

NOTE ABOUT PLATED AND UNPLATED MOUNTING HOLES FOR BROACHING FASTENERS

Broaching and broach/flare types are designed for unplated mounting hole applications. If used in plated mounting holes, the stresses involved can damage the plating, push out the plating entirely, or break any traces inside the board that might be connected to the plated hole. When installing into non-plated mounting holes there may even be issues with delamination, measeling or crazing in some instances.

Increasing the mounting hole size $+0.005"$ to $+0.008"$ / $+0.13$ mm to $+0.2$ mm may relieve these conditions. If increasing the mounting hole does not correct the issue then we recommend our surface-mount type fasteners.

It is always recommended that you try the fasteners in your specific application before full production begins. We are happy to provide samples for this purpose.

General recommendations for "Keep Out" areas are the same as our "Min. Distance Hole C/L to Edge" dimensions stated in the dimensional charts of our bulletin.

KF2™/KFS2™ BROACHING NUTS



PART NUMBER DESIGNATION

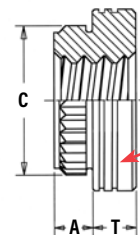
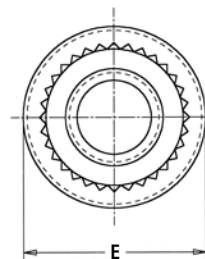
KFS2 - **832**

KF2 - **832** - **ET**

↓
Type and
Material

↓
Thread
Code

↓
Finish



PEM® "Two Groove"
(Registered Trademark)

All dimensions are in inches.

UNIFIED	Thread Size	Type		Thread Code	A (Shank) Max.	Min. Sheet Thickness	Hole Size In Sheet $+0.003 -0.000$	C ± 0.003	E ± 0.005	T ± 0.005	Min. Dist. Hole Φ To Edge
		Carbon Steel	Stainless Steel								
	.086-56 (#2-56)	KF2	KFS2	256	.060	.060	.147	.165	.219	.065	0.16
	.112-40 (#4-40)	KF2	KFS2	440	.060	.060	.166	.184	.219	.065	0.17
	.138-32 (#6-32)	KF2	KFS2	632	.060	.060	.213	.231	.281	.065	0.22
	.164-32 (#8-32)	KF2	KFS2	832	.060	.060	.250	.268	.344	.096	0.25
	.190-32 (#10-32)	KF2	KFS2	032	.060	.060	.272	.290	.375	.127	0.28

All dimensions are in millimeters.

METRIC	Thread Size x Pitch	Type		Thread Code	A (Shank) Max.	Min. Sheet Thickness	Hole Size In Sheet $+0.08$	C ± 0.08	E ± 0.13	T ± 0.13	Min. Dist. Hole Φ To Edge
		Carbon Steel	Stainless Steel								
	M2 x 0.4	KF2	KFS2	M2	1.53	1.53	3.73	4.19	5.56	1.5	4.2
	M2.5 x 0.45	KF2	KFS2	M2.5	1.53	1.53	4.22	4.68	5.56	1.5	4.4
	M3 x 0.5	KF2	KFS2	M3	1.53	1.53	4.22	4.68	5.56	1.5	4.4
	M4 x 0.7	KF2	KFS2	M4	1.53	1.53	6.4	6.81	8.74	2	6.4
	M5 x 0.8	KF2	KFS2	M5	1.53	1.53	6.9	7.37	9.53	3	7.1

FASTENERS FOR USE WITH PC BOARDS

MATERIAL AND FINISH SPECIFICATIONS

	Threads (1)		Fastener Materials					Standard Finishes			Optional Finish	For Use in Sheet Hardness: (3)				
Type	Internal, ASME B1.1 2B/ ASME B1.13M 6H	External, ASME B1.1 2A/ ASME B1.13M 6g	Lead-Free Carbon Steel	300 Series Stainless Steel	CDA-510 Phosphor Bronze	CDA-353 Brass	Nylon, Temp. Limit 200° F / 93° C	Passivated and/or Tested Per ASTM A380	Electro-Plated Tin ASTM B 545, Class B With Clear Preservative Coating, annealed (4)	No Finish	Black Nitride	HRB 70 / HB 125 or Less	HRB 65 / HB 116 or Less	HRB 60 / HB 107 or Less	HRB 55 / HB 96 or Less	PC Board
KF2	•		•						•					•		•
KFS2	•			•				•				•				•
KFE	•		•						•					•		•
KFSE	•			•				•				•				•
KFB3	•					•			•				•			•
KSSB						•				•			•			•
KFH		•			•				•						•	•
PFK Retainer				•				•			•				•	•
Screw		•		•				•			•					
Spring				•												
Retaining Ring							•									
Part Number Codes For Finishes								None	ET	X	BN					

	Threads (1)			Fastener Materials					Standard Finishes (2)			For Use in Sheet Hardness: (3)	
Type	Miniature ISO 1501, 4H6	Internal, ASME B1.1 2B/ ASME B1.13M 6H	External, ASME B1.1 2A/ ASME B1.13M 6g	Lead-Free Carbon Steel	Hardened Carbon Steel	300 Series Stainless Steel	Free Machining Brass	Zinc Diecast	Zinc Plated 5µm, Colorless	Electro-Plated Tin ASTM B 545, Class A With Clear Preservative Coating, annealed (4)	Bright Nickel Over Copper Flash	HRB 80 / HB 150 or less	P.C. Board
SMTSO	▪ S1 to S1.4	▪ 0-80 to 8-32 M1.6 to M4		▪						▪			▪
SMTSOB		▪					▪			▪			▪
SMTRA		▪						▪		▪			▪
SMTPFLSM													
Retainer				▪						▪			▪
Screw			▪		▪				▪				
Spring						▪							
PSHP ⁽⁵⁾				▪							▪		
SMTPR				▪						▪			▪
SFK				▪					▪			▪	▪
SMTSSS				▪						▪			▪
Part Number Codes For Finishes									ZI	ET	CN		

(1) For plated studs, Class 2A/6g, the maximum major and pitch diameter, after plating, may equal basic sizes and can be gauged to Class 3A/6h, per ASME B1.1 (see notes at end of table C-1) and ASME B1.13M, Section 8, Paragraph 8.2.

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

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

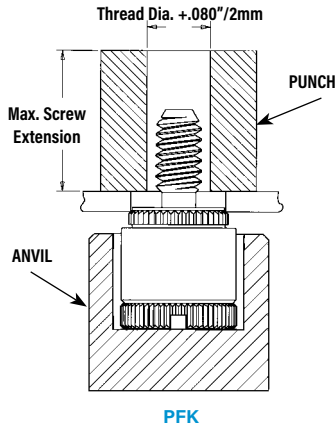
(4) Optimal solderability life noted on packaging.

(5) ABS cap on PSHP screw has a temperature limit of 200° F / 93° C.

INSTALLATION

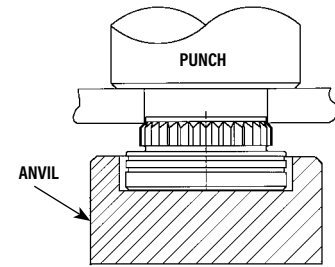
KF2™/KFS2™/KFE™/KFSE™/ PFK™ FASTENERS

1. Prepare properly sized mounting hole in board.
2. Place fastener into the anvil hole and place the mounting hole over the shank of the fastener as shown in drawing.
3. With installation punch and anvil surfaces parallel, apply squeezing force until shoulder contacts the board.



PEMSERTER® Installation Tooling

Type	Thread Code	Anvil Part Number	Punch Part Number
PFK	440/M3	975200026	975200060
PFK	632	975200027	975200061



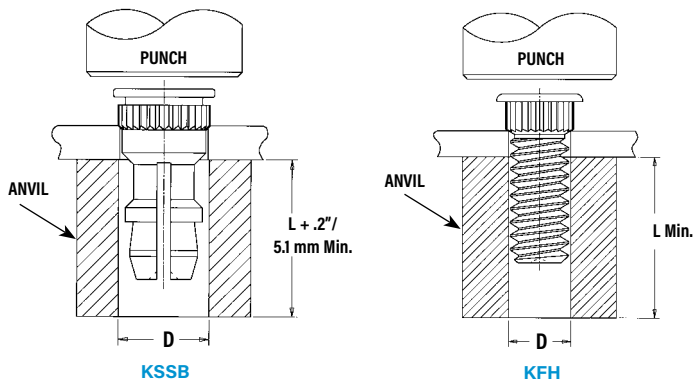
KF2/KFS2/
KFE/KFSE

PEMSERTER® Installation Tooling

Type	Thread Code	Anvil Part Number	Punch Part Number
KF2/KFS2	080	8015899	975200048
KF2/KFS2	256/440/M2/M2.5/M3	975200904300	
KF2/KFS2	632/M3.5	975200035	
KF2/KFS2	832/M4	975200037	
KF2/KFS2	032/M5	975200905300	

PEMSERTER® Installation Tooling

Type	Thread Code	Anvil Part Number	Punch Part Number
KFE/KFSE	440/116 -4 to -8	975200846300	975200048
KFE/KFSE	440/116 -10 to -12	975200847300	
KFE/KFSE	440/116 -16 to -20	975200848300	
KFE/KFSE	440/116 -20 to -24	975200882300	
KFE/KFSE	M3 -3 to -6	975200846300	
KFE/KFSE	M3 -8 to -10	975200847300	
KFE/KFSE	M3 -12 to -14	975201222300	
KFE/KFSE	M3 -14 to -16	975200848300	
KFE/KFSE	632/143 -4 to -8	975200849300	
KFE/KFSE	632/143 -10 to -12	975200850300	
KFE/KFSE	632/143 -16 to -20	975200851300	975200048
KFE/KFSE	632/143 -22 to -24	975200883300	
KFE/KFSE	632/143 -28 to -32	975200884300	
KFE/KFSE	3.6 -3 to -6	975200849300	
KFE/KFSE	3.6 -8 to -10	975200850300	
KFE/KFSE	3.6 -12 to -16	975200851300	
KFE/KFSE	4.2 -2	975201216300	
KFE/KFSE	4.2 -3 to -6	975201217300	
KFE/KFSE	4.2 -8 to -10	975201218300	
KFE/KFSE	4.2 -12 to -14	975201220300	
KFE/KFSE	4.2 -14 to -16	975201219300	



KSSB™/KFH™ FASTENERS

1. Prepare properly sized mounting hole in board.
2. Place fastener into mounting hole as shown.
3. With installation punch and anvil surfaces parallel, apply squeezing force until head contacts the board.

PEMSERTER® Installation Tooling

Part Number	D +.003" -.000"	Part Number	D +0.08mm
KFH-440-L	.113"	KFH-M3-L	3.1mm
KFH-632-L	.140"	KFH-M4-L	4.1mm
KFH-832-L	.166"	KFH-M5-L	5.1mm
KFH-032-L	.191"	KSSB-4mm-L	5.49mm
KSSB-156-L	.216"		

FASTENERS FOR USE WITH PC BOARDS

PERFORMANCE DATA⁽¹⁾

KF2™/KFS2™/KFE™/KFSE™/KFB3™/KFH™/PFK™ BROACHING AND BROACH/FLARE MOUNT FASTENERS

UNIFIED	Type	Thread Code	Max. Nut Tightening Torque (in. lbs.)	Test Sheet Thickness & Test Sheet Material	Installation (lbs.)	Pushout (lbs.) (2)	Torque-out (in. lbs.)
	KF2	256	(3)	.060" FR-4 Panel	400	60	6
	KFS2	440	(3)	.060" FR-4 Panel	400	65	15
		632	(3)	.060" FR-4 Panel	500	80	30
	KFE	832	(3)	.060" FR-4 Panel	700	95	35
	KFSE	032	(3)	.060" FR-4 Panel	700	100	40
	KFB3	440	(3)	.060" FR-4 Panel	1,000	140	18
		632	(3)	.060" FR-4 Panel	1,500	170	28
	KFH	440	4	.060" FR-4 Panel	400	65	7
		632	8	.060" FR-4 Panel	400	70	11
		832	15	.060" FR-4 Panel	400	80	16
		032	18	.060" FR-4 Panel	400	90	17
	PFK	440	(3)	.060" FR-4 Panel	250	55	(3)
		632	(3)	.060" FR-4 Panel	400	60	(3)

METRIC	Type	Thread Code	Max. Nut Tightening Torque (N-m)	Test Sheet Thickness & Test Sheet Material	Installation (kN)	Pushout (N) (2)	Torque-out (N-m)
	KF2	M3	(3)	1.5 mm FR-4 Panel	2.2	290	1.7
	KFS2	M4	(3)	1.5 mm FR-4 Panel	2.2	420	3.4
	KFE		(3)	1.5 mm FR-4 Panel	2.9	440	4.5
	KFSE	M5	(3)	1.5 mm FR-4 Panel	2.9	440	4.5
	KFB3	M3	(3)	1.5 mm FR-4 Panel	4.4	560	2.03
		M4	(3)	1.5 mm FR-4 Panel	6	680	3.2
	KFH	M3	0.45	1.5 mm FR-4 Panel	1.8	285	0.79
		M4	1.6	1.5 mm FR-4 Panel	1.8	355	1.8
		M5	2.1	1.5 mm FR-4 Panel	1.8	400	1.92
	PFK	M3	(3)	1.5 mm FR-4 Panel	1.1	245	(3)

KSSB™ BROACHING SNAP-TOP® STANDOFFS

UNIFIED	Type	Panel 1 (.060" FR-4 Panel) (4)		Panel 2 (Removable) (4)		
		Installation (lbs.)	Pushout (lbs.)	Max. First On Force (lbs.)	Min. First Off Force (lbs.)	Min. 15th Off Force (lbs.)
	KSSB	500	110	13	3.0	1.0

METRIC	Type	Panel 1 (1.5 mm FR-4 Panel) (4)		Panel 2 (Removable) (4)		
		Installation (kN)	Pushout (N)	Max. First On Force (N)	Min. First Off Force (N)	Min. 15th Off Force (N)
	KSSB	2.2	484	57.7	13.3	4.4

(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) These are typical values for parts installed in drilled mounting holes. Punched mounting holes yield values approximately 15% less.

(3) Not applicable.

(4) See Application Data drawing on page 8.