

microPEM® TackScrew™ Fasteners

New self-clinching, threaded microPEM® TackScrew™ (Type TS™) fasteners enable cost effective sheet-to-sheet attachment, by simply pressing into place. The TackScrew™ fastener securely attaches a top sheet or panel to the base material. TackScrew fasteners can be removed by simply unscrewing, similar to other threaded fasteners.



Ideal for today's compact electronics

- Laptops
- Notebooks
- Tablet Computers
- Cell / Smart Phones
- Gaming / Hand Held Devices
- Wearables
- Automotive Electronics

Features and Benefits

- Simple, press-in installation for secure attachment
- Proven clinch technology resists vibrational loosening
- Replaces micro screws, eliminating installation issues including:
 - Cost of locking patch
 - Cost of threaded insert or tapped hole
 - Cost of driver bits
 - Cost of rework due to cross-threading and driver bit "cam-out"
- Can be installed automatically for high volume applications
- Twists out (unscrew) if removal is necessary. Can be reinstalled one time using a thread locking adhesive.



microPEM® TackScrew™ Fasteners

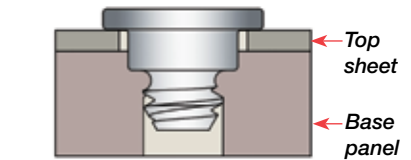
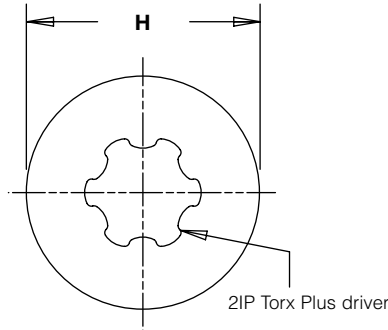
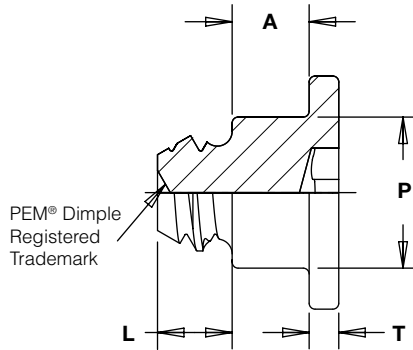
Part Number Designation

TS4 - 10 - 025

Type and Material
 Base Panel Hole Size Code
 Top Sheet Thickness Code

Material and Finish Specifications

Material: Heat-treated 400 series stainless steel
Finish: Passivated and/or tested per ASTM A380
For use in sheet hardness: HRB 89 or less (Hardness Rockwell "B" scale)
 HB 187 or less (Hardness Brinell)



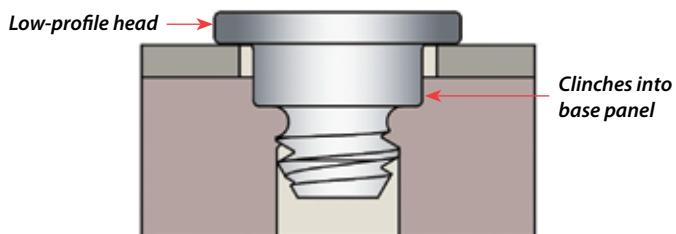
TackScrew fastener installs into blind or through hole applications.

Type Material	Base Panel Hole Size Code	Top Sheet Thickness Code	Top Sheet Thickness		Base Panel Min. Sheet Thickness (1)		Top Sheet Hole Size ±0.05 mm / ±.002"		Base Panel Hole Size ±0.025 mm / ±.001"		A ±0.05 mm / ±.002"		H ±0.1 mm / ±.004"		L ±0.1 mm / ±.004"		P ±0.05 mm / ±.002"		T ±0.1 mm / ±.004"		Min. Dist. Hole ϕ To Edge	
			mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.		
TS4	10	025	0.2 - 0.28	.008 - .011	0.91	.036	1.47	.058	0.99	.039	0.406	.016	2	.079	0.64	.025	1.3	.051	0.25	.010	1	.039
TS4	10	050	0.48 - 0.56	.019 - .022	0.91	.036	1.47	.058	0.99	.039	0.686	.027	2	.079	0.64	.025	1.3	.051	0.25	.010	1	.039

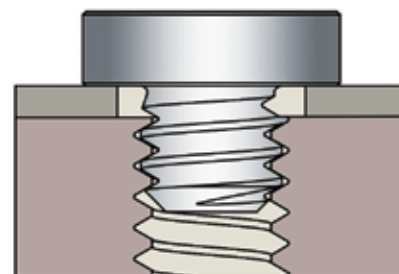
(1) Minimum sheet to prevent protrusion from through hole or minimum blind hole depth.

Comparison of TackScrew™ fastener to screw installation.

With TackScrew™ Fastener



With Screw



Typical screw related issues include costly tapping, cross-threading, torque control, and vibration back out.

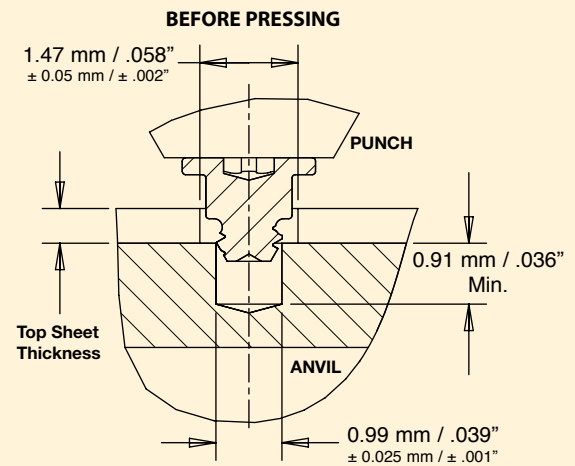
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Installation

1. Prepare properly sized mounting hole in top sheet and base panel. Base panel mounting hole can be through or blind.
2. Place sheet and base panel in proper position.
3. Place fastener through hole in sheet and into mounting hole of base panel.
4. With punch and anvil surfaces parallel, apply squeezing force until the head of the fastener contacts the top sheet.

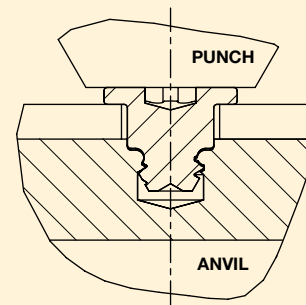
Re-installation (if necessary)

1. Place sheet and base panel in proper position.
2. Place adhesive into base panel mounting hole.
3. Place fastener through hole in top sheet and into mounting hole of base panel.
4. Screw in fastener with 2IP Torx Plus driver.



Shown with blind mounting hole.
Can also be used with a through hole.

AFTER PRESSING



PEMSERTER® Installation Tooling

Part Number	Punch Part Number	Anvil Part Number
TS4-10-025	8014167	975200046
TS4-10-050		

Performance Data⁽¹⁾

Part Number	Tested Top Sheet Thickness	5052-H34 Aluminum HRB 63 / HB 114						304 Stainless Steel HRB 89 / HB 187					
		Installation		Pullout ⁽²⁾		Torque to Remove		Installation		Pullout ⁽²⁾		Torque to Remove	
		N	lbs.	N	lbs.	N•cm	oz. in.	N	lbs.	N	lbs.	N•cm	oz. in.
TS4-10-025	0.254 mm / .01"	556	125	80	18	3.3	4.7	1423	320	125	28	4.6	6.5
TS4-10-050	0.533 mm / .021"												

(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) Pullout after initial installation.



microPEM[®] TackScrew[™] Fasteners

See below for additional types of microPEM[®] fasteners. To see information on the complete line of microPEM[®] hardware please visit our website at www.pemnet.com and click on the microPEM[®] button.



- Threads as small as M1.
- Pin diameters as small as 1 mm.
- Standoff lengths as short as 1 mm / .040".
- Attach sheets as thin as 0.08 mm / .003".
- Clinching into sheets as thin as 0.3 mm / .012".

microPEM[®]
FASTENERS

microPEM[®] TackSert[™] Pins



- Secure panels to common magnesium die casting materials such as AZ91D. Also appropriate for attaching panels to plastics such as ABS.
- Simple, press-in installation.
- Replaces micro screws, eliminating installation issues.

microPEM[®] Self-Clinching Locating Pins

Install Into Thin Sheets For Locating/Positioning Applications



- Smallest diameter: 1 mm / .040".
- Shortest length: 2 mm / .080".
- Minimum sheet thickness: 0.5 mm / .020".
- Maximum sheet hardness: HRB 92.
- Fastener material: steel, stainless steel and aluminum.

microPEM[®] Standoffs -

Install Into Thin Sheets For Spacing Applications



- Self-clinching installation.
- Smallest thread size: M1.0 / #0-80.
- Shortest length: 1 mm / .040".
- Minimum sheet thickness: 0.3 mm / .012".
- Maximum sheet hardness: HRB 88
- Fastener material: steel, stainless steel and aluminum.

microPEM[®] SMT Spacers -

Attaches to P.C. Boards for Nut/Space Applications



- Surface mount installation.
- Smallest thread size: M1.0 / #0-80.
- Shortest length: 1 mm / .040".
- Minimum sheet thickness: 0.3 mm / .012".
- Fastener material: steel

microPEM[®] Inserts - Strong Metal Threads In Plastics



- Smallest thread size: M1.
- Fastener material: brass and stainless steel.
- Styles: ultrasonic, molded-in and press in.

microPEM[®] Screws



- Smallest thread size: M1.
- Shortest length: 2 mm / .080".
- Fastener material: steel, stainless steel and aluminum.
- Driver types: TORX[®], TORX PLUS[®], Phillips and MORTORQ[®] Super Drive System.
- Head styles: flat head, pan head and Mortorq[®] Super Miniature Wafer Head.
- Special features: REMFORM[®] locking patch.
- Platings: black oxide and zinc.

microPEM[®] TackPin[™] Fasteners



- Micro sized for fastening within very compact designs.
- Attaches top sheets as thin as 0.2 mm / .008".
- Clinches into base panels as hard as HRB 45 / HB 84.
- Interference fit minimizes hole tolerance issues.
- Tapered tip assists location.
- Low-profile head provides cosmetic benefits.
- Replaces screws.

PennEngineering is a licensee for Acument Global Technologies (TORX[®], TORX PLUS[®]), Phillips Screw Company (MORTORQ[®]) and for Reminc (REMFORM[®], TAPTITE 2000[®], FASTITE 2000[®])

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Specifications subject to change without notice. Check our website for the most current version of this bulletin.

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