

PennEngineering®

SNAP-TOP® STANDOFFS



BULLETIN

SSA

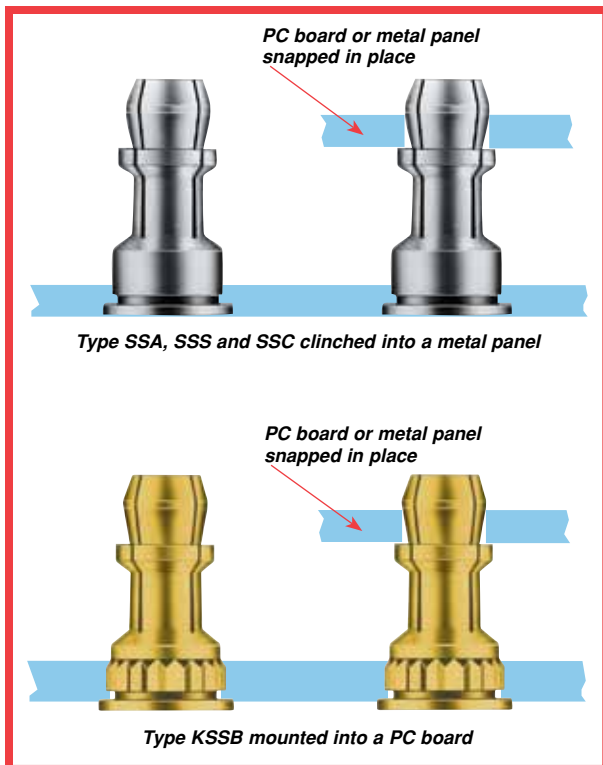


SNAP-TOP® STANDOFFS

PEM SNAP-TOP® Standoffs (Types SSA, SSS, SSC, KSSB) are designed for permanent installation into metal panels or PC boards.

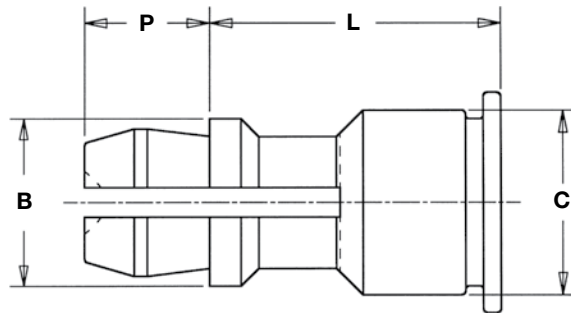
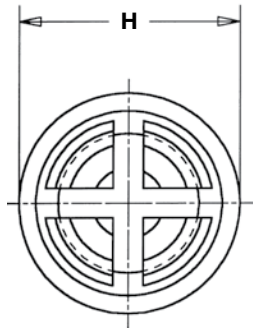
These all-metal standoffs use a spring action to hold PC boards and subassemblies securely, while allowing for quick removal. Screws and other threaded hardware are eliminated. This means less parts to handle during assembly and less risk of damaging delicate circuitry because of loose parts falling into your equipment.

These standoffs are permanently installed in the panel by squeezing them into a properly sized hole using any standard press. Installation forces, pushout, and snap forces, are listed on page 6.

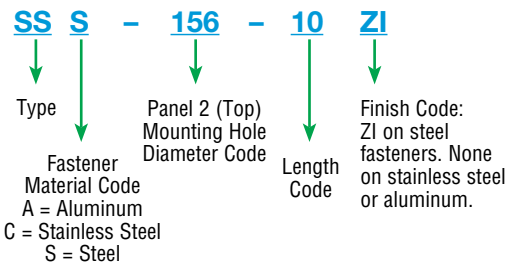


SNAP-TOP® STANDOFFS

TYPES SSA™, SSS™, AND SSC™ FOR CLINCHING INTO METAL SHEETS



PART NUMBER DESIGNATION



FASTENER MATERIAL:

Type SSA: Aluminum
 Type SSS: Carbon Steel
 Type SSC: 400 Series Stainless Steel

FINISH:

Type SSA: Plain Finish
 Type SSS: ZI - Zinc plated, 5µm, colorless, plus clear chromate (1)
 Type SSC: Passivated and/or tested per ASTM A380

DIMENSIONAL DATA

All dimensions are in inches.

UNIFIED	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																	
	Aluminum	Carbon Steel	Stainless Steel															
	SSA	SSS	SSC	156	.250	.312	.375	.437	.500	.562	.625	.750	.875	1.00	.188	.212	.250	.141

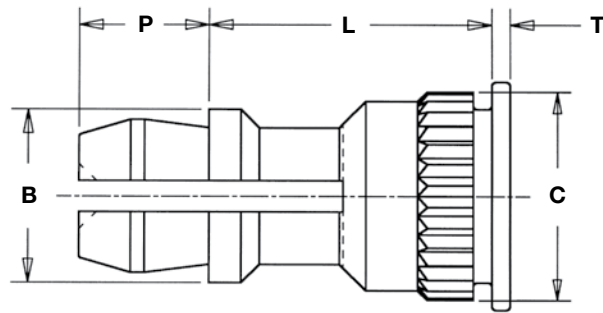
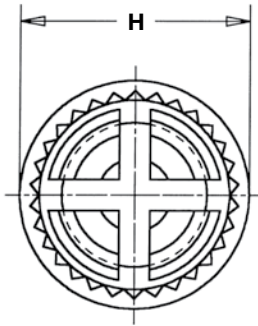
All dimensions are in millimeters.

METRIC	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																
	Aluminum	Carbon Steel	Stainless Steel														
	SSA	SSS	SSC	4mm	8	10	12	14	16	18	20	22	25	4.78	5.39	6.35	3.58

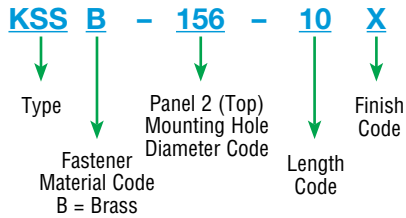
(1) See PEM Technical Support section of our web site for related plating standards and specifications.

SNAP-TOP® STANDOFFS

TYPE KSSB™ FOR BROACHING INTO PC BOARDS



PART NUMBER DESIGNATION



FASTENER MATERIAL:
Free Machining Brass

FINISH:
Standard: X - No Finish
Optional*: ET - Electroplated Bright Tin, ASTM B545 Class B (5µm) with preservative coating

**Available on special order with additional charge.*

DIMENSIONAL DATA

All dimensions are in inches.

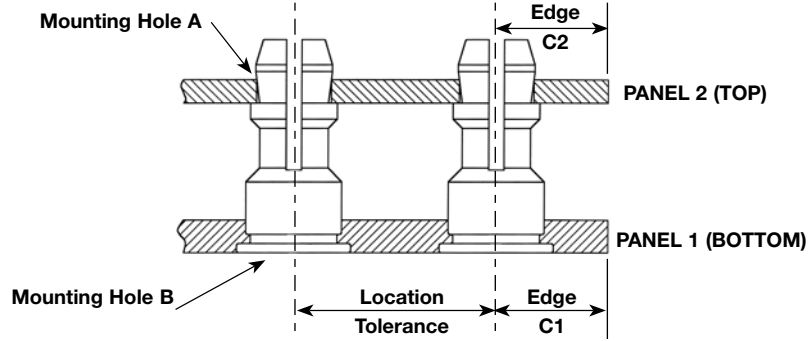
UNIFIED	Type	Panel 2 (Top) Mounting Hole Diameter Code	Length Code "L" ±.005 (Length Code in 32nds of an inch)										B ±.005	C ±.003	H ±.005	P ±.005	T ±.005
			.250	.312	.375	.437	.500	.562	.625	.750	.875	1.00					
KSSB		156	8	10	12	14	16	18	20	24	28	32	.188	.226	.250	.141	.020

All dimensions are in millimeters.

METRIC	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
			8	10	12	14	16	18	20	22	25						
KSSB		4mm	8	10	12	14	16	18	20	22	25	4.78	5.74	6.35	3.58	0.51	

SNAP-TOP® STANDOFFS

APPLICATION DATA TYPES SSA, SSS, SSC



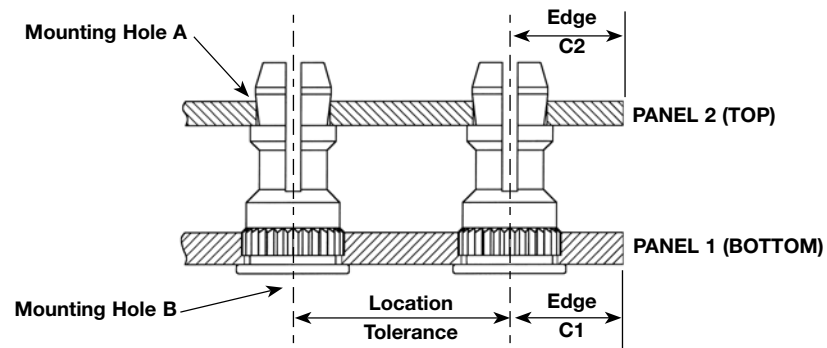
All dimensions are in inches.

UNIFIED	Panel 1							Panel 2				
	Type	Hardness Max. (1)	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 (2)	Edge Distance C ₂ Min.
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.

METRIC	Panel 1							Panel 2				
	Type	Hardness Max. (1)	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 (2)	Edge Distance C ₂ Min.
SSA	HRB 50 / HB 82	5.41	Metal	1	6.6	±0.134	No Limit	4	PC Board or Metal	1 - 1.8	2.54	
SSS	HRB 60 / HB 107											
SSC	HRB 70 / HB 125											

APPLICATION DATA TYPE KSSB



All dimensions are in inches.

UNIFIED	Panel 1							Panel 2				
	Type	Hardness Max. (1)	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 (2)	Edge Distance C ₂ Min.
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.

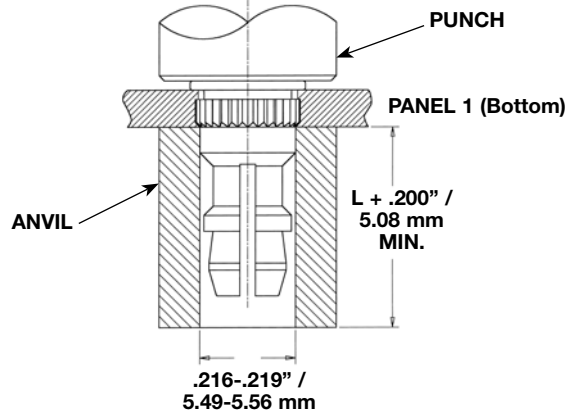
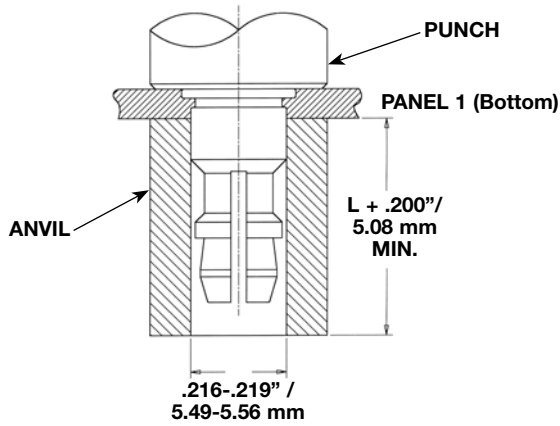
METRIC	Panel 1							Panel 2				
	Type	Hardness Max. (1)	Bottom Mounting Hole B +0.08	Panel Material	Thickness Min.	Edge Distance C ₁ Min.	Location Tolerance	Hardness Max.	Top Mounting Hole A +0.08	Panel Material	Thickness Range (2)	Edge Distance C ₂ Min.
KSSB	HRB 65 / HB 116	5.41	PC Board	1.27	5.59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

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

(2) Available for thicker boards on special order.

SNAP-TOP® STANDOFFS

INSTALLATION



Types SSA, SSS, SSC

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.

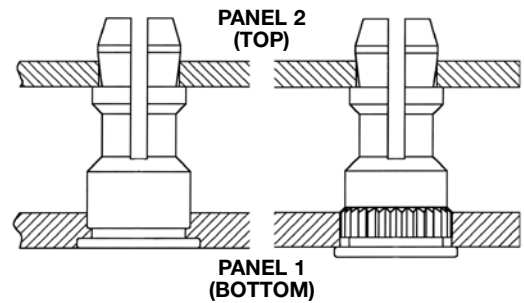
Type KSSB

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.

PERFORMANCE DATA⁽¹⁾

UNIFIED	Type	Panel 1 (Bottom)		Panel 2 (Top) (Removable)			
		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.)
	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	3500	400	20	6	2
	SSC	Cold-rolled Steel	3600	400	20	6	2
	KSSB	FR-4 Fiberglass	500	110	13	3	1

METRIC	Type	Panel 1 (Bottom)		Panel 2 (Top) (Removable)			
		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)
	SSA	Aluminum	6.7	880	58	13	4
	SSS	Aluminum	6.7	880	89	27	9
	SSC	Aluminum	6.7	880	89	27	9
	SSS	Cold-rolled Steel	15.5	1780	89	27	9
	SSC	Cold-rolled Steel	16	1780	89	27	9
	KSSB	FR-4 Fiberglass	2.2	484	58	13	4



(1) The values reported are averages when all installation specifications and procedures are followed. Variations in mounting hole size, panel material and installation procedure will affect results. Performance testing of this product in your application is recommended. We will be happy to provide samples for this purpose.

RoHS compliance information can be found on our website.
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