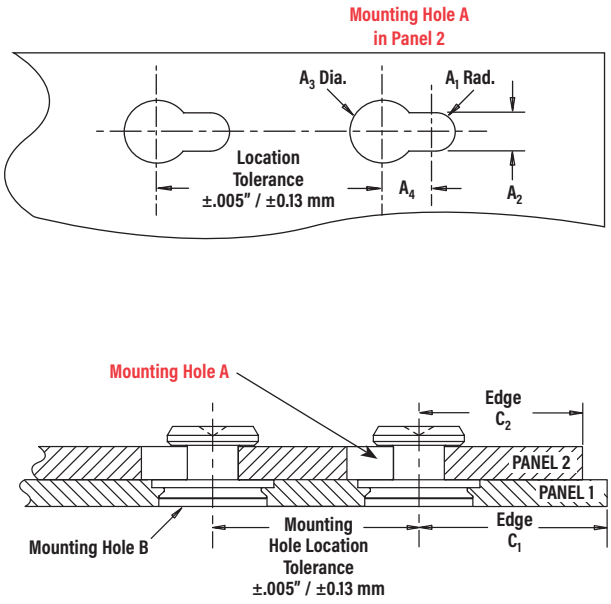
(1) 300 Series stainless steel. Passivated and/or tested per ASTM A380.

APPLICATION DATA

SKC™ STANDOFF



SKC-F™ FASTENER



All dimensions are in inches.

		PANEL 1				PANEL 2						
						Top Mounting Hole A						
	Type	Bottom Mounting Hole B + .003 - .000	Sheet Hardness Max. (1)	Min. Sheet Thickness	Edge Distance C_1 Min.	A_1 Nom.	A_2 ± .003	A_3 ± .003	A_4 Min.	Material	Thickness Range	Edge Distance C_2 Min.
UNIFIED	SKC	.213	HRB 70 / HB 125	.040	.260	.059	.118	.197	.148	ANY	.057 - .064	.160
	SKC-F	.213	HRB 70 / HB 125	.039 (2)	.150	.059	.118	.197	.148	ANY	.057 - .064	.160

All dimensions are in millimeters.

		PANEL 1				PANEL 2						
						Top Mounting Hole A						
	Type	Bottom Mounting Hole B +0.08	Sheet Hardness Max. (1)	Min. Sheet Thickness	Edge Distance C_1 Min.	A_1 Nom.	A_2 ± 0.08	A_3 ± 0.08	A_4 Min.	Material	Thickness Range	Edge Distance C_2 Min.
METRIC	SKC	5.41	HRB 70 / HB 125	1.02	6.6	1.5	3	5	3.75	ANY	1.45 - 1.62	4.1
	SKC-F	5.41	HRB 70 / HB 125	1 (2)	3.8	1.5	3	5	3.75	ANY	1.45 - 1.62	4.1

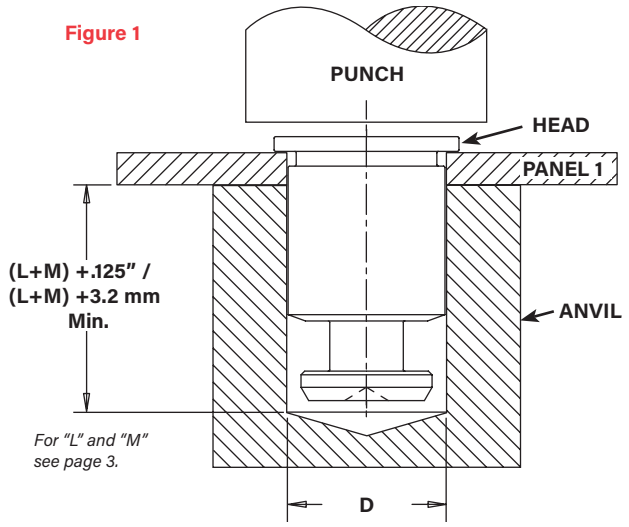
(1) HRB - Hardness Rockwell "B" Scale. HB - Hardness Brinell.
(2) SKC-F™ standoffs may also be installed into a .043" / 1.1 mm minimum depth blind milled hole in a .062" / 1.6 mm minimum sheet thickness.

INSTALLATION

SKC™ 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.

Figure 1



PEMSERTER® Installation Tooling

	Body Size Sheet Code	Anvil Dimension (in.) D +.003 -.000	Anvil Part Number	Punch Part Number
UNIFIED	6060	.216	970200012300	975200048

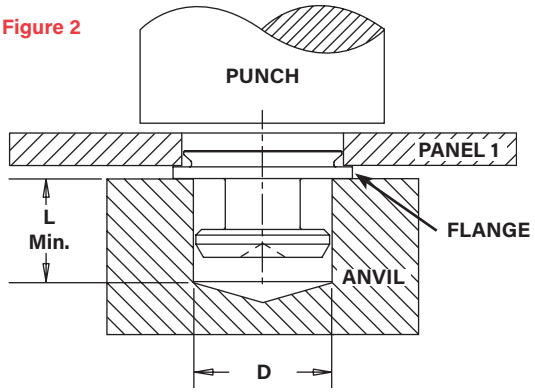
	Body Size Sheet Code	Anvil Dimension (mm) D +0.08	Anvil Part Number	Punch Part Number
METRIC	61.5	5.49	970200012300	975200048

SKC-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.

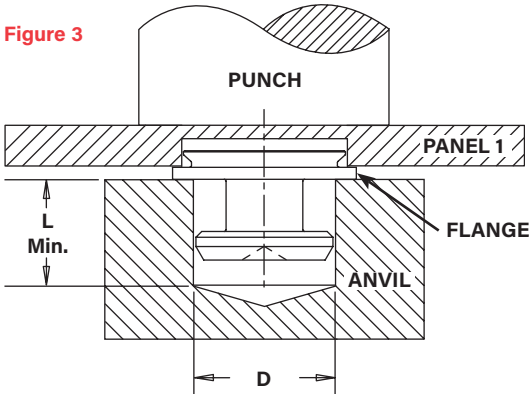
Figure 2



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.

Figure 3



PEMSERTER® Installation Tooling

	Sheet Thickness Code	Anvil Dimensions (in.) L Min.	Anvil Dimensions (in.) D +.003 -.000	Anvil Part Number	Punch Part Number
UNIFIED	1.5	.233	.184	8012608	975200048

	Sheet Thickness Code	Anvil Dimensions (mm) L Min.	Anvil Dimensions (mm) D +0.08	Anvil Part Number	Punch Part Number
METRIC	1.5	5.95	4.67	8012608	975200048

INSTALLATION NOTES

- For best results we recommend using a PEMSERTER® press 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.

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	.213"	CHM-213

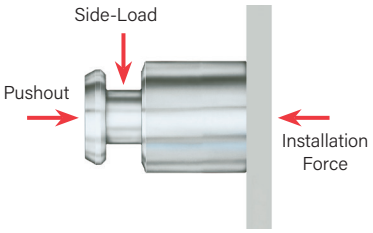
PERFORMANCE DATA(1)

SKC™ STANDOFFS

Installation and Pushout

	Test Sheet Material →	.060" 5052-H34 Aluminum		.060" Cold-Rolled Steel	
UNIFIED	Body Size - Sheet Code	Installation (lbs.)	Pushout (lbs.)	Installation (lbs.)	Pushout (lbs.)
	6060	1600	250	3200	600

	Test Sheet Material →	1.52 mm 5052-H34 Aluminum		1.52 mm Cold-Rolled Steel	
METRIC	Body Size - Sheet Code	Installation (kN)	Pushout (N)	Installation (kN)	Pushout (N)
	61.5	7.1	1100	14.2	2600



Side-Load

	Test Sheet Material →	5052-H34 Aluminum											Cold-Rolled Steel										
	Test Sheet Thick. →	.040" (2)	.060"										.040" (2)	.060"									
UNIFIED	Body Size - Sheet Code	Length Codes											Length Codes										
		-2	-4	-6	-8	-10	-12	-14	-16	-20	-24	-32	-2	-4	-6	-8	-10	-12	-14	-16	-20	-24	-32
		Side-Load Force Max. (lbs.)											Side-Load Force Max. (lbs.)										
	6060	130	95	82	63	52	44	38	34	27	22	17	185	120	197	153	126	106	92	81	66	55	42

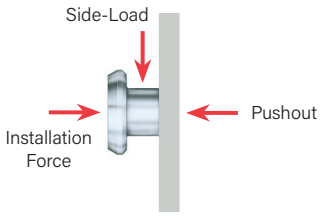
	Test Sheet Material →	5052-H34 Aluminum											Cold-Rolled Steel										
	Test Sheet Thick. →	1 mm (2)	1.5 mm										1 mm (2)	1.5 mm									
METRIC	Body Size - Sheet Code	Length Codes											Length Codes										
		-2	-4	-6	-8	-10	-12	-14	-16	-18	-20	-22	-25	-2	-4	-6	-8	-10	-12	-14	-16	-18	-20	-22	-25
		Side-Load Force Max. (N)											Side-Load Force Max. (N)										
	61.5	545	370	296	228	184	156	136	116	104	96	88	76	735	490	696	540	440	372	320	280	252	228	208	184

SKC-F™ FASTENERS

Installation, Pushout and Side-Load

	Test Sheet Material →	.060" 5052-H34 Aluminum			.060" Cold-Rolled Steel		
UNIFIED	Type	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

	Test Sheet Material →	1.52 mm 5052-H34 Aluminum			1.52 mm Cold-Rolled Steel		
METRIC	Type	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



(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 standoffs due to the short length of the parts.

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.

PennEngineering®

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