

MATERIAL & FINISH SPECIFICATIONS

Type	Threads*	Fastener Materials					Standard Finishes			Optional Finish ⁽⁹⁾	Sheet Hardness Maximum on the Rockwell "B" Scale:					
	External, ANSI B1.1, 2A ANSI/ASME B1.13M, 6g	Heat-Treated Carbon Steel	300 Series Stainless Steel	2024-T4 Aluminum (Plain Finish)	CDA #510 Phosphor Bronze (2)	400 Series Stainless Steel	No Finish (3) (4)	Zinc Per ASTM B 633 SC1 (5µm), Type III, Colorless	Passivated and/or Tested Per ASTM A380	Zinc Per ASTM B 633 SC1 (5µm), Type II, Yellow	50 or less	55 or less	70 or less	80 or less	85 or less	92 or less
FH							
FHS	.		.					.								
FHA					
FH4
FHL			
FHLS	.		.					.								
TFH						
TFHS	.		.					.								
HFH	
HFHB				
HFHS			
TPS			.					.					.			
HFE	
Part Number Codes for Finishes							X	ZI	None	ZC						

- (1) Special order with additional charge.
- (2) Material properties – yield strength: 50,000 psi (345 MPa), tensile strength: 63,000 psi (434 MPa).
- (3) Part numbers for aluminum studs have no plating suffix.
- (4) "X" suffix studs may have pitch diameters and major diameters below 2A "Basic", per ANSI B1.1, Section 7, and B1.13M, Section 8 to allow for minimum of 0.0002" of plating.
- * For plated studs, Class 2A/6g, the maximum major and pitch diameter, after plating, may equal basic sizes and be gauged to Class 3A/4h. Per ANSI B1.1, Section 8, Table 3A and ANSI B1.13M, Section 8, paragraph 8.2.

INSTALLATION

For Types FH, FHS, FHA, FHL, FHLS, TFH, TFHS, HFH, HFHB, HFHS and HFE studs

PEM brand self-clinching studs are installed by placing them in punched or drilled holes in the sheet material and squeezing them into place with any standard press.

All that is required is a flat or recessed punch and a plain anvil having a hole to clear the thread diameter so that force is applied between the top of the stud head and underside of the sheet material. The squeezing action forces the ribs of the stud into the sheet, displacing sheet material, causing it to fill the annular groove under the head of the stud.

The following information provides specifics with regard to stud installation.

All dimensions are in inches.

UNIFIED	Thread Code	Anvil Dimensions	
		A	C
	256	.110-.114	.087-.090
	440	.136-.140	.113-.116
	632	.162-.166	.139-.142
	832	.188-.192	.165-.168
	024 & 032	.216-.220	.191-.194
	0420	.295-.300	.250-.253
	0518	.334-.338	.3125-.3155
	0616	-	.375-.378

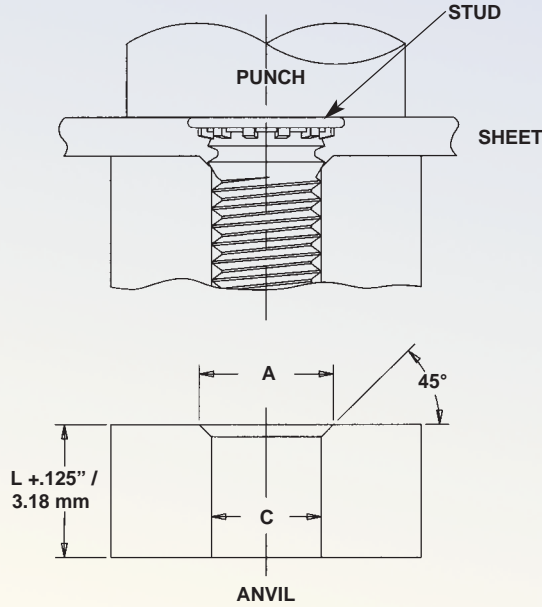
All dimensions are in millimeters.

METRIC	Thread Code	Anvil Dimensions	
		A + 0.1	C + 0.08
	M2.5	3.1	2.53
	M3	3.6	3.03
	M3.5	4.1	3.53
	M4	4.6	4.03
	M5	5.6	5.03
	M6	6.6	6.03
	M8	8.6	8.03
	M10	-	10.03

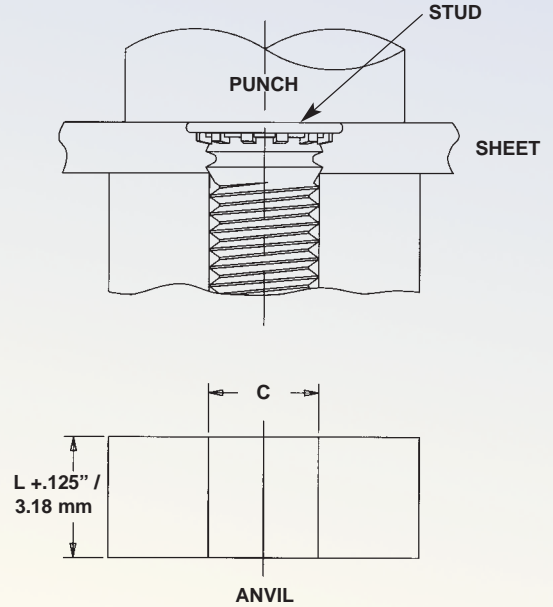
Type FH/FHS/FHA (Flush) Studs

The two sketches below indicate suggested tooling for applying installation forces. Note that for sheets .060" / 1.51 mm and thicker, the anvil requires only a straight thru hole to accommodate the stud. For sheets less than .060" / 1.51 mm, the hole requires a countersink with dimension A at the top to provide for metal flow around the shank of the stud.

Tooling for sheet thicknesses less than .060" / 1.51 mm with #2 thru #10 / M3 thru M5 thread sizes and less than .093" / 2.4 mm for 1/4" / M6 threads.



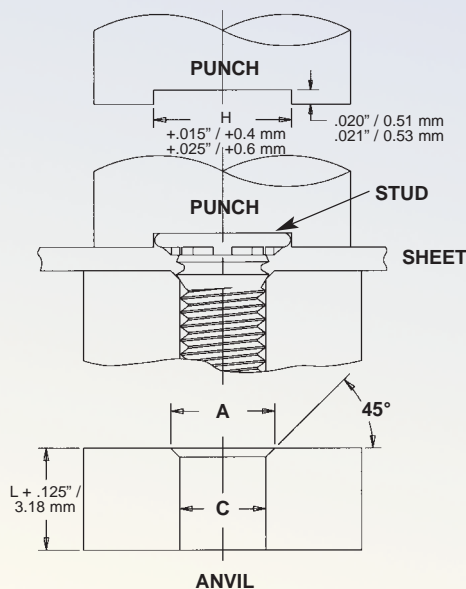
Tooling for sheet thicknesses .060" / 1.51 mm and greater with #2 thru #10 / M3 thru M5 thread sizes and .093" / 2.41 mm and greater for 1/4" and 5/16" / M6 and M8 threads.



Type TFH/TFHS (Non-Flush) Studs

The sketches below indicate suggested tooling for type TFH studs. Note that for sheets .030" / 0.76 mm and thicker, the anvil requires only a straight thru hole to accommodate the stud. For sheets less than .030" / 0.76 mm down to .020" / 0.51 mm, the hole requires a countersink with dimension A at the top to provide for metal flow around the shank of the stud. The standard punch design below provides clearance for the stud head and reduces chances of over squeezing the head of the stud into the sheet metal. When installed, the stud head is not flush but will protrude approximately .025" / 0.64 mm.

Tooling for sheet thicknesses less than .030" / 0.76 mm down to .020" / 0.51 mm.



Tooling for sheet thicknesses .030" / 0.76 mm and greater.

