PEM® TYPE PF7M™ AND PF7MF™ CAPTIVE PANEL SCREWS

NEW!

- Small, compact and low-profile design for limited access areas.
- MAThread® anti cross-thread feature (see details on page 4).
- Phillips recess for tool or hand operation.
- Available in two mounting styles, self-clinching (Type PF7M) or flaring (Type PF7MF).
- Shoulder on retainer to provide a positive stop during installation.
- Available in two screw lengths.

PennEngineering is a licensee for MAThread® technology, a registered trademark of MAThread Inc.

Self-clinching

Flaring

TYPE PF7M™ SELF-CLINCHING CAPTIVE PANEL SCREWS

- Self-clinching mounting design provides high pushout resistance.
- Installs flush on back side of panel.
- Does not require special hole preparation.

Patented.

PART NUMBER DESIGNATION

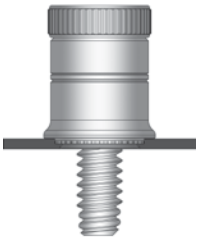
PF7	M	–	632	–	0	CN
Type	Anti Cross-thread Feature		Thread Size Code		Length Code	Finish

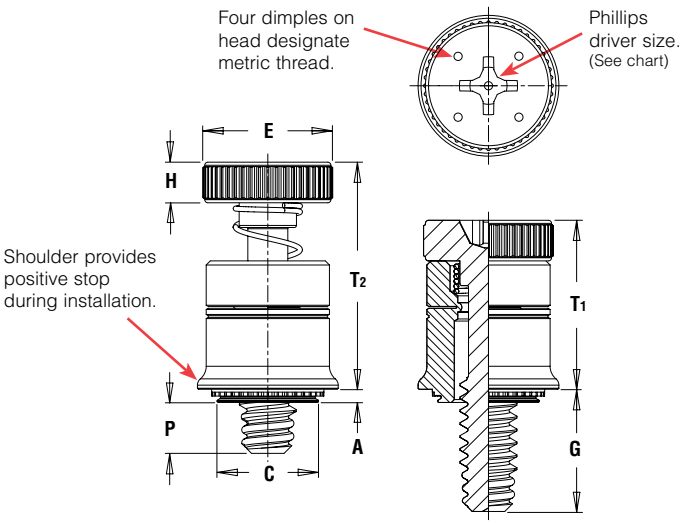
Threads:
External, ASME B1.1, 2A / ASME B1.13M, 6g (1)

Material:
Retainer: Carbon Steel
Screw: Heat-treated Carbon Steel
Spring: 300 Series Stainless Steel

Finish:
Retainer: Bright nickel over copper flash
Screw: Bright nickel over copper flash

For use in sheet hardness:
HRB 60 or less (Hardness Rockwell "B" Scale)
HB 107 or less (Hardness Brinell)





Unique MAThread® anti cross-threading feature.

All dimensions are in inches.

	Thread Size	Type Fastener Material Steel	Thread Code	Screw Length Code	A (Shank) Max.	Min. Sheet Thickness	Hole Size In Sheet +.003 −.000	C Max.	E ±.010	H ±.010	G ±.025	P ±.025	T1 Nom.	T2 Nom.	Driver Size	Min. Dist. Hole ℄ To Edge
UNIFIED	.112-40 (#4-40)	PF7M	440	0	.036	.036	.219	.218	.280	.100	.210	.000	.380	.550	#2	.28
				1							.270	.065				
	.138-32 (#6-32)	PF7M	632	0	.036	.036	.250	.249	.310	.100	.240	.000	.410	.610	#2	.29
				1							.300	.065				
	.164-32 (#8-32)	PF7M	832	0	.036	.036	.312	.311	.370	.120	.240	.000	.430	.630	#2	.33
				1							.300	.065				

All dimensions are in millimeters.

	Thread Size x Pitch	Type Fastener Material Steel	Thread Code	Screw Length Code	A (Shank) Max.	Min. Sheet Thickness	Hole Size In Sheet +0.08	C Max.	E ±0.25	H ±0.25	G ±0.64	P ±0.64	T1 Nom.	T2 Nom.	Driver Size	Min. Dist. Hole ℄ To Edge
METRIC	M3 x 0.5	PF7M	M3	0	0.92	0.92	5.56	5.54	7	2.5	5.33	0	9.65	13.97	#2	7.11
				1							6.86	1.65				
	M4 x 0.7	PF7M	M4	0	0.92	0.92	7.92	7.9	9.4	3	6.1	0	10.92	16	#2	8.38
				1							7.62	1.65				

(1) As with all Class 2A/6g external threads with an additive finish, the maximum major and pitch, 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.

TYPE PF7MF™ FLARING CAPTIVE PANEL SCREWS

- Appropriate for close centerline-to-edge applications.
- Does not require high installation force.
- Installs into any panel hardness.
- Installs flush on back side of panel.

Patented.

PART NUMBER DESIGNATION

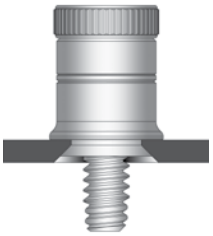
PF7 M F – 632 – 0

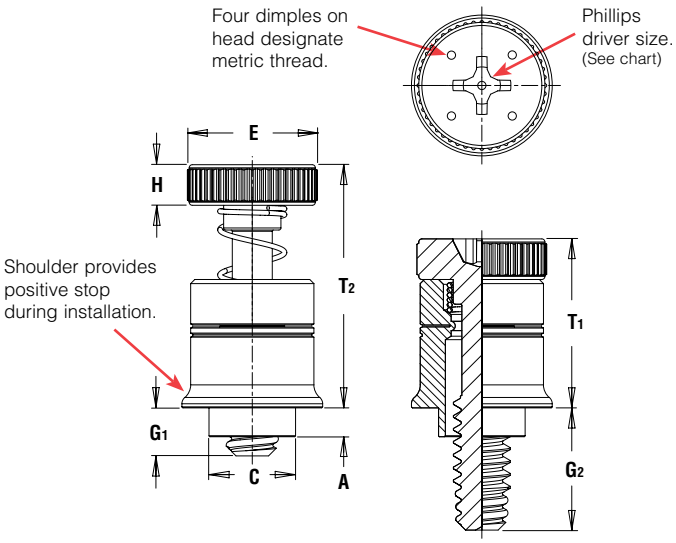
- PF7 — Type
- M — Anti Cross-thread Feature
- F — Flaring
- 632 — Thread Size Code
- 0 — Length Code

Threads:
External, ASME B1.1, 2A / ASME B1.13M, 6g (1)

Material:
Retainer: Aluminum
Screw: Heat-treated Carbon Steel
Spring: 300 Series Stainless Steel

Finish:
Retainer: Natural finish
Screw: Bright nickel over copper flash





Unique MAThread® anti cross-threading feature.

All dimensions are in inches.

	Thread Size	Type / Fastener Material / Steel	Thread Code	Screw Length Code	A (Shank) Max.	Min. Sheet Thickness	Hole Size In Sheet +.005 −.000	C Max.	E ±.010	H ±.010	G_1 ±.025	G_2 ±.025	T_1 Nom.	T_2 Nom.	Driver Size
UNIFIED	.112-40 (#4-40)	PF7MF	440	0	.041	.031	.187	.186	.280	.100	.040	.210	.380	.550	#2
				1							.100	.270			
	.138-32 (#6-32)	PF7MF	632	0	.072	.060	.213	.212	.310	.100	.040	.240	.410	.610	#2
				1							.100	.300			
	.164-32 (#8-32)	PF7MF	832	0	.072	.060	.266	.265	.370	.120	.040	.240	.430	.630	#2
				1							.100	.300			

All dimensions are in millimeters.

	Thread Size x Pitch	Type / Fastener Material / Steel	Thread Code	Screw Length Code	A (Shank) Max.	Min. Sheet Thickness	Hole Size In Sheet +0.13	C Max.	E ±0.25	H ±0.25	G_1 ±0.64	G_2 ±0.64	T_1 Nom.	T_2 Nom.	Driver Size
METRIC	M3 x 0.5	PF7MF	M3	0	1.05	0.79	4.75	4.73	7	2.5	1.02	5.33	9.65	13.97	#2
				1							2.54	6.86			
	M4 x 0.7	PF7MF	M4	0	1.83	1.52	6.76	6.74	9.4	3	1.02	6.1	10.92	16	#2
				1							2.54	7.62			

(1) As with all Class 2A/6g external threads with an additive finish, the maximum major and pitch, 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.

PERFORMANCE DATA(1)

TYPE PF7M

	Type	Thread Code	Rec. Tightening Torque (in. lbs.) (2)	Min. Screw Tensile (lbs.)	Test Sheet Material			
					Aluminum		Cold-rolled Steel	
					Installation (lbs.)	Retainer Pushout (lbs.)	Installation (lbs.)	Retainer Pushout (lbs.)
UNIFIED	PF7M	440	4.5	580	1500	80	2500	145
	PF7M	632	8.6	855	2000	95	3500	150
	PF7M	832	15.6	1300	3000	100	4500	160

	Type	Thread Code	Rec. Tightening Torque (N • m) (2)	Min. Screw Tensile (N)	Test Sheet Material			
					5052-H34 Aluminum		Cold-rolled Steel	
					Installation (kN)	Retainer Pushout (N)	Installation (kN)	Retainer Pushout (N)
METRIC	PF7M	M3	0.66	2900	6.7	355	11.1	645
	PF7M	M4	1.57	5010	13.3	445	20	710

TYPE PF7MF

	Type	Thread Code	Rec. Tightening Torque (in. lbs.) (2)	Min. Screw Tensile (lbs.)	Installation (lbs.)	Retainer Pushout (lbs.)
UNIFIED	PF7MF	440	4.5	580	250	81
	PF7MF	632	8.6	855	300	175
	PF7MF	832	15.6	1300	350	180

	Type	Thread Code	Rec. Tightening Torque (N•m) (2)	Min. Screw Tensile (N)	Installation (kN)	Retainer Pushout (N)
METRIC	PF7MF	M3	0.66	2900	1.1	360
	PF7MF	M4	1.57	5010	1.5	800

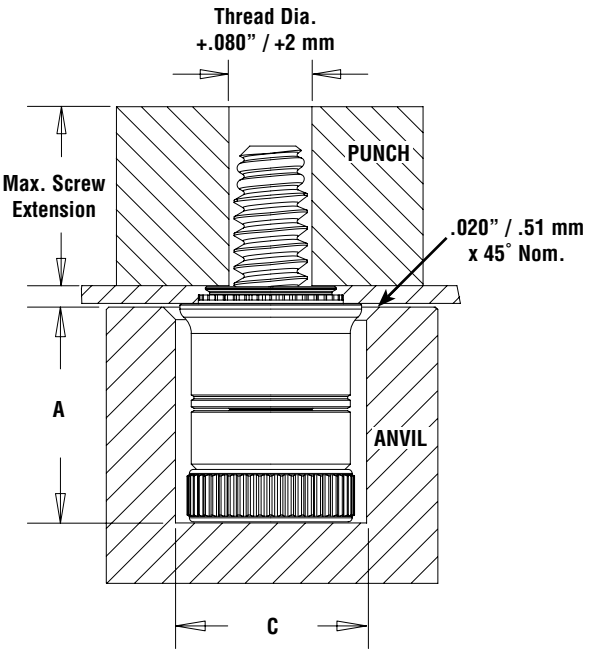
(1) The values reported are averages when all installation specifications and procedures are followed. Variations in mounting hole size, sheet material and installation procedure will affect results. Performance testing of this product in your application is recommended. We will be happy to provide samples for this purpose.

(2) Torque values shown will produce a preload of 70% minimum tensile with nut factor "k" equal to .1

INSTALLATION

TYPE PF7M

1. Prepare properly sized mounting hole in sheet. Do not perform any secondary operations such as deburring.
2. Place fastener into recessed anvil, and place workpiece (preferably the punch side) over the shank of fastener.
3. With punch and anvil surfaces parallel, apply squeezing force until the shoulder of the retainer comes in contact with the sheet material.



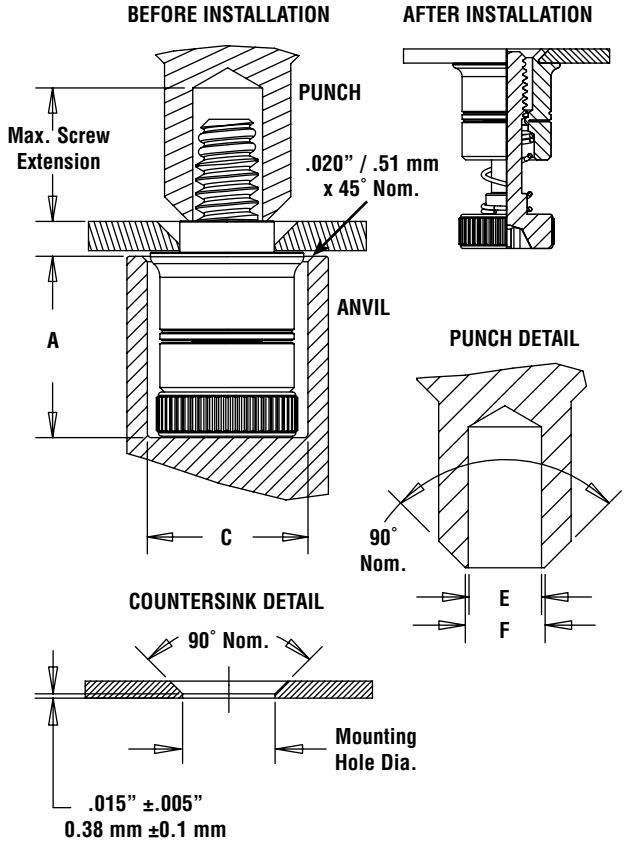
	Thread Code	Anvil Dimensions (in.)		Anvil Part Number	Punch Part Number
		A ±.002	C ±.002		
UNIFIED	440	.319	.290	8016175	8003518
	632	.333	.330	8016176	8003519
	832	.353	.385	8016177	8003520

	Thread Code	Anvil Dimensions (mm)		Anvil Part Number	Punch Part Number
		A ±0.05	C ±0.05		
METRIC	M3	8.1	7.34	8016175	8003518
	M4	8.9	9.8	8016177	8003520

INSTALLATION

TYPE PF7MF

1. Prepare properly sized mounting hole in sheet with countersink. Do not perform any secondary operations such as deburring.
2. Place fastener into recessed anvil, and place workpiece (preferably the punch side) over the shank of fastener.
3. With punch and anvil surfaces parallel, apply squeezing force to flare the retainer of the fastener.



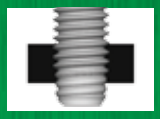
	Thread Code	Anvil Dimensions (in.) A ±.002	Anvil Dimensions (in.) C ±.002	Punch Dimensions (in.) E +.003 –.000	Punch Dimensions (in.) F ±.002	Anvil Part No.	Punch Part No.
UNIFIED	440	.319	.290	.123	.133	8016175	8013670
	632	.333	.330	.143	.156	8016176	8013671
	832	.353	.385	.202	.210	8016177	8013672

	Thread Code	Anvil Dimensions (mm) A ±0.05	Anvil Dimensions (mm) C ±0.05	Punch Dimensions (mm) E +0.08	Punch Dimensions (mm) F ±0.05	Anvil Part No.	Punch Part No.
METRIC	M3	8.1	7.34	3.12	3.38	8016175	8013670
	M4	8.9	9.8	5.13	5.33	8016177	8013672

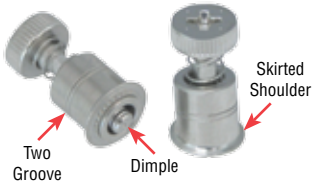
ANTI CROSS-THREAD TECHNOLOGY - HOW IT WORKS

-1-
MISALIGNED AXIS

-2-
THREADS CAM



-3-
THREADS DRIVE NORMALLY



To be sure that you are getting genuine PEM® brand fasteners, look for our "skirted shoulder" trademark, and our "dimple" and "two groove" registered trademarks.

RoHS compliance information can be found on our website.

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

PennEngineering®

PEM®

North America: Danboro, PA USA • E-mail: info@pemnet.com • Tel: +1-215-766-8853 • Fax: +1-215-766-0143 • 800-237-4736 (USA Only)
Europe: Galway, Ireland • E-mail: europe@pemnet.com • Tel: +353-91-751714 • Fax: +353-91-753541
Asia/Pacific: Singapore • E-mail: singapore@pemnet.com • Tel: +65-6-745-0660 • Fax: +65-6-745-2400
Shanghai, China • E-mail: china@pemnet.com • Tel: +86-21-5868-3688 • Fax: +86-21-5868-3988

Visit our PEMNET™ Resource Center at www.pemnet.com
Technical support e-mail: techsupport@pemnet.com