

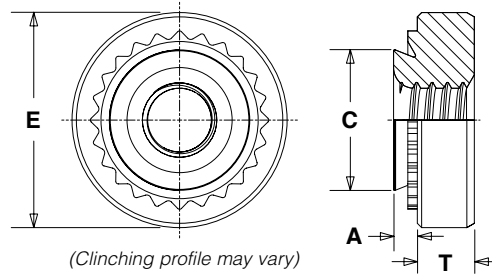
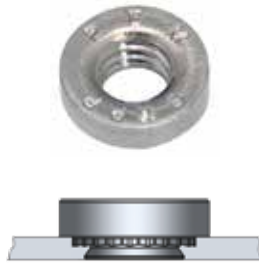
# Type SMPP™ Self-clinching Nuts

Installs into stainless steel sheets as thin as .025" / 0.64 mm



## TYPE SMPP™ SELF-CLINCHING NUTS

- Installs into stainless steel sheets as thin as .025" / 0.64 mm.
- Corrosion resistance similar to 300 series stainless steel.
- Reduced outer dimensions and thinner sheet capabilities compared to type SP thread sizes.
- Recommended for use in stainless steel sheets HRB 90 / HB 192 or less.



### Part Number Designation

SMPP - 440

Type and Material

Thread Code

All dimensions are in inches.

UNIFIED	Thread Size	Type	Thread Code	A (Shank) Max.	Min. Sheet Thickness	Hole Size In Sheet +.003 - .000	C Max.	E ±.010	T ±.010	Min. Dist. Hole To Edge $\phi$
		Fastener Material Hardened Stainless Steel								
	.086-56 (#2-56)	SMPP	256	.024	.025	.136	.135	.220	.065	.16
	.112-40 (#4-40)	SMPP	440	.024	.025	.166	.165	.220	.065	.20
	.138-32 (#6-32)	SMPP	632	.024	.025	.187	.186	.252	.065	.22

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 Max.	E ±0.25	T ±0.25	Min. Dist. Hole To Edge $\phi$
		Fastener Material Hardened Stainless Steel								
	M2.5 x 0.45	SMPP	M2.5	0.61	0.64	3.8	3.79	5.6	1.4	3.9
	M3 x 0.5	SMPP	M3	0.61	0.64	4.24	4.22	5.6	1.4	5.1
	M3.5 x 0.6	SMPP	M3.5	0.61	0.64	4.75	4.73	6.4	1.4	5.5

The increased hardness of stainless steel panels requires careful consideration when installing self-clinching fasteners. Refer to Fastener Installation Dos and Don'ts on our web site. [http://www.pemnet.com/design\\_info/dos\\_and\\_donts.html](http://www.pemnet.com/design_info/dos_and_donts.html)

Threads: Internal, ASME B1.1, 2B / ASME B1.13M, 6H  
 Material: Age hardened A286 stainless steel (non-magnetic)  
 Finish: - Passivated and/or tested per ASTM A380  
 For use in sheet hardness: HRB 90 / HB 192 or less  
 HRB - Hardness Rockwell "B" Scale. HB - Hardness Brinell.



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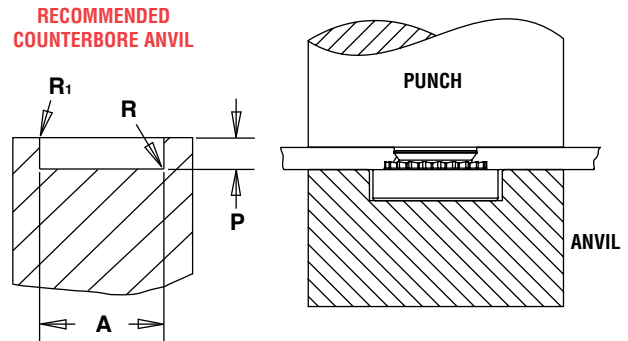
## INSTALLATION<sup>(1)</sup>

1. Prepare 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 as shown in diagram.
3. With installation punch and anvil surfaces parallel, apply squeezing force until the head of the nut comes into contact with the sheet material.

### PEMSERTER® Installation Tooling

UNIFIED	Thread Code	Anvil Dimensions (in.)				Anvil Part Number	Punch Part Number
		A ±.002	P +.000 -.001	R Max.	R <sub>1</sub> +.005		
	256	.223	.060	.010	.005	8020023	975200048
	440	.233	.060	.010	.005	8012386	
	632	.255	.060	.010	.005	8020024	

METRIC	Thread Code	Anvil Dimensions (mm)				Anvil Part Number	Punch Part Number
		A ±0.05	P -0.03	R Max.	R <sub>1</sub> +0.13		
	M2.5	5.66	1.27	0.25	0.13	8020025	975200048
	M3	5.9	1.27	0.25	0.13	8021474	
	M3.5	6.48	1.27	0.25	0.13	8020026	



(1) For best results, 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.

## PERFORMANCE DATA<sup>(1)</sup>

UNIFIED	Thread Code	Max. Mating Screw Tightening Torque (in. lbs.) (2) (3)	Test Sheet Thickness and Material (in.)	Sheet Hardness HRB	Installation (lbs.) (4)	Pushout (lbs.)	Torque-out (in. lbs.)	Tensile Strength (lbs.) (2) (3)	Test Bushing Hole Size For Pull Thru Tests (in.)
	256	7.5	.029" 304 Stainless Steel	89	4500	50	10	640	.104
	440	13	.029" 304 Stainless Steel	89	4500	75	15	850	.112
	632	20	.029" 304 Stainless Steel	89	6000	75	20	1020	.138

METRIC	Thread Code	Max. Mating Screw Tightening Torque (N·m) (2) (3)	Test Sheet Thickness and Material (mm)	Sheet Hardness HRB	Installation (kN) (4)	Pushout (N)	Torque-out (N·m)	Tensile Strength (kN) (2) (3)	Test Bushing Hole Size For Pull Thru Tests (mm)
	M2.5	1.05	0.7 mm 304 Stainless Steel	89	20	200	1.35	3.05	3
	M3	1.5	0.7 mm 304 Stainless Steel	89	20	300	1.85	3.63	3.5
	M3.5	2.1	0.7 mm 304 Stainless Steel	89	27	300	1.9	4.25	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) Head size is adequate to ensure failure in threaded area when tested with industry standard tensile bushing diameter.

(3) Tightening torque shown will induce preload of 70% of nut min axial strength with K or nut factor is equal to 0.20. In some applications tightening torque may need to be adjusted based on the actual K value. All tightening torques shown are based on 180 ksi/ Property Class 12.9 screws. For lower strength screws the tightening torque is proportionately less. For example, for 120 ksi screws, torque is 67% value shown. For 900 MPa screws (Property Class 9.8) torque value is 74% of value shown.

(4) Installation controlled by proper cavity depth in punch.

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