PEM®

BULLETIN

Fasteners For Use in Stainless Steel Sheets

SS

1003

FASTENERS FOR USE IN STAINLESS STEEL SHEETS

One of the very basics of self-clinching is that the fastener must be harder than the host sheet. Only then will the fastener perform as intended. This is particularly challenging when installing fasteners into stainless steel sheets.

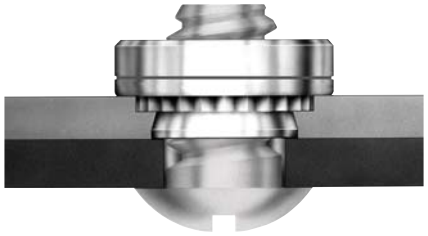
Therefore we have developed this line of specially hardened stainless steel fasteners. When pressed in they become an integral part of the sheet (as thin as .030"/0.8mm). They allow the use of stainless steel sheet to satisfy applications, which require lighter, stronger designs that must perform in challenging environments.

- Type SP nuts are made from precipitation hardened stainless steel. Features include:
  1) Appropriate for sheet hardness up to Rockwell B 90.
  2) Corrosion resistance similar to 300 Series stainless steel.

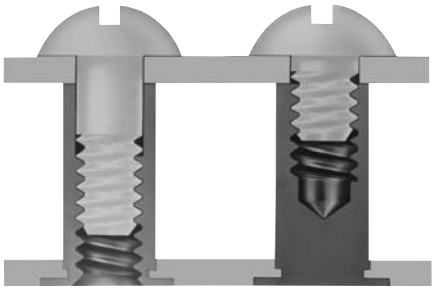
- Types FH4, SO4, BSO4 and PFC4 fasteners are made from 400 Series stainless steel. Features include:
  1) Appropriate for sheet hardness up to Rockwell B 88 (92 for Type FH4)
  2) Corrosion resistance comparable to zinc plated steel.

These fasteners are used extensively in medical, food, fluid handling, outdoor, and similar types of equipment.

Type PFC4 Panel Fasteners



Type SP nuts



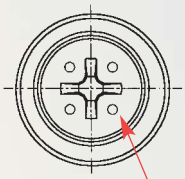
Type SO4 Standoffs *Type BSO4 Standoffs*

Type FH4 studs

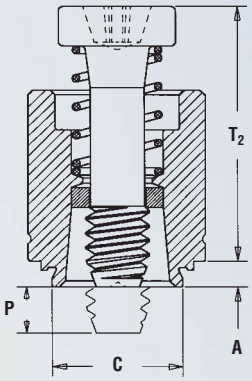
TYPE PFC4™ PANEL FASTENERS

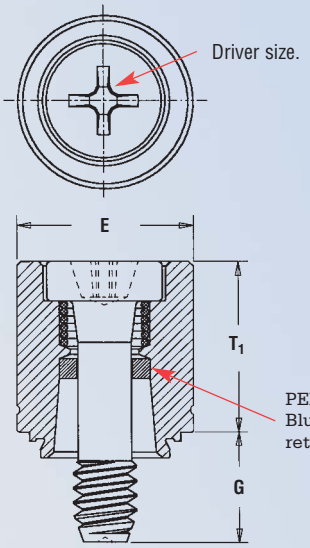
- Meets UL 1950 "service area access" requirements.
- Assorted screw lengths for most applications.
- For use in sheets of HRB 88 or less.

Patented.



Four dimples on head designates metric thread.





All dimensions are in inches.

	Thread Size	Type	Thread Code	Screw Length Code	A (Shank) Max.	Min. Sheet Thickness	Hole Size In Sheet + .003 - .000	C Max.	E ± .010	G ± .016	P ±.025	T_1 Max.	T_2 Nom.	Driver Size	Min. Dist. Hole C/L To Edge (1)
UNIFIED	.112-40 (#4-40)	PFC4	440	40	.060	.060	.265	.264	.344	.250	.000	.370	.540	#1	.25
				62						.375	.125				
	.138-32 (#6-32)	PFC4	632	40	.060	.060	.281	.280	.375	.250	.000	.380	.540	#2	.28
				62						.375	.125				
				84[NS]						.500	.250				
	.164-32 (#8-32)	PFC4	832	50	.060	.060	.312	.311	.406	.312	.000	.480	.705	#2	.31
				72						.437	.125				
				94						.562	.250				
	.190-32 (#10-32)	PFC4	032	50	.060	.060	.344	.343	.437	.312	.000	.490	.705	#2	.34
				72						.437	.125				
				94						.562	.250				

All dimensions are in millimeters.

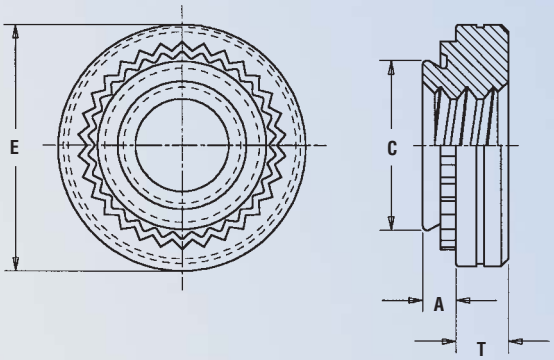
	Thread Size x Pitch	Type	Thread Code	Screw Length Code	A (Shank) Max.	Min. Sheet Thickness	Hole Size In Sheet + 0.08	C Max.	E ± 0.25	G ± 0.4	P ±0.64	T_1 Max.	T_2 Nom.	Driver Size	Min. Dist Hole C/L To Edge (1)
METRIC	M3 x 0.5	PFC4	M3	40	1.53	1.53	6.73	6.71	8.74	6.4	0	9.4	13.72	#1	6.35
				62[NS]						9.5	3.2				
	M4 x 0.7	PFC4	M4	50	1.53	1.53	7.92	7.9	10.31	7.9	0	12.19	17.91	#2	7.87
				72[NS]						11.1	3.2				
				94[NS]						14.3	6.4				
	M5 x 0.8	PFC4	M5	50	1.53	1.53	8.74	8.72	11.1	7.9	0	12.45	17.91	#2	8.63
				72						11.1	3.2				
				94[NS]						14.3	6.4				

(1) *For closer distances consult our Engineering Department.*

NS *Not Stocked, available on special order.*

TYPE SP™ PEM 300® SELF-CLINCHING NUTS

- After installation, reverse side of sheet remains flush and smooth.
- For use in sheets of HRB 90 or less.
- Corrosion resistance similar to 300 series stainless steel.



All dimensions are in inches.

	Thread Size	Type	Thread Code	Shank Code	A (Shank) Max.	Sheet Thickness*	Hole Size In Sheet +.003-.000	C Max.	E ±.010	T ±.010	Min. Dist. Hole C/L To Edge (1)
UNIFIED	.112-40 (#4-40)	SP	440	0	.030	.030 - .039	.166	.165	.25	.07	.19
				1	.038	.040 - .055					
				2	.054	.056 Min.					
	.138-32 (#6-32)	SP	632	0	.030	.030 - .039	.1875	.187	.28	.07	.22
				1	.038	.040 - .055					
				2	.054	.056 Min.					
	.164-32 (#8-32)	SP	832	0	.030	.030 - .039	.213	.212	.31	.09	.27
				1	.038	.040 - .055					
				2	.054	.056 Min.					
	.190-32 (#10-32)	SP	032	0	.030	.030 - .039	.250	.249	.34	.09	.28
				1	.038	.040 - .055					
				2	.054	.056 Min.					
	.250-20 (1/4-20)	SP	0420	1	.054	.056 Min.	.344	.343	.44	.17	.34

All dimensions are in millimeters.

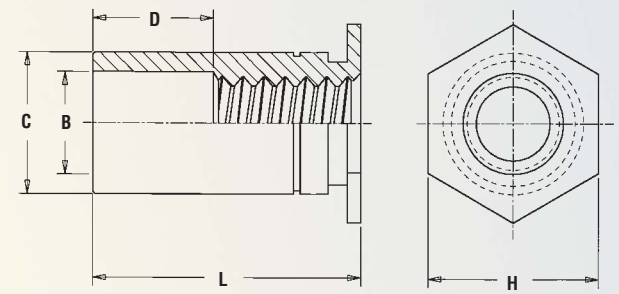
	Thread Size x Pitch	Type	Thread Code	Shank Code	A (Shank) Max.	Sheet Thickness*	Hole Size In Sheet +0.08	C Max.	E ±0.25	T ±0.25	Min. Dist. Hole C/L To Edge (1)
METRIC	M3 x 0.5	SP	M3	0	0.77	0.8 - 1	4.25	4.22	6.3	1.5	4.8
				1	0.97	1.01 - 1.39					
				2	1.38	1.4 Min.					
	M4 x 0.7	SP	M4	0	0.77	0.8 - 1	5.4	5.38	7.9	2	6.9
				1	0.97	1.01 - 1.39					
				2	1.38	1.4 Min.					
	M5 x 0.8	SP	M5	0	0.77	0.8 - 1	6.4	6.38	8.7	2	7.1
				1	0.97	1.01 - 1.39					
				2	1.38	1.4 Min.					
	M6 x 1	SP	M6	1	1.38	1.4 Min.	8.75	8.72	11.1	4.1	8.6

(1) *For closer distances consult our Engineering Department.*

* *Sheets thinner than .060" (1.5mm) may work harden during installation and cause reduced performance.*

TYPE SO4™ THRU-HOLE THREADED STANDOFFS

- Installed with heads flush with one surface of the mounting sheet.
- Available unthreaded for spacing multi-panel assemblies.
- For use in sheets of HRB 88 or less.



GENERAL DIMENSIONAL DATA

All dimensions are in inches.

	Thread Code	Min. Sheet Thickness	Hole Size In Sheet +.003 -.000	B Counter-Bore Dia. ±.005	C +.000 -.005	H Nom.	Min. Dist. Hole C/L To Edge(1)
UNIFIED	440	.040	.166	.125	.165	.187	.23
	6440	.040	.213	.125	.212	.250	.28
	632	.040	.213	.156	.212	.250	.28
	8632	.050	.281	.156	.280	.312	.33
	832	.050	.281	.188	.280	.312	.33
	032	.050	.281	.203	.280	.312	.33

All dimensions are in millimeters.

	Thread Code	Min. Sheet Thickness	Hole Size In Sheet +0.08	B Counter-Bore Dia. ±0.13	C -0.13	H Nom.	Min. Dist. Hole C/L To Edge(1)
METRIC	M3	1.02	4.22	3.25	4.2	4.8	6
	3.5M3	1.02	5.41	3.25	5.39	6.4	7.1
	M3.5	1.02	5.41	3.9	5.39	6.4	7.1
	M4	1.27	7.14	4.8	7.12	7.9	8.4
	M5	1.27	7.14	5.35	7.12	7.9	8.4

THREAD SIZE AND LENGTH SELECTION DATA

All dimensions are in inches.

	Thread Size	Type	Thread Code	Length "L" +.002 -.005 (Length Code in 32nds of an inch)															
				.125	.187	.250	.312	.375	.437	.500	.562	.625	.687	.750	.812	.875	.937	1.00	1.062
UNIFIED	.112-40 (#4-40)	SO4	440 / 6440(2)	4	6	8	10	12	14	16	18	20	22	24	NA	NA	NA	NA	NA
	.138-32 (#6-32)	SO4	632 / 8632(2)	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34
	.164-32 (#8-32)	SO4	832	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34
	.190-32 (#10-32)		032																
	D Dimension ±.010			None				.187				.312				.437			

All dimensions are in millimeters.

	Thread Size x Pitch	Type	Thread Code	Length "L" +0.05 -0.13 (Length Code in millimeters)											
METRIC	M3 x 0.5	SO4	M3 / 3.5M3(2)	3	4	6	8	10	12	14	16	18	NA	NA	NA
	M3.5 x 0.6	SO4	M3.5	3	4	6	8	10	12	14	16	18	20	22	25
	M4 x 0.7		M4												
	M5 x 0.8		M5												
	D Dimension ±0.25			None				4				8			11

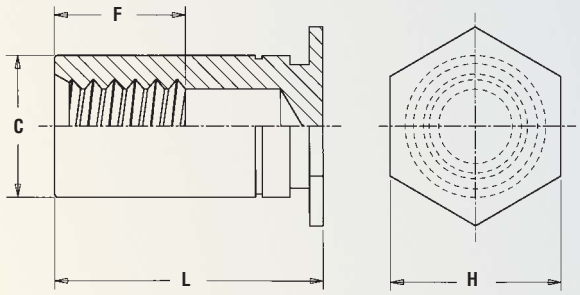
(1) *For closer distances consult our Engineering Department.*

(2) *Standoffs with thread codes 6440, 8632, and 3.5M3 offer greater wall thickness for thread sizes 440, 632, and M3 respectively.*

NA *Not Available.*

TYPE BSO4™ BLIND THREADED STANDOFFS

- Ideal for stacking or spacing.
- Installed with heads flush with one surface of the mounting sheet.
- Outer sheet surface is not only flush, but closed as well.
- For use in sheets of HRB 88 or less.



GENERAL DIMENSIONAL DATA

All dimensions are in inches.

	Thread Code	Min. Sheet Thickness	Hole Size In Sheet +.003 -.000	C +.000 -.005	H Nom.	Min. Dist. Hole C/L To Edge(1)
UNIFIED	440	.040	.166	.165	.187	.23
	6440	.040	.213	.212	.250	.28
	632	.040	.213	.212	.250	.28
	8632	.050	.281	.280	.312	.33
	832	.050	.281	.280	.312	.33
	032	.050	.281	.280	.312	.33

All dimensions are in millimeters.

	Thread Code	Min. Sheet Thickness	Hole Size In Sheet +0.08	C -0.13	H Nom.	Min. Dist. Hole C/L To Edge(1)
METRIC	M3	1.02	4.22	4.2	4.8	6
	3.5M3	1.02	5.41	5.39	6.4	7.1
	M3.5	1.02	5.41	5.39	6.4	7.1
	M4	1.27	7.14	7.12	7.9	8.4
	M5	1.27	7.14	7.12	7.9	8.4

THREAD SIZE AND LENGTH SELECTION DATA

All dimensions are in inches.

	Thread Size	Type	Thread Code	Length "L" +.002 -.005 (Length Code in 32nds of an inch)												
				.312	.375	.437	.500	.562	.625	.687	.750	.812	.875	.937	1.00	1.062
UNIFIED	.112-40 (#4-40)	BSO4	440 / 6440(2)	10	12	14	16	18	20	22	24	26	28	30	32	34
	.138-32 (#6-32)	BSO4	632 / 8632(2)	10	12	14	16	18	20	22	24	26	28	30	32	34
	.164-32 (#8-32)	BSO4	832	10	12	14	16	18	20	22	24	26	28	30	32	34
	.190-32 (#10-32)		032													
	F Dimension Min.			.156		.187	.250			.375						

All dimensions are in millimeters.

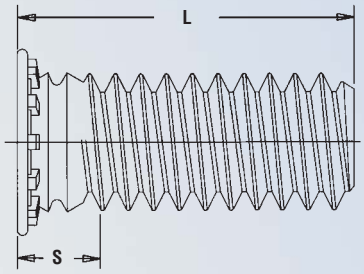
	Thread Size x Pitch	Type	Thread Code	Length "L" +0.05 -0.13 (Length Code in millimeters)									
METRIC	M3 x 0.5	BSO4	M3 / 3.5M3(2)	6	8	10	12	14	16	18	20	22	25
	M3.5 x 0.6	BSO4	M3.5	6	8	10	12	14	16	18	20	22	25
	M4 x 0.7		M4										
	M5 x 0.8		M5										
	F Dimension Min.			3.2	4		5	6.5		9.5			

(1) *For closer distances consult our Engineering Department.*

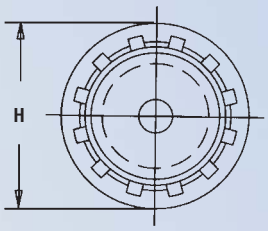
(2) *Standoffs with thread codes 6440, 8632, and 3.5M3 offer greater wall thickness for thread sizes 440, 632, and M3 respectively.*

TYPE FH4™ FLUSH-HEAD STUDS

- Permanent installation into stainless steel sheets as thin as .040" / 1 mm.
- For use in sheets of HRB 92 or less.



unthreaded length



All dimensions are in inches.

	Thread Size	Type	Thread Code	Length Code "L" ±.015 (Length code in 16ths of an inch)										Sheet Thick-ness	Hole Size in Sheet +.003 -.000	Max. Hole in Attach. Parts	H ±.015	S Max.	Min. Dist. Hole C/L to Edge
				.250	.312	.375	.500	.625	.750	.875	1.00	1.25	1.50						
UNIFIED	.112-40 (#4-40)	FH4	440	4	5	6	8	10	12[NS]	14[NS]	16[NS]	NA	NA	.040-.095	.111	.135	.176	.085	.219
	.138-32 (#6-32)	FH4	632	4	5	6	8	10	12	14	16	20	24[NS]	.040-.095	.137	.160	.206	.090	.250
	.164-32 (#8-32)	FH4	832	4	5	6	8	10	12	14	16	20	24[NS]	.040-.095	.163	.185	.237	.090	.281
	.190-32 (#10-32)	FH4	032	NA	5[NS]	6	8	10	12	14	16	20	24	.040-.095	.189	.210	.256	.100	.281
	.250-20 (1/4-20)	FH4	0420	NA	NA	6[NS]	8	10	12	14	16	20	24	.062-.117	.249	.270	.337	.135	.312

All dimensions are in millimeters.

	Thread Size x Pitch	Type	Thread Code	Length Code "L" ±0.4 (L ength Code in millimeters)										Sheet Thick-ness	Hole Size in Sheet +0.08	Max. Hole in Attach. parts	H ±0.4	S Max.	Min. Dist. Hole C/L to Edge
METRIC	M3 x 0.5	FH4	M3	6[NS]	8	10	12	15	18	20[NS]	25[NS]	NA	NA	1 - 2.4	3	3.6	4.6	2.1	5.6
	M4 x 0.7	FH4	M4	6[NS]	8	10	12	15	18	20	25	30[NS]	35[NS]	1 - 2.4	4	4.6	5.9	2.4	7.2
	M5 x 0.8	FH4	M5	NA	8[NS]	10	12	15	18	20	25	30[NS]	35[NS]	1 - 2.4	5	5.6	6.5	2.7	7.2
	M6 x 1	FH4	M6	NA	NA	10	12	15	18	20	25	30	35	1.6 - 3	6	6.6	8.2	3	7.9

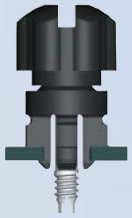
NS *Not Stocked, available on special order.* **NA** *Not Available.*

NON-CLINCH FASTENERS FOR USE IN STAINLESS STEEL

TYPE PFS™ SNAP-IN PANEL FASTENER

Installs into mounting hole without tools. Just snaps into place.

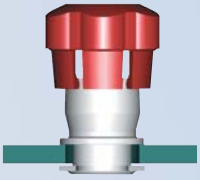
- Max. sheet thickness .065"/ 1.65mm.
- Standard recess: six-lobe in screw, slot in cap.
- Dog point feature on screw.
- Molded-thru color with optional colors available.



TYPE PFF™ HYBRID™ FLOATING PANEL FASTENER

Unique flare mount feature allow fasteners to "float" in mounting hole.

- .025"/ 0.64 mm nom. sheet thickness.
- Compensates for up to .060"/ 1.52 mm mating hole misalignment.
- Tool or finger operation.
- Molded-thru color knob with optional colors available.



For more information on these and other PEM products, visit us at our PEMNET® web site: *www.pennfast.com*

MATERIAL & FINISH SPECIFICATIONS

	Threads		Fastener Materials		Standard Finish	For Use in Sheet Hardness			Corrosion Resistance	
Type	Internal, ANSI B1.1 2B/ANSI/ ASME B1.13M, 6H	External, ANSI B1.1 2A/ANSI/ ASME B1.13M, 6g	Precipitation Hardening Grade Stainless Steel	400 Series Stainless Steel	Passivated and/or Tested per ASTM A380	92 or less on the Rockwell "B" Scale	90 or less on the Rockwell "B" Scale	88 or less on the Rockwell "B" Scale	Equivalent To PEM "ZI" Zinc Plated Steel	Equivalent To 300 Series Stainless Steel
PFC4		•		•	•			•	•	
SP	•		•		•		•			•
SO4	•			•	•			•	•	
BSO4	•			•	•			•	•	
FH4		•		•	•	•			•	

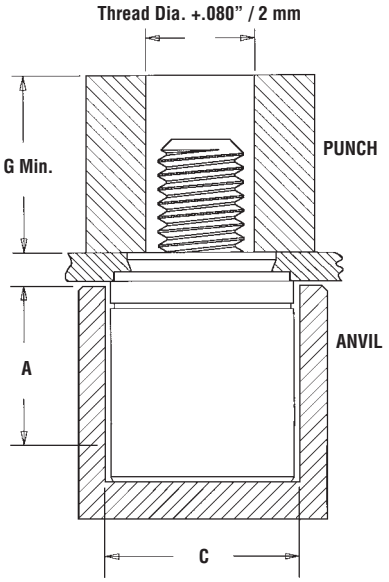
INSTALLATION

Installation Requirements

1. Sheet hardness must be less than the specified limit for that fastener (see Material & Finish Specifications chart).
2. Hole punch should be kept sharp to minimize work hardening around hole.
3. Fastener should be installed in punch side of hole.
4. Fastener should not be installed near bends or other highly cold worked areas where sheet hardness may be greater than the limit for the fastener.

Type PFC4

1. Punch or drill properly sized mounting hole in sheet. Do not perform any secondary operations such as deburring.
2. Place fastener into the anvil hole and place the mounting hole over the shank of the fastener.
3. With punch and anvil surfaces parallel, apply squeezing force until the shoulder of the retainer comes in contact with the sheet material.



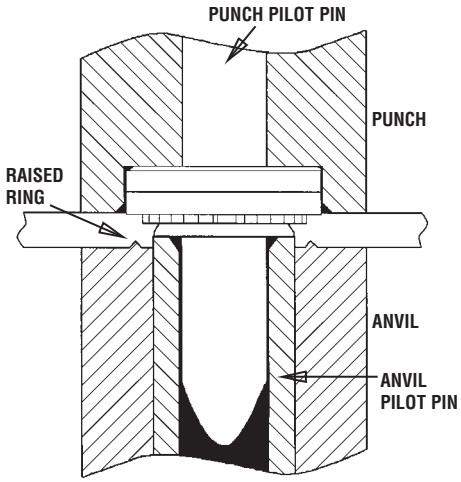
Anvil Dimensions

	Thread Code	Anvil Dimensions (in.) A ±.002	Anvil Dimensions (in.) C ±.002	Anvil Part Number	Punch Part Number
UNIFIED	440	.345	.358	975200027	975200060
	632	.345	.390	975201243	975200061
	832	.435	.421	975200029	975200062
	032	.435	.452	975201244	975200064

	Thread Code	Anvil Dimensions (mm) A ±0.05	Anvil Dimensions (mm) C ±0.05	Anvil Part Number	Punch Part Number
METRIC	M3	8.76	9.09	975200027	975200060
	M4	11.05	10.69	975200029	975200062
	M5	11.05	11.48	975201244	975200064

Type SP[1]

1. Punch or drill properly sized mounting hole in sheet. Do not perform any secondary operations such as deburring.
2. Place the shank of fastener into mounting hole.
3. With punch and anvil surfaces parallel, apply squeezing force until head of fastener is flush with sheet. A special punch with a pilot pin to align the nut and a special anvil with a pilot pin to align the sheet and a raised ring is required to create a proper installation. The raised ring acts as a second displacer of the stainless sheet material, thereby ensuring that the annular groove of the nut is filled.

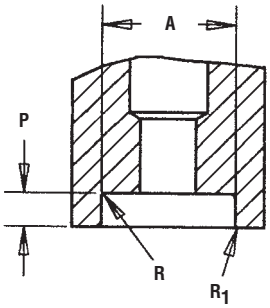


Punch Dimensions

	Thread Code	Punch Dimensions (in.) A ±.002	P ±.001	R Max.	R_1 +.005	Anvil Part No.
UNIFIED	440	.255	.066	.010	.005	8002691
	632	.286	.066	.010	.005	8002692
	832	.317	.089	.010	.005	8002693
	032	.348	.089	.010	.005	8002694

	Thread Code	Punch Dimensions (mm) A ±0.05	P ±0.03	R Max.	R_1 +0.13	Anvil Part No.
METRIC	M3	6.48	1.42	0.25	0.13	8002695
	M3.5	7.26	1.42	0.25	0.13	8002696
	M4	8.05	1.93	0.25	0.13	8002697
	M5	8.84	1.93	0.25	0.13	8002698

RECOMMENDED INSTALLATION PUNCH

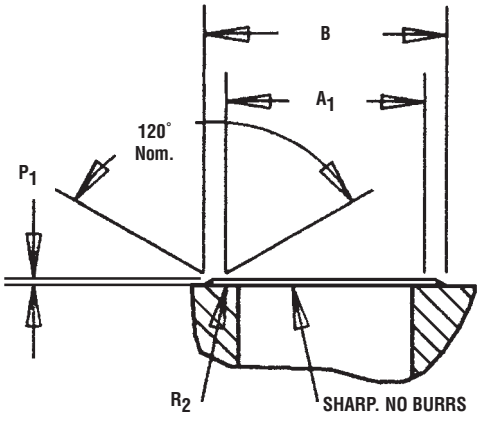


Anvil Dimensions[2]

	Thread Code	Anvil Dimensions (in.) A_1 +.002 -.000	B Nom.	P_1 +.001 -.000	R_2 Max.	Anvil Part No.
UNIFIED	440	.199	.261	.009	.003	8002687
	632	.218	.280	.009	.003	8002688
	832	.243	.305	.009	.003	8002689
	032	.288	.350	.009	.003	8002690

	Thread Code	Anvil Dimensions (mm) A_1 +.05	B Nom.	P_1 +.03	R_2 Max.	Anvil Part No.
METRIC	M3	5.05	6.63	.23	.08	8002687
	M3.5	5.54	7.11	.23	.08	8002688
	M4	6.17	7.75	.23	.08	8002689
	M5	7.34	8.89	.23	.08	8002690

RECOMMENDED INSTALLATION ANVIL

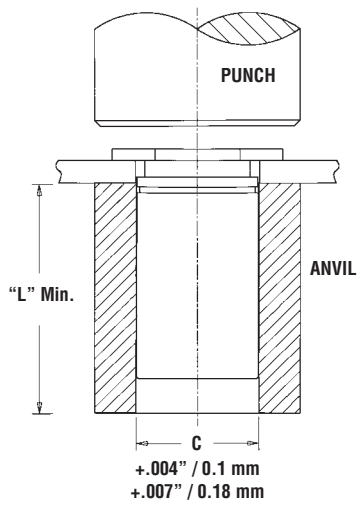


(1) *To meet the published performance data, we recommend using the installation punch and anvil shown. You may use a flat punch and anvil, but reduced performance may result.*

(2) *We recommend replacing installation anvil when the height of the "P" dimension is reduced to .005" / 0.13 mm due to wear. Reductions in performance may occur as the height of the protrusion wears. Variations in hole preparation, installation force, and sheet material type, thickness, and hardness will affect both performance and tooling life.*

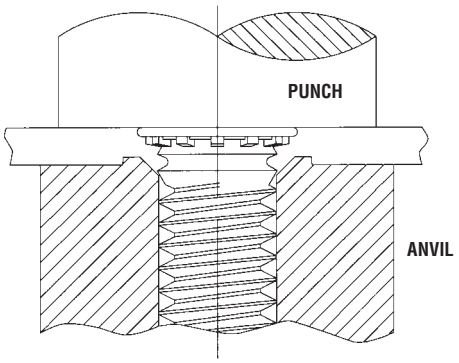
Types SO4 and BSO4

1. Punch or drill properly sized mounting hole in sheet. Do not perform any secondary operations such as deburring.
2. Insert standoff through mounting hole of sheet and into anvil as shown in drawing.
3. With punch and anvil surfaces parallel, apply only enough squeezing force to embed the standoff's head flush in the sheet.



Type FH4

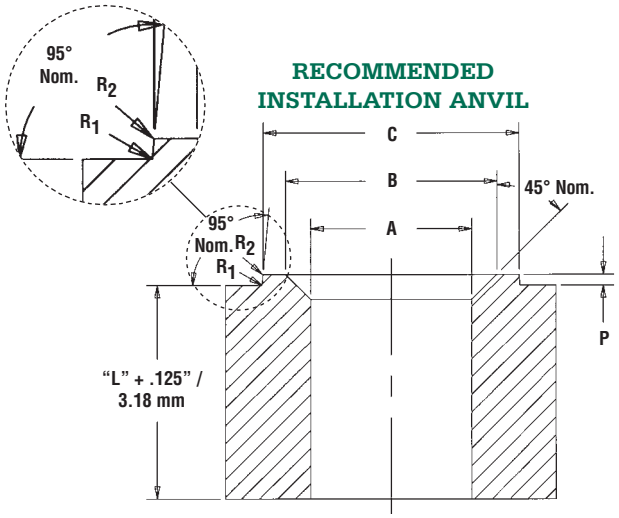
1. Punch or drill properly sized mounting hole in sheet. Do not perform any secondary operations such as deburring.
2. Place fastener into the anvil hole and place the mounting hole over the shank of the fastener.
3. With punch and anvil surfaces parallel, apply squeezing force until head of fastener is flush with sheet. A special anvil with a raised ring is required to create a proper installation. The raised ring acts as a second displacer of the stainless sheet material, thereby ensuring that the annular groove of the stud is filled.



Anvil Dimensions[1]

	Thread Code	Anvil Dimensions (in.) A +.003 -.000	B ±.002	C ±.002	P ±.001	R_1 Max.	R_2 Max.	Anvil Part No.
UNIFIED	440	.113	.144	.174	.010	.003	.005	8001645
	632	.140	.170	.200	.010	.003	.005	8001644
	832	.166	.202	.236	.010	.003	.005	8001643
	032	.191	.235	.275	.010	.003	.005	8001642
	0420	.252	.324	.360	.020	.003	.005	8002533

	Thread Code	Anvil Dimensions (mm) A +0.08	B ±0.05	C ±0.05	P ±.025	R_1 Max.	R_2 Max.	Anvil Part No.
METRIC	M3	3.05	3.81	4.57	0.25	0.08	0.13	8001678
	M4	4.04	4.95	5.82	0.25	0.08	0.13	8001677
	M5	5.08	6.15	7.16	0.25	0.08	0.13	8001676
	M6	6.05	7.87	8.79	0.51	0.08	0.13	8002534



(1) *We recommend replacing installation anvil when the height of the "P" dimension is reduced to .005" / 0.13 mm due to wear. Reductions in performance may occur as the height of the protrusion wears. Variations in hole preparation, installation force, and sheet material type, thickness, and hardness will affect both performance and tooling life.*

PERFORMANCE DATA[1]

	Part Number	Max. Nut Tightening Torque (in. lbs.)	Max. Rec. Tightening Torque For Mating Screw (in. lbs.)	Test Sheet Material: 300 Series Stainless Steel			
				Installation (lbs.)	Pushout (lbs.)	Torque-out (in. lbs.)	Pull-thru (lbs.)
UNIFIED	PFC4-440	——	——	9100	350	——	——
	PFC4-632	——	——	10300	400	——	——
	PFC4-832	——	——	10800	450	——	——
	PFC4-032	——	——	11800	550	——	——
	SP-440-0	——	——	3000-5000	130	14	——
	SP-440-1	——	——	3000-5000	165	17	——
	SP-440-2	——	——	3000-5000	290	18	——
	SP-632-0	——	——	4000-7000	140	18	——
	SP-632-1	——	——	4000-7000	170	24	——
	SP-632-2	——	——	4000-7000	340	28	——
	SP-832-0	——	——	4000-7000	145	30	——
	SP-832-1	——	——	4000-7000	180	37	——
	SP-832-2	——	——	4000-7000	360	45	——
	SP-032-0	——	——	6000-9000	180	35	——
	SP-032-1	——	——	6000-9000	230	45	——
	SP-032-2	——	——	6000-9000	400	60	——
	SP-0420-1	——	——	9000-11000	450	150	——
	SO4/BSO4-440	——	4.75	5500	360	17	600
	SO4/BSO4-6440	——	4.75	9500	647	17	680
	SO4/BSO4-632	——	8.75	9500	647	30	680
	SO4/BSO4-8632	——	8.75	10500	900	30	1392
	SO4/BSO4-832	——	18	10500	900	53	1517
	SO4/BSO4-032	——	32	10500	900	71	1368
	FH4-440-L	6	——	9000	750	16	800
	FH4-632-L	11	——	9500	900	27	1350
	FH4-832-L	21	——	11200	1000	58	1800
	FH4-032-L	33	——	12000	1100	95	2250
	FH4-0420-L	70	——	2300	1600	156	3900

	Part Number	Max. Nut Tightening Torque (N•m)	Max. Rec. Tightening Torque For Mating Screw (N•m)	Test Sheet Material: 300 Series Stainless Steel			
				Installation (kN)	Pushout (N)	Torque-out (N•m)	Pull-thru (N)
METRIC	PFC4-M3	——	——	40.5	1557	——	——
	PFC4-M4	——	——	48	2002	——	——
	PFC4-M5	——	——	52.5	2447	——	——
	SP-M3-0	——	——	13-22	575	1.58	——
	SP-M3-1	——	——	13-22	725	1.92	——
	SP-M3-2	——	——	13-22	1290	2.03	——
	SP-M4-0	——	——	22-31	645	3.38	——
	SP-M4-1	——	——	22-31	800	4.18	——
	SP-M4-2	——	——	22-31	1600	5.08	——
	SP-M5-0	——	——	26-40	800	3.95	——
	SP-M5-1	——	——	26-40	1025	5.08	——
	SP-M5-2	——	——	26-40	1775	6.77	——
	SP-M6-1	——	——	40-48	2000	17	——
	SO4/BSO4-M3	——	0.55	24.5	1493	2.36	2650
	SO4/BSO4-3.5M3	——	0.55	42.3	2877	2.36	3025
	SO4/BSO4-M3.5	——	0.91	42.3	2877	3.06	3025
	SO4/BSO4-M4	——	2	46.7	4003	6.34	6458
	SO4/BSO4-M5	——	3.6	46.7	4003	8.89	6226
	FH4-M3-L	.9	——	40	3300	1.8	3500
	FH4-M4-L	2.1	——	50	4400	6.5	8000
	FH4-M5-L	4.3	——	53	4900	10.7	10000
	FH4-M6-L	7.2	——	71	4200	15.9	14900

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

SELF-CLINCHING FASTENER INSTALLATION DO'S AND DON'TS

"Do's"

Do make certain that hole punch is kept sharp to minimize work hardening around hole.

Do provide mounting hole of specified size for each fastener.

Do make certain that shank (or pilot) is within hole before applying installation force.

Do apply squeezing force between parallel surfaces.

Do apply sufficient force to totally embed clinching ring around entire circumference and to bring shoulder squarely in contact with sheet. For some fasteners, installation will be complete when the head is flush with the panel surface.

"Don'ts"

Don't attempt to install a 300 series stainless steel fastener into a stainless steel sheet.

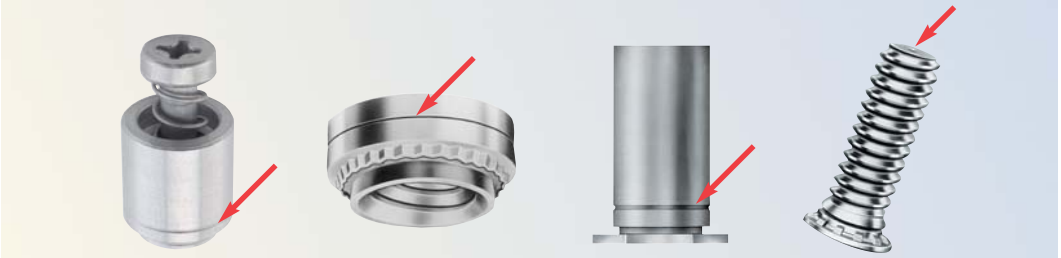
Don't deburr mounting holes on either side of sheet before installing fasteners – deburring will remove metal required for clinching fastener into sheet.

Don't install fastener closer to edge of sheet than minimum edge distance – unless a special fixture is used to restrict bulging of sheet edge.

Don't over-squeeze. It will crush the head, distort threads, and buckle the sheet. Be certain to determine optimum installation force by test prior to production runs.

Don't attempt to insert fastener with a hammer blow – under any circumstances. A hammer blow won't permit the sheet metal to flow and develop an interlock with the fastener's contour.

Don't install screw in the head side of fastener. Install from opposite side so that the fastener load is toward sheet. The clinching force is designed only to hold the fastener during handling and to resist torque during assembly.



To be sure that you are getting genuine PEM® brand self-clinching fasteners, look for the "one groove" trademark on types PFC4, SP, and SO4/BSO4, and the "dimple" trademark on the end of FH4 studs.

Specifications subject to change without notice.

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