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.
TackScrew™ Fasteners

**Part Number Designation**

<table>
<thead>
<tr>
<th>Type and Material</th>
<th>Base Panel Hole Size Code</th>
<th>Top Sheet Thickness Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>TS4</td>
<td>- 10</td>
<td>- 025</td>
</tr>
</tbody>
</table>

**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)

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**Comparison of TackScrew™ fastener to screw installation.**

- **With TackScrew™ Fastener**
  - Low-profile head
  - Clinches into base panel

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

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

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**PEMSERTER® Installation Tooling**

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Punch Part Number</th>
<th>Anvil Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>TS4-10-025</td>
<td>8014167</td>
<td>975200046</td>
</tr>
<tr>
<td>TS4-10-050</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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**Performance Data**(1)

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Tested Top Sheet Thickness</th>
<th>5052-H34 Aluminum HRB 63 / HB 114</th>
<th>304 Stainless Steel HRB 89 / HB 187</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Installation</td>
<td>Pullout (2)</td>
<td>Torque to Remove</td>
</tr>
<tr>
<td>TS4-10-025</td>
<td>0.254 mm / .01”</td>
<td>556</td>
<td>125</td>
</tr>
<tr>
<td>TS4-10-050</td>
<td>0.533 mm / .021”</td>
<td>556</td>
<td>125</td>
</tr>
</tbody>
</table>

(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.
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® Standoffs**

- **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**

- **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**

- **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® 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® 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®, TAPITITE 2000®, FASTITE 2000®)

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