



BULLETIN

- Fasteners
- For Use in
- Stainless
- Steel Sheets



707

Revised 108

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. They allow the use of stainless steel sheet to satisfy applications, which require lighter, stronger designs that must perform in challenging environments. Effectively eliminate welding and reduce loose hardware.

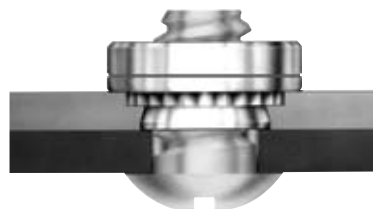
PEM self-clinching nuts provide strong load-bearing threads in stainless sheets as thin as .030"/0.8mm. When properly installed the nuts mount permanently in the sheets with one side completely flush within the panel. PEM type SP nuts also provide significant corrosion resistant properties for the most demanding conditions.

PEM self-clinching flush-head studs can be mounted in stainless sheets as thin as .040"/1mm. These studs offer convenient attachment points and achieve excellent performance values. Type FHP studs have high corrosion resistance. You can select either the FH4 or FHP types depending on the level of corrosion resistance that you require.

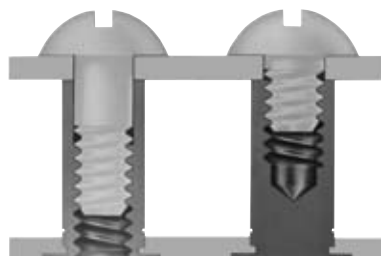
PEM self-clinching standoffs provide a permanently mounted fastener that can be used for mounting, stacking or spacing components to or from stainless steel panels. Pressed into stainless sheets as thin as .040"/1.02mm these fasteners are available as Type SO4 (blind) or Type BSO4 (through hole) types.

PEM self-clinching panel fasteners provide "tool only" access to your stainless steel assemblies.

Fasteners made from precipitation hardened grade stainless are particularly useful in applications such as outdoor equipment, medical devices and chemical and food processing equipment or anywhere corrosive element exposure is possible.



Type SP nuts with single ring



Type SO4 Standoffs Type BSO4 Standoffs



Type FH4 and FHP studs



Type PFC4 Panel Fasteners

SpotFast™ Fasteners For Stainless Sheets

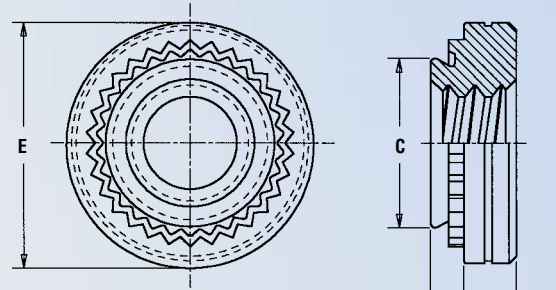
NEW!

Allows permanent joining of two stainless steel sheets. The fastener installs smooth with the top sheet, and flush or sub-flush with the bottom sheet. See PEM® Bulletin SFP for more information.



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.

UNIFIED	Thread Size	Type	Thread Code	Shank Code	A (Shank) Max.	Sheet Thickness	Hole Size In Sheet +.003-.000 (2)	C Max.	E ±.010	T ±.010	Min. Dist. Hole C/L To Edge (1)
	.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.

METRIC	Thread Size x Pitch	Type	Thread Code	Shank Code	A (Shank) Max.	Sheet Thickness	Hole Size In Sheet +0.08 (2)	C Max.	E ±0.25	T ±0.25	Min. Dist. Hole C/L To Edge (1)
	M3 x 0.5	SP	M3	0	0.77	0.8 - 1	4.22	4.2	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	5.41	5.39	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	6.35	6.33	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	8.73	11.1	4.1	8.6	

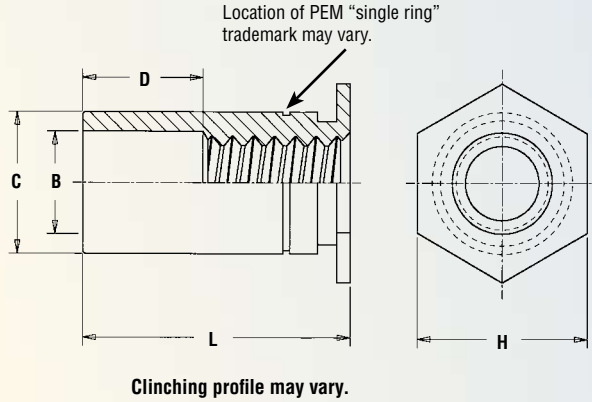
- (1) To minimize sheet distortion and maximize product performance, use a centerline-to-edge value greater or equal to the value specified.
 (2) Hole punch diameter must be maintained at +.001" / .025mm over mounting hole diameter. Hole punch should be kept sharp to minimize local work hardening around hole. Fasteners should be installed in the punch side of the hole.

TYPE S04™ 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.



UNIFIED	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⁾
	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.

METRIC	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⁾
	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.

UNIFIED	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
	.112-40 (#4-40)	S04	440	4	6	8	10	12	14	16	18	20	22	24	NA	NA	NA	NA	NA
			6440 ⁽²⁾																
	.138-32 (#6-32)	S04	632	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34
			8632 ⁽²⁾																
.164-32 (#8-32)	S04	832	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	
		032																	
D Dimension ±.010				None				.187				.312				.437			

All dimensions are in millimeters.

METRIC	Thread Size x Pitch	Type	Thread Code	Length "L" +0.05 -0.13 (Length Code in millimeters)												
				3	4	6	8	10	12	14	16	18	20	22	25	
	M3 x 0.5	S04	M3	3	4	6	8	10	12	14	16	18	NA	NA	NA	
			3.5M3 ⁽²⁾													
	M3.5 x 0.6	S04	M3.5	3	4	6	8	10	12	14	16	18	20	22	25	
			M4													
M4 x 0.7																
M5 x 0.8																
D Dimension ±0.25				None				4				8				11

(1) To minimize sheet distortion and maximize product performance, use a centerline-to-edge value greater or equal to the value specified.

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

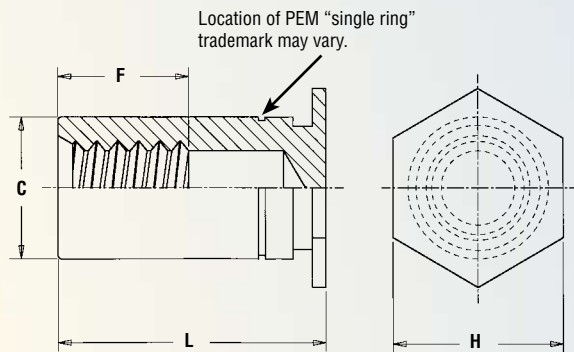
NA Not Available.

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.



UNIFIED	Thread Code	Min. Sheet Thickness	Hole Size In Sheet +.003 -.000	C +.000 -.005	H Nom.	Min. Dist. Hole C/L To Edge(1)
	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.

METRIC	Thread Code	Min. Sheet Thickness	Hole Size In Sheet +0.08	C -0.13	H Nom.	Min. Dist. Hole C/L To Edge(1)
	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.

UNIFIED	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
				.112-40 (#4-40)	BSO4	440	10	12	14	16	18	20	22	24	26	28
6440 ⁽²⁾																
.138-32 (#6-32)	BSO4	632	10	12	14	16	18	20	22	24	26	28	30	32	34	
8632 ⁽²⁾																
.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.

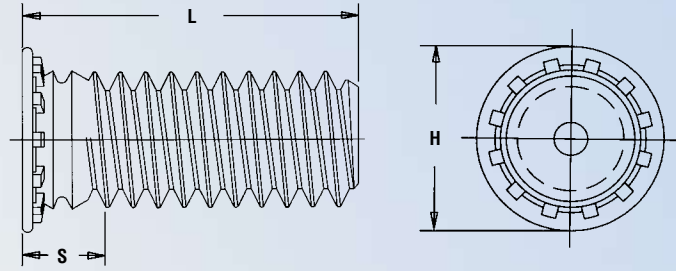
METRIC	Thread Size x Pitch	Type	Thread Code	Length "L" +0.05 -0.13 (Length Code in millimeters)										
				6	8	10	12	14	16	18	20	22	25	
				M3 x 0.5	BSO4	M3	6	8	10	12	14	16	18	20
3.5M3 ⁽²⁾														
M3.5 x 0.6	BSO4	M3.5	6	8	10	12	14	16	18	20	22	25		
M4 x 0.7		M4												
M5 x 0.8		M5						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

(1) To minimize sheet distortion and maximize product performance, use a centerline-to-edge value greater or equal to the value specified.

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

TYPE FH4™ AND FHP™ 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.

UNIFIED	Thread Size	Type		Thread Code	Length Code "L" ±.015 (Length code in 16ths of an inch)										Sheet Thickness	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						
	.112-40 (#4-40)	FH4	FHP	440	4	5	6	8	10	12 ^{NS}	14 ^{NS}	16 ^{NS}	NA	NA	.040-.095	.112	.135	.176	.085	.219
	.138-32 (#6-32)	FH4	FHP	632	4	5	6	8	10	12	14	16	20	24 ^{NS}	.040-.095	.138	.160	.206	.090	.250
	.164-32 (#8-32)	FH4	FHP	832	4	5	6	8	10	12	14	16	20	24 ^{NS}	.040-.095	.164	.185	.237	.090	.281
	.190-32 (#10-32)	FH4	FHP	032	NA	5 ^{NS}	6	8	10	12	14	16	20	24	.040-.095	.190	.210	.256	.100	.281
	.250-20 (1/4-20)	FH4	NA	0420	NA	NA	6 ^{NS}	8	10	12	14	16	20	24	.062-.117	.250	.270	.337	.135	.312

All dimensions are in millimeters.

METRIC	Thread Size x Pitch	Type		Thread Code	Length Code "L" ±0.4 (Length Code in millimeters)										Sheet Thickness	Hole Size in Sheet +0.08	Max. Hole in Attach. parts	H ±0.4	S Max.	Min. Dist. Hole C/L to Edge
					6 ^{NS}	8	10	12	15	18	20 ^{NS}	25 ^{NS}	NA	NA						
	M3 x 0.5	FH4	FHP	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	FHP	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	FHP	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	NA	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.

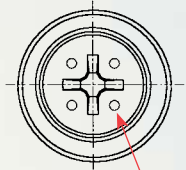
NA Not Available.

TYPE PFC4™ PANEL FASTENERS

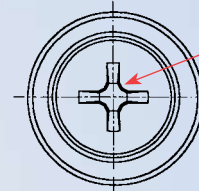
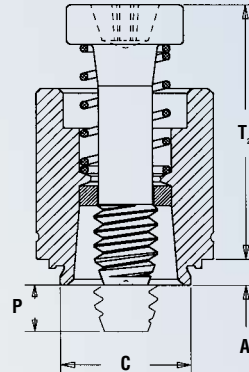
- Meets UL 1950 “service area access” requirements.
- Assorted screw lengths for most applications.
- For use in sheets of HRB 88 or less.



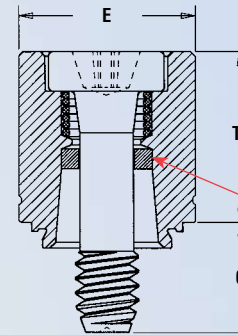
UL[®] **US**
Patented.



Four dimples on head designates metric thread.



Driver size.



PEM Trademark Blue plastic retaining ring

All dimensions are in inches.

UNIFIED	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)
	.112-40 (#4-40)	PFC4	440		40	.060	.060	.265	.264	.344	.250	.000	.370	.540	#1
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.

METRIC	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)
	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
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) To minimize sheet distortion and maximize product performance, use a centerline-to-edge value greater or equal to the value specified.
NS Not Stocked, available on special order.

MATERIAL & FINISH SPECIFICATIONS

Type	Threads		Fastener Materials			Finish	For Use in Sheet Hardness ⁽¹⁾			Corrosion Resistance	Magnetic
	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	A286 Stainless	Passivated and/or Tested per ASTM A380	HRB 92 / HB 202 or less	HRB 90 / HB 192 or less	HRB 88 / HB 183 or less		
SP Stamped	•					•		•		Excellent	No
SP Grooved	•		•			•		•		Good	Yes
S04	•			•		•			•	Fair	Yes
BS04	•			•		•			•	Fair	Yes
FH4		•		•		•	•			Fair	Yes
FHP		•			•	•	•			Excellent	No
PFC4		•		•		•			•	Fair	Yes

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

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.

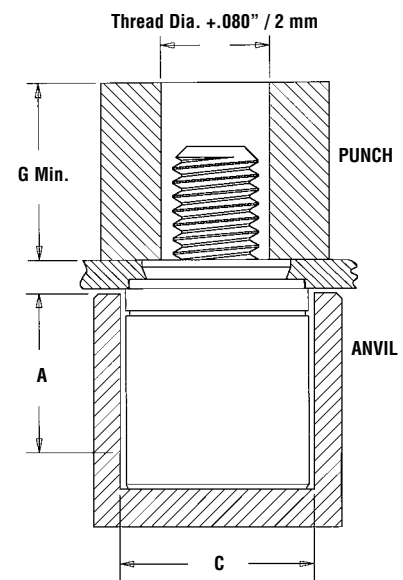
Type PFC4

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

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

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



INSTALLATION (continued)

Type SP⁽¹⁾ - Identified With Stamp

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

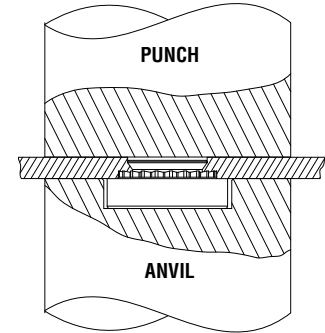
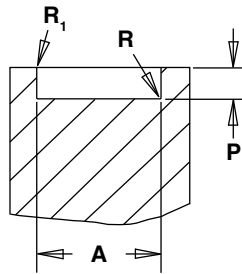
Identified With Stamp



UNIFIED	Thread Code	Anvil Dimensions (in.)				Anvil Part No.
		A ±.002	P +.000 -.001	R Max.	R ₁ +.005	
440	.255	.064	.010	.005	8012821	
632	.286	.064	.010	.005	8012822	
832	.317	.082	.010	.005	8012823	
032	.348	.082	.010	.005	8012824	
0420	.443	.163	.010	.005	8012825	

METRIC	Thread Code	Anvil Dimensions (mm)				Anvil Part No.
		A ±0.05	P -0.03	R Max.	R ₁ +0.13	
M3	6.48	1.63	0.25	0.13	8012821	
M3.5	7.26	1.63	0.25	0.13	8012822	
M4	8.05	2.08	0.25	0.13	8012823	
M5	8.84	2.08	0.25	0.13	8012824	
M6	11.25	4.14	0.25	0.13	8012825	

RECOMMENDED COUNTERBORED INSTALLATION ANVIL



(1) To meet the published performance data, we recommend using the installation punch and anvil shown. Deviations from recommended installation tooling may result in sheet distortion and reduced performance.

NOTE: Variations in hole preparation, installation tooling, installation force, and sheet material type, thickness, and hardness will affect both performance and tooling life.

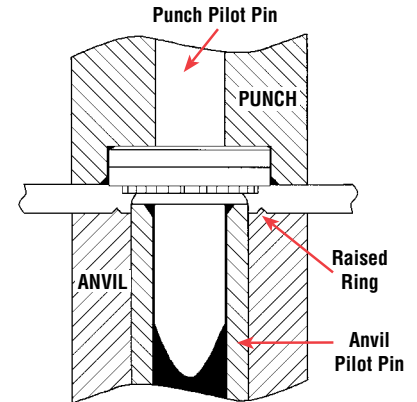
Type SP⁽¹⁾ - Identified With Single Ring

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 proper installation.

1. Punch or drill properly sized mounting hole in sheet. Do not perform any secondary operations such as deburring.
2. Place sheet on raised ring anvil.
3. Place fastener in hole.
4. With punch and anvil surfaces parallel, apply squeezing force until the head of the nut comes into contact with the sheet material.

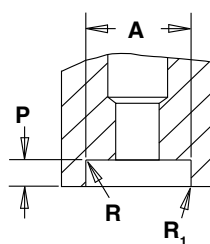


Identified with single ring



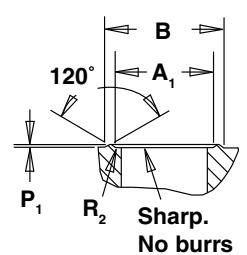
UNIFIED	Thread Code	Punch Dimensions (in.)				Punch Part No.
		A ±.002	P ±.001	R Max.	R ₁ +.005	
440	.255	.066	.010	.005	8002691	
632	.286	.066	.010	.005	8002692	
832	.317	.089	.010	.005	8002693	
032	.348	.089	.010	.005	8002694	
0420	—	—	—	—	(3)	

RECOMMENDED COUNTERBORED INSTALLATION PUNCH



UNIFIED	Thread Code	Anvil Dimensions (in.)				Anvil Part No.
		A ₁ ±.002	B Nom.	P ₁ (2) +.001 - .000	R ₂ Max.	
440	.199	.261	.009	.003	8002687	
632	.218	.280	.009	.003	8002688	
832	.243	.305	.009	.003	8002689	
032	.288	.350	.009	.003	8002690	
0420	—	—	—	—	(3)	

RECOMMENDED RAISED RING INSTALLATION ANVIL



METRIC	Thread Code	Punch Dimensions (mm)				Punch Part No.
		A ±0.05	P ±0.03	R Max.	R ₁ +0.13	
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	
M6	—	—	—	—	(3)	

METRIC	Thread Code	Anvil Dimensions (mm)				Anvil Part No.
		A ₁ ±0.05	B Nom.	P ₁ (2) +0.03	R ₂ Max.	
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	7.75	.23	.08	8002690	
M6	—	—	—	—	(3)	

(1) To meet the published performance data, we recommend using the installation punch and anvil shown. Deviations from recommended installation tooling may result in sheet distortion and reduced performance.

(2) We recommend replacing installation anvil when the height of the "P₁" dimension is reduced to .005" / 0.13mm due to wear. Reductions in performance may occur as the height of the protrusion wears.

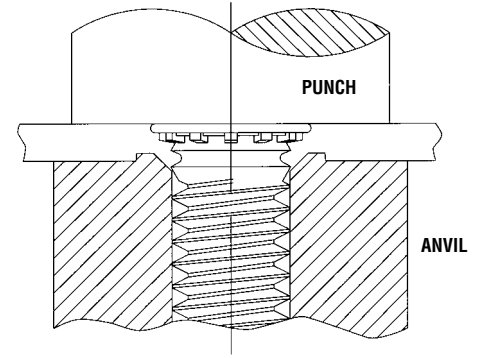
(3) Special installation tooling for #0420 and M6 thread sizes is not required.

NOTE: Variations in hole preparation, installation tooling, installation force, and sheet material type, thickness, and hardness will affect both performance and tooling life.

INSTALLATION (continued)

Type FH4 and FHP

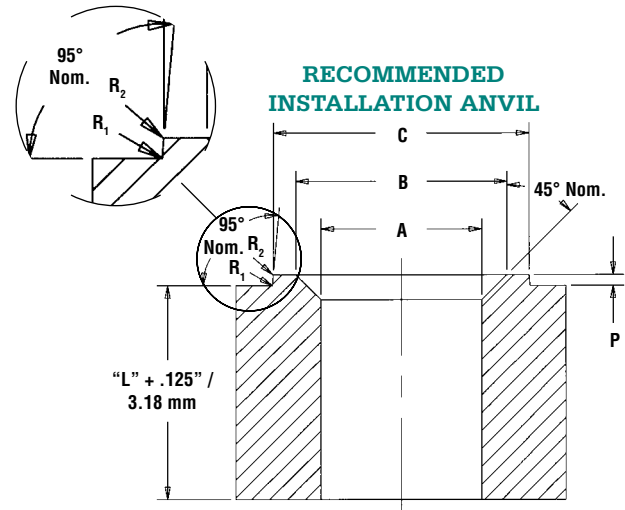
1. Punch or drill properly sized mounting hole in sheet. Do not perform any secondary operations such as deburring.
2. Place fastener into the anvil hole and place the mounting hole over the shank of the fastener.
3. With punch and anvil surfaces parallel, apply squeezing force until head of fastener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

UNIFIED	Thread Code	Anvil Dimensions (in.)						Anvil Part No.
		A +.003 -.000	B ±.002	C ±.002	P ±.001	R ₁ Max.	R ₂ Max.	
	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	8002535

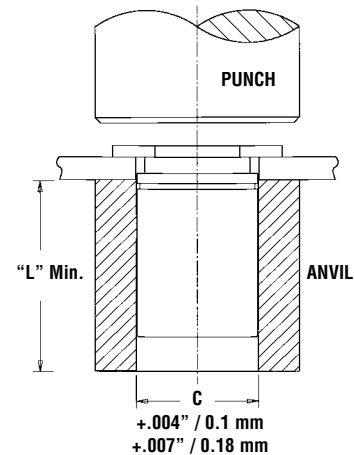
METRIC	Thread Code	Anvil Dimensions (mm)						Anvil Part No.
		A +0.08	B ±0.05	C ±0.05	P ±.025	R ₁ Max.	R ₂ Max.	
	M3	3.05	3.81	4.57	0.25	0.08	0.13	8001678
	M4	4.04	4.95	5.82	0.25	0.08	0.13	8001677
	M5	5.08	6.15	7.16	0.25	0.08	0.13	8001676
	M6	6.05	7.87	8.79	0.51	0.08	0.13	8002536



(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.

Types S04 and BS04

1. Punch or drill properly sized round 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.



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	SP-440-0	—	—	8000	130	14	—
	SP-440-1	—	—	9000	165	17	—
	SP-440-2	—	—	10000	290	18	—
	SP-632-0	—	—	8500	140	18	—
	SP-632-1	—	—	9500	170	24	—
	SP-632-2	—	—	10500	340	28	—
	SP-832-0	—	—	9000	145	30	—
	SP-832-1	—	—	10000	180	37	—
	SP-832-2	—	—	11000	360	45	—
	SP-032-0	—	—	9500	180	35	—
	SP-032-1	—	—	10500	230	45	—
	SP-032-2	—	—	11500	400	60	—
	SP-0420-1	—	—	13500	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	450	16	800
	FH4-632-L	11	—	9500	540	27	1350
	FH4-832-L	21	—	11200	780	58	1800
	FH4-032-L	33	—	12000	1050	95	2250
	FH4-0420-L	70	—	23000	1600	156	3900
	FHP-632-L	11	—	9500	670	19.5	940
	FHP-832-L	21	—	11200	785	37.5	1415
PFC4-440	—	—	9100	350	—	—	
PFC4-632	—	—	10300	400	—	—	
PFC4-832	—	—	10800	450	—	—	
PFC4-032	—	—	11800	550	—	—	

	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	SP-M3-0	—	—	35.6	575	1.58	—
	SP-M3-1	—	—	40	725	1.92	—
	SP-M3-2	—	—	44.5	1290	2.03	—
	SP-M4-0	—	—	40	645	3.38	—
	SP-M4-1	—	—	44.5	800	4.18	—
	SP-M4-2	—	—	49	1600	5.08	—
	SP-M5-0	—	—	42.3	800	3.95	—
	SP-M5-1	—	—	46.7	1025	5.08	—
	SP-M5-2	—	—	51.2	1775	6.77	—
	SP-M6-1	—	—	60	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	2220	1.8	3500
	FH4-M4-L	2.1	—	50	3210	6.5	8000
	FH4-M5-L	4.3	—	53	3575	10.7	10000
	FH4-M6-L	7.2	—	71	4200	15.9	14900
	FHP-M5-L	1.3	—	53	3890	7.35	7320
	PFC4-M3	—	—	40.5	1557	—	—
	PFC4-M4	—	—	48	2002	—	—
	PFC4-M5	—	—	52.5	2447	—	—

(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.

INSTALLATION INTO STAINLESS STEEL SHEETS DO'S AND DON'TS

“Do’s”

select the proper fastener material to meet corrosion requirements.

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

provide mounting hole of specified size for each fastener.

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

apply squeezing force between parallel surfaces.

utilize recommended installation tooling when installing fasteners.

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”

attempt to install a 300 series stainless steel fastener into a stainless steel sheet.

deburr mounting holes on either side of sheet before installing fasteners – deburring will remove metal required for clinching fastener into sheet.

install fastener closer to edge of sheet than minimum edge distance – unless a special fixture is used to restrict bulging of sheet edge.

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.

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.

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 “single ring”, “dimple”, or “SP” stamp trademark. On actual parts, location of ring on fastener may be different than shown in photo.

RoHS compliance information can be found on our website.

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