PEM® brand SNAP-TOP® standoffs are designed for permanent installation into metal panels or PC Boards

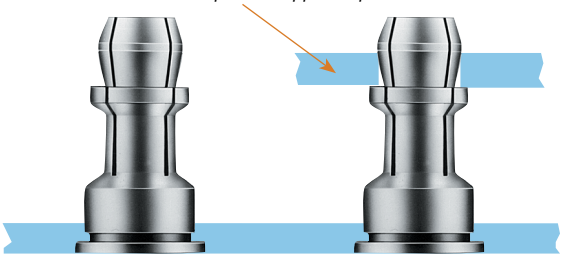
SSA™

SNAP-TOP® STANDOFFS

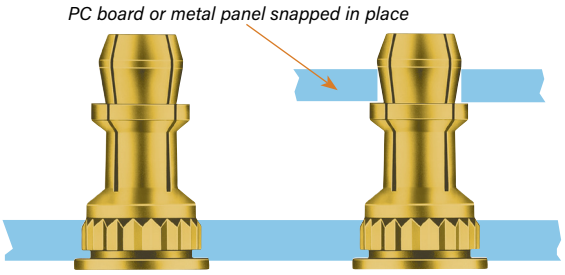
PEM® SNAP-TOP® Standoffs are designed for permanent installation into metal panels or PC boards.

- Spring action to hold PC Boards and subassemblies securely.
- Allows for quick removal.
- Eliminates screws and other threaded hardware.
  - Less parts to handle during assembly.
  - Less risk of damaging delicate circuitry because of loose parts falling into your equipment.
- Available in three different mounting styles:
  - Self-clinching for installation into ductile materials
  - Broaching for installation into PC Board and brittle material.
  - Surface mount for installation to PC Board
- Permanently installed in the panel.

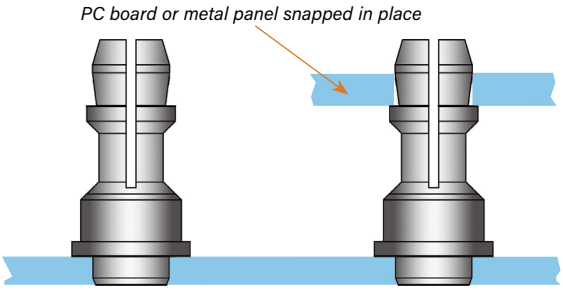
Installation forces, pushout and snap forces are listed on page 7.



*SSA™/SSS™/SSC™ standoffs **clinched** into a metal panel*

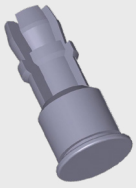


*KSSB™ standoffs **broached** into a PC board*



*SMTSSS™ standoffs **surface mounted** to PC Board*

To be sure that you are getting genuine PEM® brand SNAP-TOP® standoffs, look for the "dimple" registered trademark.



Fastener drawings and models are available at www.pemnet.com

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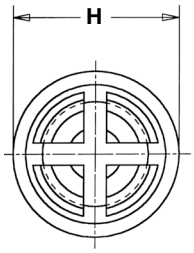
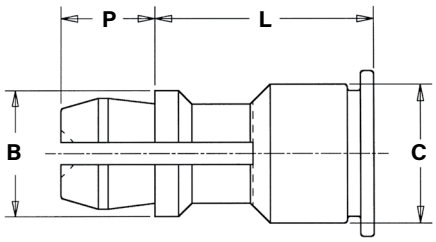
SSA™/SSS™/SSC™ STANDOFFS FOR CLINCHING INTO METAL SHEETS





PART NUMBER DESIGNATION

SS	A	-	156	-	10	
SS	S	-	156	-	10	ZI
SS	C	-	156	-	10	
Type	Material		Mounting Hole A Diameter Code		Length Code	Finish

FASTENER MATERIAL:
SSA: Aluminum
SSS: Carbon Steel
SSC: 400 Series Stainless Steel

FINISH:
SSA: Natural
SSS: ZI - Zinc plated per ASTM B633, SC1 (5µm), Type III, colorless, plus clear chromate (1)
SSC: Passivated and/or tested per ASTM A380

All dimensions are in inches.

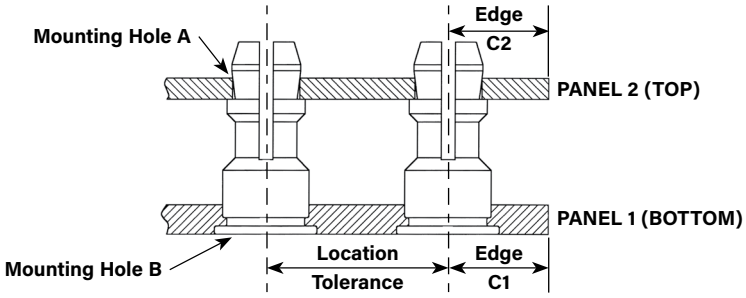
	Type			Panel 2 (Top) Mounting Hole Diameter Code	Length Code "L" ±.005 (Length Code in 32nds of an inch)										B ±.005	C Max.	H ±.005	P ±.005
	Fastener Material				.250	.312	.375	.437	.500	.562	.625	.750	.875	1.00				
UNIFIED	Aluminum	Carbon Steel	Stainless Steel															
	SSA	SSS	SSC	156	8	10	12	14	16	18	20	24	28	32 (2)	.188	.212	.250	.141

All dimensions are in millimeters.

	Type			Panel 2 (Top) Mounting Hole Diameter Code	Length Code "L" ±0.13 (Length Code in millimeters)								B ±0.13	C Max.	H ±0.13	P ±0.13
	Fastener Material															
METRIC	Aluminum	Carbon Steel	Stainless Steel													
	SSA	SSS	SSC	4MM	8	10	12	14	16	18	20	22	25 (2)	4.78	5.39	6.35	3.58

(1) See PEM Technical Support section of our web site for related plating standards and specifications.
(2) This length not available for Type SSA aluminum fasteners.

APPLICATION DATA



All dimensions are in inches.

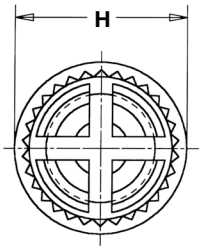
		Panel 1						Panel 2				
	Type	Hardness Max. (2)	Bottom Mounting Hole B +.003 -.000	Panel Material	Thickness Min.	Edge Distance C_1 Min.	Location Tolerance	Hardness Max.	Top Mounting Hole A +.003 -.000	Panel Material	Thickness Range (3)	Edge Distance C_2 Min.
UNIFIED	SSA	HRB 50 / HB 82	.213	Metal	.040	.260	±.005	No Limit	.156	PC Board or Metal	.040 - .070	.100
	SSS	HRB 60 / HB 107										
	SSC	HRB 70 / HB 125										

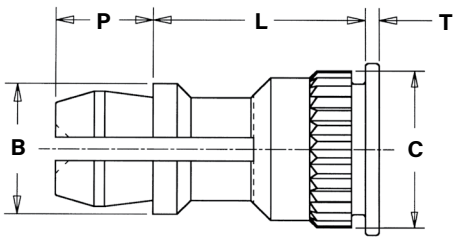
All dimensions are in millimeters.

		Panel 1						Panel 2				
	Type	Hardness Max. (2)	Bottom Mounting Hole B +0.08	Panel Material	Thickness Min.	Edge Distance C_1 Min.	Location Tolerance	Hardness Max.	Top Mounting Hole A +0.08	Panel Material	Thickness Range (3)	Edge Distance C_2 Min.
METRIC	SSA	HRB 50 / HB 82	5.41	Metal	1	6.6	±0.13	No Limit	4	PC Board or Metal	1 - 1.8	2.54
	SSS	HRB 60 / HB 107										
	SSC	HRB 70 / HB 125										

(2) HRB - Hardness Rockwell "B" Scale. HB - Hardness Brinell.
(3) Available for thicker boards on special order.

KSSB™ STANDOFFS FOR BROACHING INTO PC BOARDS





PART NUMBER DESIGNATION

KSS	B	-	156	-	10	X
Type	Material		Mounting Hole A Diameter Code		Length Code	Finish

FASTENER MATERIAL:
Brass

FINISH:
Standard: X - Plain
Optional: ET - Electro-plated Tin, ASTM B545 Class B (5µm) with preservative coating, annealed (1)
(Optional ET finish is available on special order with additional charge.)

All dimensions are in inches.

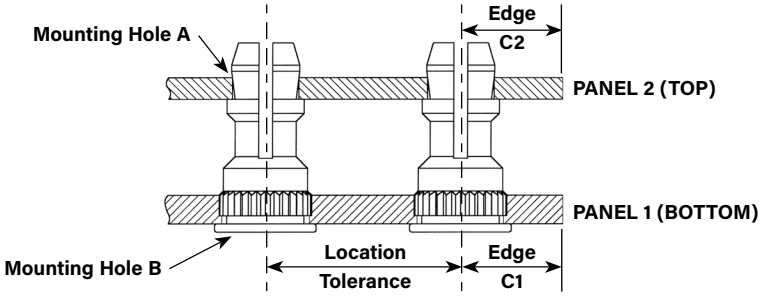
	Type	Panel 2 (Top) Mounting Hole Diameter Code	Length Code "L" ±.005 (Length Code in 32nds of an inch)									B ±.005	C ±.003	H ±.005	P ±.005	T ±.005
			.250	.312	.375	.437	.500	.562	.625	.750	.875	1.00					
UNIFIED	KSSB	156	8	10	12	14	16	18	20	24	28	32	.188	.226	.250	.141	.020

All dimensions are in millimeters.

	Type	Panel 2 (Top) Mounting Hole Diameter Code	Length Code "L" ±0.13 (Length Code in millimeters)									B ±0.13	C ±0.08	H ±0.13	P ±0.13	T ±0.13
METRIC	KSSB	4MM	8	10	12	14	16	18	20	22	25	4.78	5.74	6.35	3.58	0.51

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

APPLICATION DATA



All dimensions are in inches.

		Panel 1						Panel 2				
	Type	Hardness Max. (2)	Bottom Mounting Hole B +.003 -.000	Panel Material	Thickness Min.	Edge Distance C_1 Min.	Location Tolerance	Hardness Max.	Top Mounting Hole A +.003 -.000	Panel Material	Thickness Range (3)	Edge Distance C_2 Min.
UNIFIED	KSSB	HRB 65 / HB 116	.213	PC Board	.050	.220	±.005	No Limit	.156	PC Board or Metal	.040 - .070	.100

All dimensions are in millimeters.

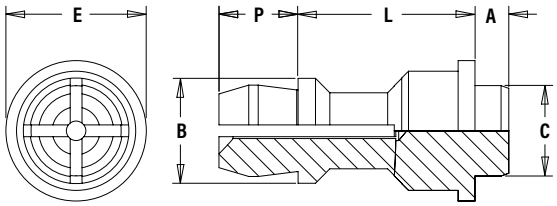
		Panel 1						Panel 2				
	Type	Hardness Max. (2)	Bottom Mounting Hole B +0.08	Panel Material	Thickness Min.	Edge Distance C_1 Min.	Location Tolerance	Hardness Max.	Top Mounting Hole A +0.08	Panel Material	Thickness Range (3)	Edge Distance C_2 Min.
METRIC	KSSB	HRB 65 / HB 116	5.41	PC Board	1.27	5.59	±0.13	No Limit	4	PC Board or Metal	1 - 1.8	2.54

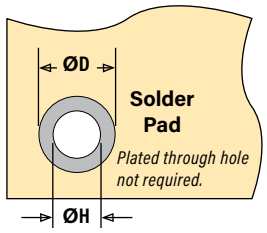
(2) HRB - Hardness Rockwell "B" Scale. HB - Hardness Brinell.
(3) Available for thicker boards on special order.

SMTSSS™ REELFAST® SNAP-TOP® STANDOFFS

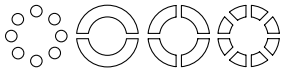
NEW!

NOTE: ***REELFAST® SNAP-TOP® SMTSSS™ standoffs are for on-only applications. For removal applications, mounting hole A can be increased to reduce removal force.***





Stencil Masking Examples



FASTENER MATERIAL:
Carbon Steel

FINISH:
ET - Electro-plated Tin, ASTM B545 Class A with clear preservative coating, annealed (1)(2)

(1) See PEM Technical Support section of our web site for related plating standards and specifications.
(2) Optimal solderability life noted on packaging.

All dimensions are in inches.

	Top Board Mounting Hole A Diameter Code	Type and Material	Length Code "L" ±.005 (Length Code in 32nds of an inch)		Min. Sheet Thickness	A Max.	C Max.	E ±.005	B ±.005	P ±.005	ØH Hole Size in Sheet +.003 -.000	ØD Min. Solder Pad
			.250	.375								
UNIFIED	156	SMTSSS	8	12	.060	.060	.161	.250	.188	.141	.166	.276

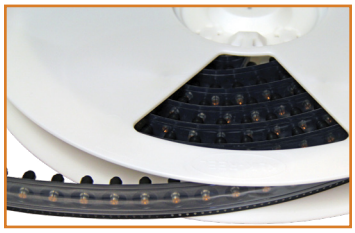
All dimensions are in millimeters.

	Top Board Mounting Hole A Diameter Code	Type and Material	Length Code "L" ±0.13 (Length Code in millimeters)			Min. Sheet Thickness	A Max.	C Max.	E ±0.13	B ±0.13	P ±0.13	ØH Hole Size in Sheet +0.08	ØD Min. Solder Pad
METRIC	4MM	SMTSSS	6	8	10	1.53	1.53	4.09	6.35	4.8	3.58	4.22	7

NUMBER OF PARTS PER REEL

Type, Material and Size	Length Code / Number of Parts per Reel		
SMTSSS-156	-8 / 280	-12 / 220	
SMTSSS-4MM	-6 / 300	-8 / 250	-10 / 200

Packaged on 330 mm recyclable reels. Tape width is 24 mm.
Supplied with polyimide patch for vacuum pick up.
Reels conform to EIA-481.

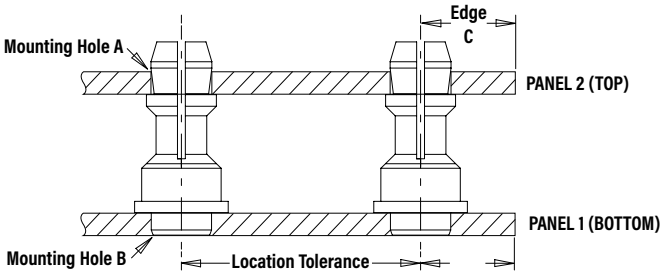


PART NUMBER DESIGNATION

SMTSS S - 156 - 12 ET

Type | Material | Mounting Hole A Diameter Code | Length Code | Finish

APPLICATION DATA



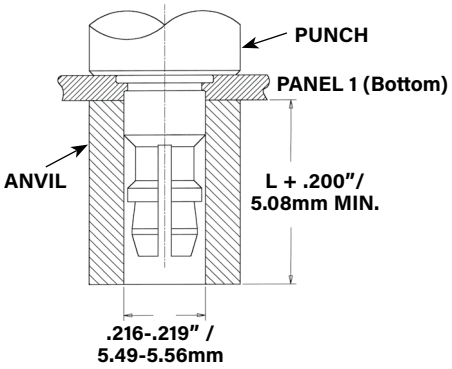
All dimensions are in inches.

		Panel 1					Panel 2				
	Type and Material	Hardness Max.	Bottom Mounting Hole B +.003 -.000	Panel Material	Thickness Min.	Location Tolerance	Hardness Max.	Top Mounting Hole A +.003 -.000	Panel Material	Thickness Range	Edge Distance C Min.
UNIFIED	SMTSSS	No Limit	.166	P.C. Board	.060	±.005	No Limit	.156	P.C. Board or Metal	.040 - .070	.100

All dimensions are in millimeters.

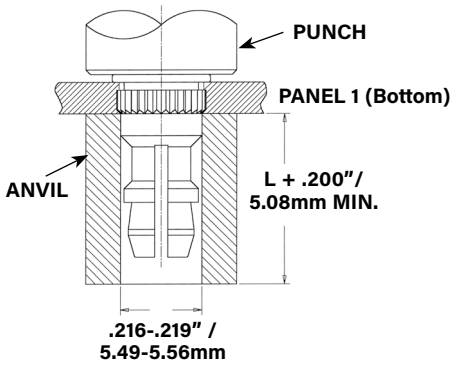
		Panel 1					Panel 2				
	Type and Material	Hardness Max.	Bottom Mounting Hole B +0.08	Panel Material	Thickness Min.	Location Tolerance	Hardness Max.	Top Mounting Hole A +0.08	Panel Material	Thickness Range	Edge Distance C Min.
METRIC	SMTSSS	No Limit	4.22	P.C. Board	1.53	±0.13	No Limit	4	P.C. Board or Metal	1 - 1.8	2.54

INSTALLATION



SSA™/SSS™/SSC™ Standoffs

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



KSSB™ Standoffs

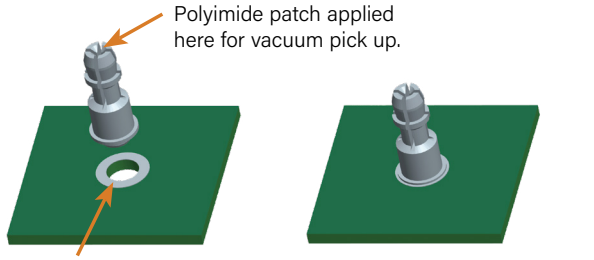
1. Prepare properly sized mounting hole in Panel 1 (Bottom).
2. Place the fastener through the mounting hole of the board and into the anvil as shown in the drawing.
3. With punch and anvil surfaces parallel, apply only enough squeezing force to bring the head into contact with the board.

Installation Tooling

Type	HAEGER® Part No.		PEMSERTER® Part Number	
	Anvil	Punch	Anvil	Punch
SSA, SSS, SSC	H-109-6/M3.5L	H-108-0019L	970200015300	975200048
KSSB	(1)	(1)	970200015300	975200048

(1) Click here for a quote on Haeger® custom installation tooling.

SMTSSS™ Standoffs



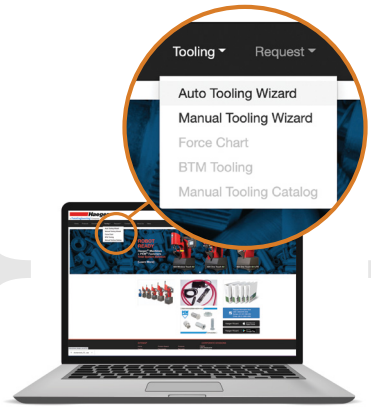
INSTALLATION NOTES

- 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.

For Additional HAEGER® and PEMSERTER® Tooling Information / Part Numbers

HAEGER® MANUAL TOOLING CATALOG

HAEGER® AUTO TOOLING CATALOG



Go to haeger.com to access
the Auto and Manual Tooling Wizards

Or download the
HAEGER WIZZARD Phone App

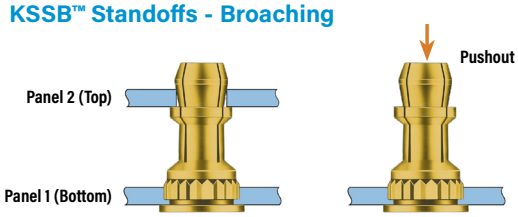
PEMSERTER® MANUAL TOOLING CATALOG

PEMSERTER® AUTO TOOLING CATALOG

PERFORMANCE DATA(1)

SSA™/SSS™/SSC™ Standoffs - Self-clinching

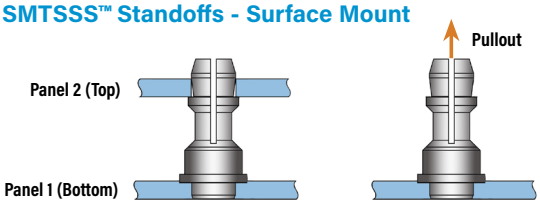
KSSB™ Standoffs - Broaching



		Panel 1 (Bottom)			Panel 2 (Top) (Removable)		
	Type	Test Sheet Material	Installation (lbs.)	Pushout (lbs.)	Max. First on Snap Force (lbs.)	Min. First off Snap Force (lbs.)	Min. 15th off Snap Force (lbs.)
UNIFIED	SSA	Aluminum	1500	200	13	3	1
	SSS	Aluminum	1500	200	20	6	2
	SSC	Aluminum	1500	200	20	6	2
	SSS	Cold-rolled Steel	3600	400	20	6	2
	SSC	Cold-rolled Steel	3600	400	20	6	2
	KSSB	FR-4 Fiberglass	500	110	13	3	1

		Panel 1 (Bottom)			Panel 2 (Top) (Removable)		
	Type	Test Sheet Material	Installation (kN)	Pushout (N)	Max. First on Snap Force (N)	Min. First off Snap Force (N)	Min. 15th off Snap Force (N)
METRIC	SSA	Aluminum	6.7	890	58	13	4
	SSS	Aluminum	6.7	890	89	27	9
	SSC	Aluminum	6.7	890	89	27	9
	SSS	Cold-rolled Steel	16	1780	89	27	9
	SSC	Cold-rolled Steel	16	1780	89	27	9
	KSSB	FR-4 Fiberglass	2.2	484	58	13	4

SMTSSS™ Standoffs - Surface Mount



	Panel 1 (Bottom)		Panel 2 (Top)	
Type, Material and Size	Test Sheet Material	Pullout (2)	Max. Snap-on Force	Min. Snap Retention Force
SMTSSS-156	.062" Single Layer FR-4	113 lbs.	20 lbs.	6 lbs.
SMTSSS-4MM	1.58 mm Single Layer FR-4	500 N	89 N	27 N

TESTING CONDITIONS

Oven	Quad ZCR convection oven with 4 zones
High Temp	473˚F / 245˚C
Board Finish	62% Sn, 38% Pb
Board	.062" / 1.58 mm thick, Single Layer FR-4
Screen Printer	Ragin Manual Printer
Vias	None
Spokes	2 Spoke Pattern
Paste	Alpha CVP-390 Sn96.5/3.0Ag/0.5Cu (SAC305)
Stencil	.0067" / 0.17 mm thick

(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) With lead-free paste. Average values of 30 test points. The data presented here is for general comparison purposes only. Actual performance is dependent upon application variables. We will be happy to provide samples for you to install. If required, we can also test your installed hardware and provide you with the performance data specific to your application.

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®

PEM®

North America: Danboro, Pennsylvania USA ▪ E-mail: info@pemnet.com ▪ Tel: +1-215-766-8853 ▪ 800-237-4736 (USA)
Europe: Galway, Ireland ▪ E-mail: europe@pemnet.com ▪ Tel: +353-91-751714
Asia/Pacific: Singapore ▪ E-mail: singapore@pemnet.com ▪ Tel: +65-6-745-0660
Shanghai, China ▪ E-mail: china@pemnet.com ▪ Tel: +86-21-5868-3688

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