

# microPEM® TackSert® Pins

New microPEM® TackSert® (Type TK™) pins are designed with a diagonal knurl to hold a top panel to a bottom panel or chassis by broaching into the bottom panel/chassis. Type TKA (aluminum) pins are suitable for broaching into plastic applications, and Type TK4 (400 series stainless steel) pins are suitable for broaching into castings and brittle materials. For ductile metal applications, see microPEM® TackPin® fastener on page 4.



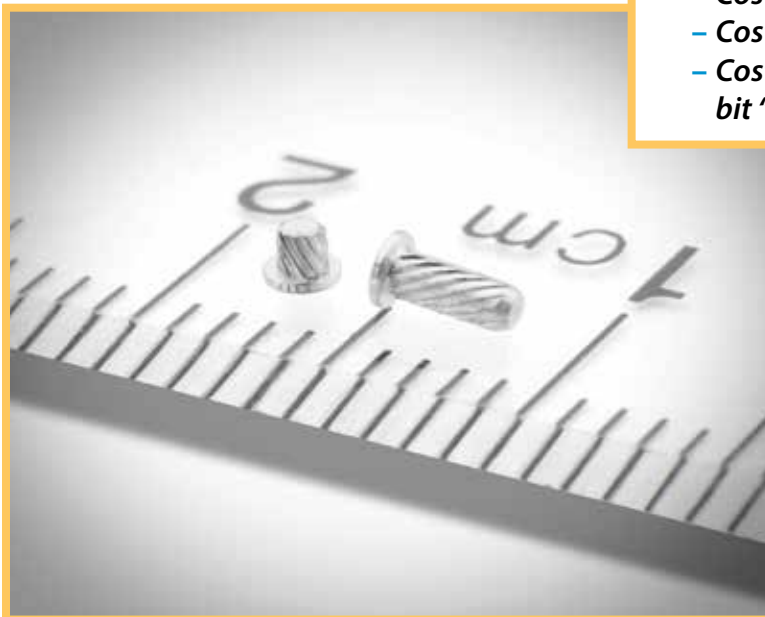
## Ideal for today's compact electronics

- Laptops
- Notebooks / Ultrabook™ Devices
- Tablet Computers
- Cell / Smart Phones
- Gaming / Hand Held Devices

*Ultrabook™ is a trademark of Intel® Corporation.*

### Features and Benefits

- *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. Does not require heat or ultrasonics.*
- *Alternative to micro screws, eliminating the need to tap or use threaded inserts.*
- *Top sheet can be any material.*
- *Low-profile head.*
- *Eliminates the following:*
  - *Cost of screw*
  - *Cost of patch to prevent loosening*
  - *Cost of threaded insert or tapped hole*
  - *Cost of driver bits*
  - *Cost of rework due to cross-threading and driver bit "cam-out".*

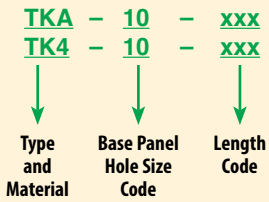


Look for the PEM®  
"Dimple" registered  
trademark.



# microPEM® TackSert® Pins

## Part Number Designation



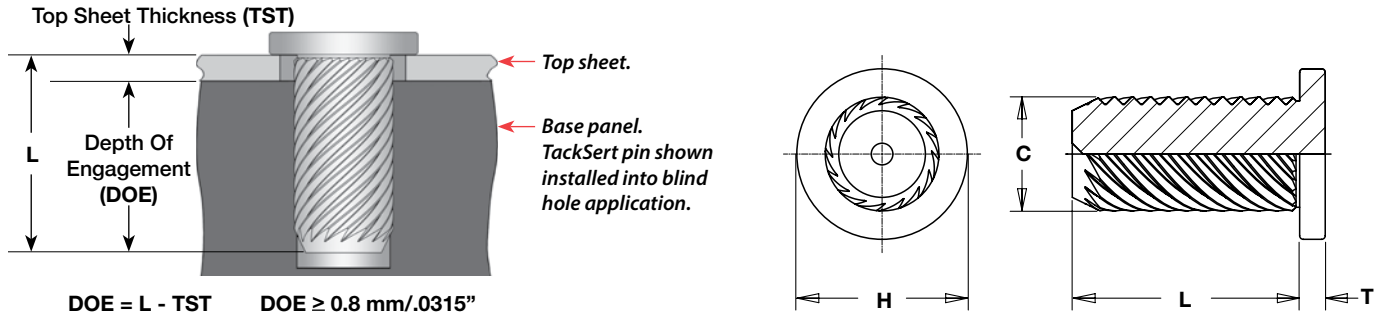
## Material and Finish Specifications

### Type TKA

**Material:** Heat-treated aluminum  
**Finish:** Plain finish  
**For use in (base panel):** P.C. Board and plastics

### Type TK4

**Material:** Heat-treated 400 series stainless steel  
**Finish:** Passivated and/or tested per ASTM A380  
**For use in (base panel):** castings and brittle materials



For through hole applications  
DOE - 0.25 mm/.010" = Min. Sheet

For blind hole applications  
DOE + 0.25 mm/.010" = Min. Blind Hole Depth

All dimensions are in millimeters.

METRIC	Type		Base Panel Hole Size Code	Length Code	Top Sheet Hole Size ±0.05	Base Panel Hole Size -0.03	Top Sheet Thickness Max.	C Max.	H ±0.08	L ±0.06	T ±0.08	Min. Dist. Hole To Edge (1)
	Fastener Material											
	Aluminum	400 series stainless steel										
	TKA	TK4	10	100	1.3	1	0.2	1.2	1.8	1	0.27	1.18
	TKA	TK4	10	150	1.3	1	0.7	1.2	1.8	1.5	0.27	1.18
	TKA	TK4	10	200	1.3	1	1.2	1.2	1.8	2	0.27	1.18
	TKA	TK4	10	250	1.3	1	1.7	1.2	1.8	2.5	0.27	1.18
	TKA	TK4	10	300	1.3	1	2.2	1.2	1.8	3	0.27	1.18

All dimensions are in inches.

UNIFIED	Type		Base Panel Hole Size Code	Length Code	Top Sheet Hole Size ±.001	Base Panel Hole Size -.002	Top Sheet Thickness Max.	C Max.	H ±.003	L ±.002	T ±.003	Min. Dist. Hole To Edge (1)
	Fastener Material											
	Aluminum	400 series stainless steel										
	TKA	TK4	10	100	.051	.039	.008	.047	.071	.039	.011	.047
	TKA	TK4	10	150	.051	.039	.028	.047	.071	.059	.011	.047
	TKA	TK4	10	200	.051	.039	.047	.047	.071	.079	.011	.047
	TKA	TK4	10	250	.051	.039	.067	.047	.071	.098	.011	.047
	TKA	TK4	10	300	.051	.039	.087	.047	.071	.118	.011	.047

(1) Minimum boss diameter is twice centerline-to-edge value.

## Comparison of TackSert® pin to screw installation.

### With TackSert® Pin

Low-profile head

Broaching knurl creates a firm interference fit

Tapered tip assists location

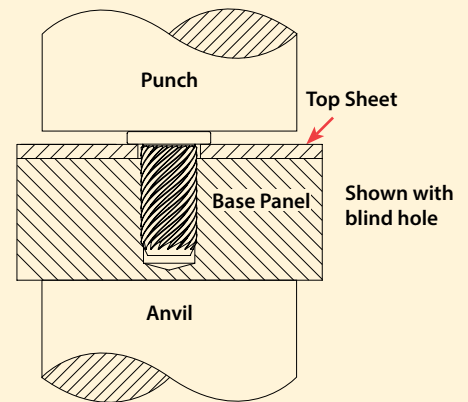
### With Screw

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

# microPEM® TackSert® Pins

## Installation

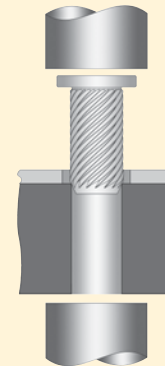
1. Prepare properly sized mounting hole in top sheet and base panel. Base panel mounting hole can be through or blind.
2. Place top sheet and base panel in proper position.
3. Place pin through hole in top sheet and into mounting hole of base panel.
4. With punch and anvil surfaces parallel, apply squeezing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



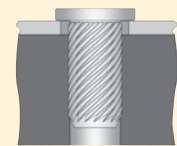
## Manual Installation Punch and Anvil Part Numbers

Size	Punch Part Number	Anvil Part Number
TKA/TK4-10-100	8014167	975200046
TKA/TK4-10-150		
TKA/TK4-10-200		
TKA/TK4-10-250		
TKA/TK4-10-300		

BEFORE PRESSING



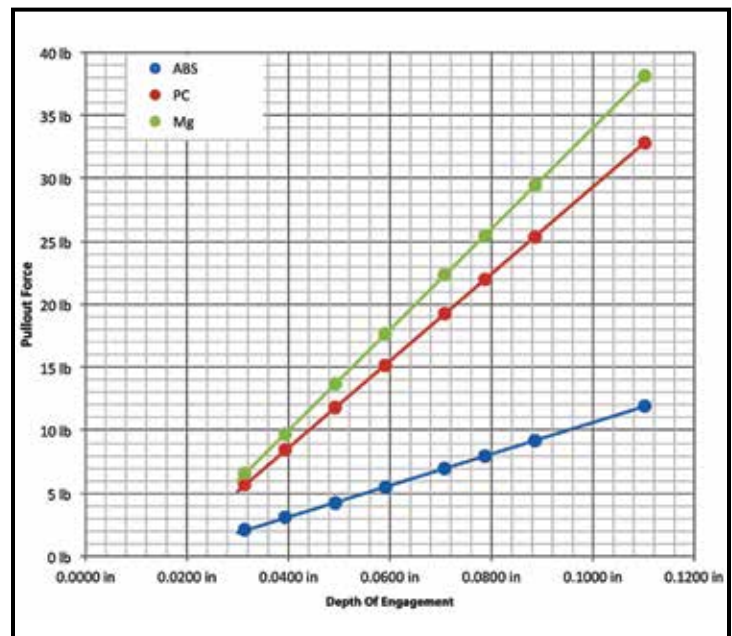
AFTER PRESSING



Shown with through hole

## Performance Data<sup>(1)</sup>

Type	Test Base Panel Material	Depth Of Engagement		Installation (lbs.)		Pullout (lbs.)	
		(mm)	(in.)	(N)	(lbs.)	(N)	(lbs.)
TKA-10	ABS	0.8	0.0315	133	30	9	2
		1	0.0394	133	30	14	3
		1.3	0.0492	133	30	19	4
		1.5	0.0590	178	40	24	6
		1.8	0.0708	178	40	31	7
		2	0.0787	222	50	35	8
		2.3	0.0886	222	50	41	9
		2.8	0.1102	245	55	53	12
TKA-10	P.C. Board	0.8	0.0315	222	50	25	6
		1	0.0394	267	60	37	8
		1.3	0.0492	267	60	53	12
		1.5	0.0590	311	70	68	15
		1.8	0.0708	334	75	86	19
		2	0.0787	378	85	98	22
		2.3	0.0886	400	90	113	25
		2.8	0.1102	423	95	146	33
TK4-10	Magnesium Casting (AZ91D)	0.8	0.0315	445	100	29	7
		1	0.0394	489	110	43	10
		1.3	0.0492	534	120	61	14
		1.5	0.0590	578	130	78	18
		1.8	0.0708	623	140	99	22
		2	0.0787	667	150	113	25
		2.3	0.0886	712	160	131	29
		2.8	0.1102	801	180	169	38



(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.



# microPEM® TackSert® Pins

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](http://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® 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® SMT Spacers - Attaches to P.C. Boards for Nut/Spacer Applications



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

### 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.
- Thread features: REMFORM®, locking patch.
- Platings: black oxide and zinc.

### microPEM® TackScrew™ Fasteners



- Simple, press-in installation for secure attachment.
- Twist out (unscrews) if removal is necessary.
- Replaces micro screws, eliminating installation issues.
- If removed, fastener can be reinstalled one time using thread locking adhesive.
- Can be installed automatically for high volume applications.

### microPEM® Standoffs - Install Into Thin Sheets For Spacing Applications



- Self-clinching installation.
- Smallest thread size: M1 / #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® Inserts For Plastics



- Threads as small as M1.
- Designed for use in straight or tapered holes.
- Symmetrical design eliminates the need for orientation.
- Provides excellent performance in wide range of plastics.

### microPEM® TackPin® Fasteners



- Micro sized for fastening within very compact designs.
- Attaches top sheets as thin as 0.08 mm / .003".
- 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.

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