Narrow Panel Fasteners

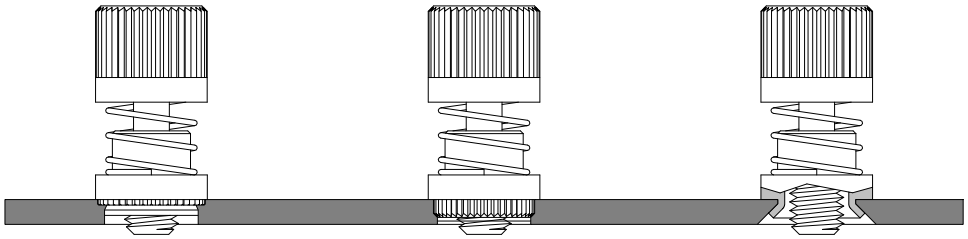
FEATURES

- Narrow design for limited space applications.
- New contemporary appearance.
- Wide variety of drive and installation types, screw threads and lengths.
- Choice of RoHS-compliant materials and finishes.

CNA
Self-Clinching

CNB
Broaching

CNC
Flare-In



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APPLICATION GUIDE

Type	Style	Installation Sheet Material			
		Aluminum	Carbon Steel	Stainless Steel	PCB
CNA	Self-Clinching	•	•		
CNB	Broaching	•	•		•
CNC	Flare-In	•	•	•	•

CNA

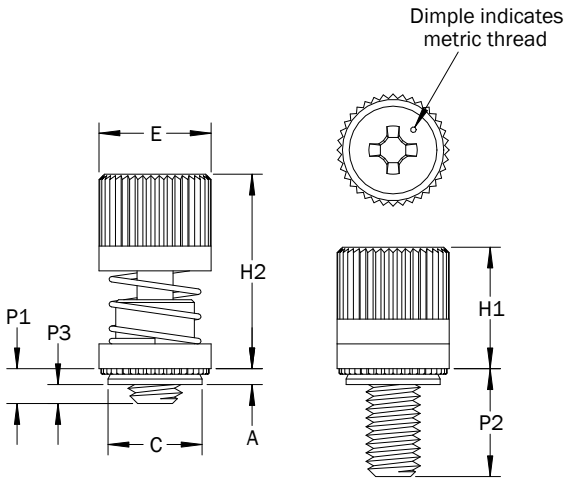
Self-Clinching Narrow Panel Fasteners

PART DESCRIPTION EXAMPLE

CNA — 632 — .060 — PH — KN — SS — P

632	.060	PH	KN	SS	P
Thread Code	Screw Length Code	Drive Code	Knurled Cap*	Material Code	Finish Code

*Omit KN for smooth cap



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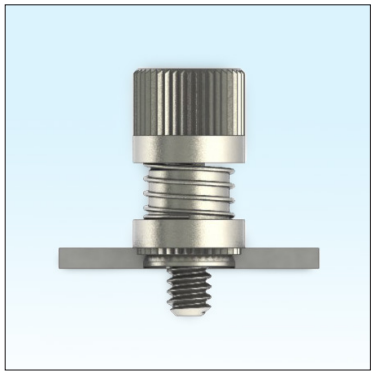
DRIVE

Drive Code	Description	
PH	Cross-Recess	
SL	Slot	
TX	Six-Lobe Recess	



CNA Self-Clinching Narrow Panel Fasteners provide a simple and permanent installation in aluminum and carbon steel sheets.

GENERAL

All dimensions in inches

	Thread	Thread Code	Screw Length Code	Sheet			A (Shank) Max.	C Max.	E ±.010	P_1 Ref.
				Minimum Thickness	Hole Size +.003 -.000	Minimum Distance Hole Center to Edge				
INCH	4–40	440	.060	.060	.265	.25	.060	.264	.312	.060
			.185							.185
	6–32	632	.060	.060	.281	.28	.060	.280	.344	.060
			.185							.185
			.310							.310
	8–32	832	.060	.060	.312	.31	.060	.311	.375	.060
			.185							.185
			.310							.310
	10–32	1032	.060	.060	.344	.34	.060	.343	.406	.060
			.185							.185
			.310							.310
	1/4–20	2520	.060	.060	.413	.38	.060	.412	.468	.060
			.185							.185
			.310							.310

All dimensions in inches

	Thread	Thread Code	Screw Length Code	P_2 ±.016	P_3 ±.025	H_1 Max.	H_2 Ref.	Drive Size		
								Cross-Recess	Six-Lobe	Slot
INCH (CONTINUED)	4–40	440	.060	.250	.000	.370	.540	#1	T–10	.040W .040D
			.185	.375	.125					
	6–32	632	.060	.250	.000	.380	.540	#2	T–15	.051W .047D
			.185	.375	.125					
			.310	.500	.250					
	8–32	832	.060	.312	.000	.480	.705	#2	T–20	.055W .055D
			.185	.437	.125					
			.310	.562	.250					
	10–32	1032	.060	.312	.000	.490	.705	#2	T–25	.059W .055D
			.185	.437	.125					
			.310	.562	.250					
	1/4–20	2520	.060	.375	.000	.620	.905	#3	T–25	.071W .059D
			.185	.500	.125					
			.310	.625	.250					

GENERAL (CONTINUED)

All dimensions in millimeters

	Thread	Thread Code	Screw Length Code	Sheet			A (Shank) Max.	C Max.	E ±0.25	P_1 Ref.
				Minimum Thickness	Hole Size +0.08 -0.00	Minimum Distance Hole Center to Edge				
METRIC	M3 x 0.5	M3	1.53	1.53	6.73	6.35	1.53	6.71	7.92	1.53
			4.71							4.71
	M3.5 x 0.6	M3.5	1.53	1.53	7.14	7.11	1.53	7.11	8.74	1.53
			4.71							4.71
			7.88							7.88
	M4 x 0.7	M4	1.53	1.53	7.92	7.87	1.53	7.90	9.53	1.53
			4.71							4.71
			7.88							7.88
	M5 x 0.8	M5	1.53	1.53	8.74	8.63	1.53	8.72	10.31	1.53
			4.71							4.71
			7.88							7.88
	M6 x 1.0	M6	1.53	1.53	10.49	9.65	1.53	10.47	11.89	1.53
			4.71							4.71
			7.88							7.88

All dimensions in millimeters

	Thread	Thread Code	Screw Length Code	P_2 ±0.40	P_3 ±0.64	H_1 Max.	H_2 Ref.	Drive Size		
								Cross-Recess	Six-Lobe	Slot
METRIC (CONTINUED)	M3 x 0.5	M3	1.53	6.35	0.00	9.40	13.72	#1	T–10	1.02W 1.02D
			4.71	9.53	3.18					
	M3.5 x 0.6	M3.5	1.53	6.35	0.00	9.65	13.72	#2	T–15	1.30W 1.19D
			4.71	9.53	3.18					
			7.88	12.70	6.35					
	M4 x 0.7	M4	1.53	7.92	0.00	12.19	17.91	#2	T–20	1.40W 1.40D
			4.71	11.10	3.18					
			7.88	14.27	6.35					
	M5 x 0.8	M5	1.53	7.92	0.00	12.45	17.91	#2	T–25	1.50W 1.40D
			4.71	11.10	3.18					
			7.88	14.27	6.35					
	M6 x 1.0	M6	1.53	9.53	0.00	15.75	22.99	#3	T–25	1.80W 1.50D
			4.71	12.70	3.18					
			7.88	15.88	6.35					

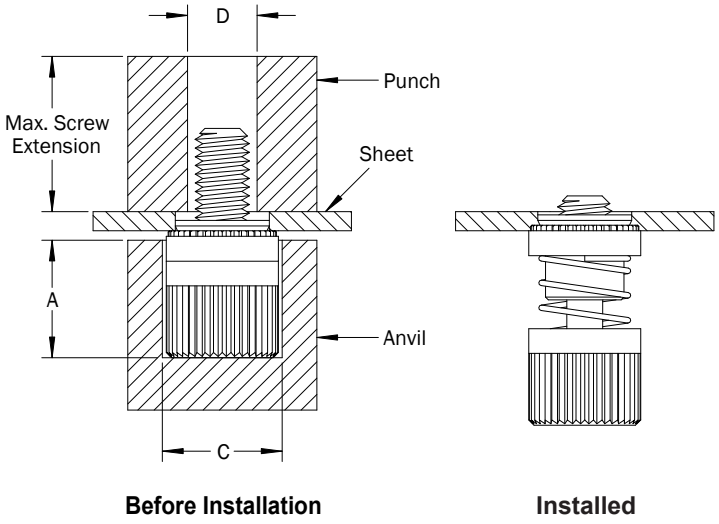
MATERIAL AND FINISH

Material Code	Material Description			Finish Code	Finish Description			For Use in Sheet Hardness	
	Retainer	Screw	Spring		Retainer	Screw	Spring	HRB 70 Max.	HRB 60 Max.
SS	300–Series Stainless Steel	400-Series Heat Treated Stainless Steel	300–Series Stainless Steel	BLK-NIT	Black Nitride	Black Nitride	Passivated and/or Tested per ASTM A 967	•	
SS	300–Series Stainless Steel	400-Series Heat Treated Stainless Steel	300–Series Stainless Steel	P	Passivated and/or Tested per ASTM A 967	Passivated and/or Tested per ASTM A 967	Passivated and/or Tested per ASTM A 967	•	
STL	Carbon Steel	Heat Treated Carbon Steel	300–Series Stainless Steel	NI	Bright Nickel per ASTM B 689 Type II, Class 5	Bright Nickel per ASTM B 689 Type II, Class 5	Passivated and/or Tested per ASTM A 967		•

Black nitride provides an attractive finish that's durable against scratching.

INSTALLATION

1. Prepare correct sized mounting hole in sheet. Do not deburr hole edges.
2. Insert fastener in recessed anvil, locate sheet hole over captive screw shank with hole punch side of sheet toward the retainer and center punch over screw thread.
3. Squeeze the fastener between concentric and parallel anvil and punch surfaces. Use only enough pressure to seat the retainer shoulder flush with the sheet. Anvil and punch should be made from hardened tool steel or may be ordered using the PENCOM part numbers shown in the tables below.



ANVIL AND PUNCH DIMENSIONS

All dimensions in inches

	Thread Code	Anvil			Punch	
		A ±.002	C ±.002	Part Number	D ±.002	Part Number
INCH	440	.345	.358	TL1314	.190	TL1303
	632	.345	.390	TL1315	.214	TL1304
	832	.435	.421	TL1316	.243	TL1305
	1032	.435	.452	TL1317	.267	TL1306
	2520	.555	.514	TL1318	.329	TL1307

All dimensions in millimeters

	Thread Code	Anvil			Punch	
		A ±0.05	C ±0.05	Part Number	D ±0.05	Part Number
METRIC	M3	8.76	9.09	TL1314	5.01	TL1309
	M3.5	8.76	9.91	TL1315	5.44	TL1304
	M4	11.05	10.70	TL1316	5.97	TL1311
	M5	11.05	11.48	TL1317	6.94	TL1312
	M6	14.10	13.06	TL1318	7.97	TL1313

PERFORMANCE

	Thread Code	Material Code	Test Sheet Material			
			Aluminum		Cold-rolled Steel	
			Installation (lbs)	Retainer Push-out (lbs)	Installation (lbs)	Retainer Push-out (lbs)
INCH	440	SS	2400	240	3000	300
		STL				255
	632	SS	2700	275	3500	350
		STL				295
	832	SS	2900	300	3800	400
		STL				340
	1032	SS	3000	400	4000	500
		STL				420
	2520	SS	3500	400	5000	600
		STL				510

	Thread Code	Material Code	Test Sheet Material			
			Aluminum		Cold-rolled Steel	
			Installation (kN)	Retainer Push-out (N)	Installation (kN)	Retainer Push-out (N)
METRIC	M3	SS	10.7	1068	13.3	1334
		STL				1134
	M3.5	SS	12.0	1223	15.6	1557
		STL				1312
	M4	SS	12.9	1334	16.9	1779
		STL				1512
	M5	SS	13.3	1779	17.8	2224
		STL				1868
	M6	SS	15.6	1779	22.2	2669
		STL				2268

(1) Performance data represents the average destructive result when all installation specifications are strictly followed. Variations in panel hole size, thickness, material, and installation methods will affect the loads. PENCOM strongly encourages testing in the application.

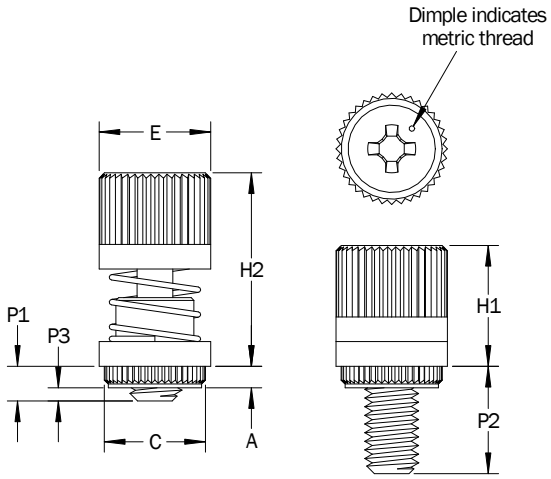
CNB

Broaching Narrow Panel Fasteners

PART DESCRIPTION EXAMPLE

CNB	—	632	—	.060	—	PH	—	KN	—	SS	—	P
		Thread Code		Screw Length Code		Drive Code		Knurled Cap*		Material Code		Finish Code

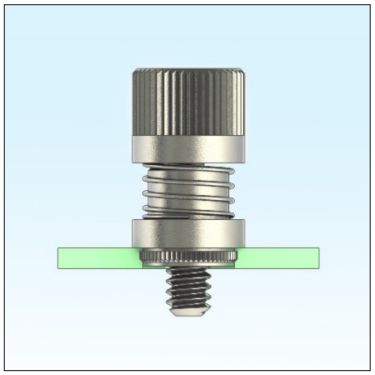
*Omit KN for smooth cap



Patented

DRIVE

Drive Code	Description	
PH	Cross-Recess	
SL	Slot	
TX	Six-Lobe recess	



CNB Broaching Narrow Panel Fasteners install easily in p.c. boards, aluminum sheets, castings and other soft materials. Non-plated holes in p.c. boards are recommended.

GENERAL

All dimensions in inches

	Thread	Thread Code	Screw Length Code	Sheet			A (Shank) Max.	C ±.003	E ±.010	P_1 Ref.
				Minimum Thickness	Hole Size +.003 -.000	Minimum Distance Hole Center to Edge				
INCH	4–40	440	.060	.060	.265	.20	.060	.283	.312	.060
			.185							.185
	6–32	632	.060	.060	.281	.26	.060	.299	.344	.060
			.185							.185
			.310							.310

All dimensions in inches

	Thread	Thread Code	Screw Length Code	P_2 ±.016	P_3 ±.025	H_1 Max.	H_2 Ref.	Drive Size		
								Cross-Recess	Six-Lobe	Slot
INCH (CONTINUED)	4–40	440	.060	.250	.000	.370	.540	#1	T–10	.040W .040D
			.185	.375	.125					
	6–32	632	.060	.250	.000	.380	.540	#2	T–15	.051W .047D
			.185	.375	.125					
			.310	.500	.250					

All dimensions in millimeters

	Thread	Thread Code	Screw Length Code	Sheet			A (Shank) Max.	C ±0.08	E ±0.25	P_1 Ref.
				Minimum Thickness	Hole Size +0.08 -0.00	Minimum Distance Hole Center to Edge				
METRIC	M3 x 0.5	M3	1.53	1.53	6.73	5.1	1.53	7.19	7.92	1.53
			4.71							4.71
	M3.5 x 0.6	M3.5	1.53	1.53	7.14	6.6	1.53	7.59	8.74	1.53
			4.71							4.71
			7.88							7.88

All dimensions in millimeters

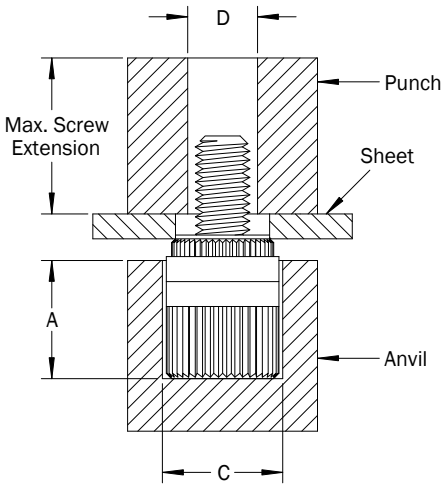
	Thread	Thread Code	Screw Length Code	P_2 ±0.40	P_3 ±0.64	H_1 Max.	H_2 Ref.	Drive Size		
								Cross-Recess	Six-Lobe	Slot
METRIC (CONTINUED)	M3 x 0.5	M3	1.53	6.35	0.00	9.40	13.72	#1	T–10	1.02W 1.02D
			4.71	9.53	3.18					
	M3.5 x 0.6	M3.5	1.53	6.35	0.00	9.65	13.72	#2	T–15	1.30W 1.19D
			4.71	9.53	3.18					
			7.88	12.70	6.35					

MATERIAL AND FINISH

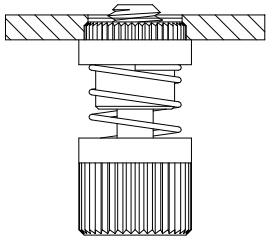
Material Code	Material Description			Finish Code	Finish Description			For Use in Sheet Hardness		
	Retainer	Screw	Spring		Retainer	Screw	Spring	HRB 70 Max.	HRB 60 Max.	P.C. Board
SS	300–Series Stainless Steel	400-Series Heat Treated Stainless Steel	300–Series Stainless Steel	BLK-NIT	Black Nitride	Black Nitride	Passivated and/or Tested per ASTM A 967	•		•
SS	300–Series Stainless Steel	400-Series Heat Treated Stainless Steel	300–Series Stainless Steel	P	Passivated and/or Tested per ASTM A 967	Passivated and/or Tested per ASTM A 967	Passivated and/or Tested per ASTM A 967	•		•
STL	Carbon Steel	Heat Treated Carbon Steel	300–Series Stainless Steel	NI	Bright Nickel per ASTM B 689 Class II, Type 5	Bright Nickel per ASTM B 689 Class II, Type 5	Passivated and/or Tested per ASTM A 967		•	•

INSTALLATION

1. Prepare correct sized mounting hole in sheet. Do not deburr hole edges.
2. Insert fastener in recessed anvil, locate sheet hole over captive screw shank and center punch over screw thread.
3. Squeeze the fastener between concentric and parallel anvil and punch surfaces. Use only enough pressure to seat the reatainer shoulder flush with the sheet. Anvil and punch should be made from hardened tool steel or may be ordered using the PENCOM part numbers shown in the tables below.



Before Installation



Installed

ANVIL AND PUNCH DIMENSIONS

All dimensions in inches

	Thread Code	Anvil			Punch	
		A ±.002	C ±.002	Part Number	D ±.002	Part Number
INCH	440	.345	.358	TL1314	.190	TL1303
	632	.345	.390	TL1315	.214	TL1304

All dimensions in millimeters

	Thread Code	Anvil			Punch	
		A ±0.05	C ±0.05	Part Number	D ±0.05	Part Number
METRIC	M3	8.76	9.09	TL1314	5.01	TL1309
	M3.5	8.76	9.91	TL1315	5.44	TL1304

PERFORMANCE

	Thread Code	Material Code	Test Sheet Material .060" FR-4 Fiberglass	
			Installation (lbs)	Push-out (lbs)
INCH	440	SS, STL	250	55
	632	SS, STL	400	60

	Thread Code	Material Code	Test Sheet Material 1.53mm FR-4 Fiberglass	
			Installation (kN)	Push-out (N)
METRIC	M3	SS, STL	1.1	245
	M3.5	SS, STL	1.8	267

(1) Performance data represents the average destructive result when all installation specifications are strictly followed. Variations in panel hole size, thickness, material, and installation methods will affect the loads. PENCOM strongly encourages testing in the application.

OPTION

A variety of thread locking and lubricating materials can be applied to the threads. Nylon (shown), micro-encapsuated epoxy and other locking elements prevent loosening due to vibration. Lubricating coatings reduce friction, heat buildup and galling during installation of mating fasteners. To specify a nylon locking element, insert PATCH at the end of the part description. Other locking and lubricating materials available by request.

*Ex. CNA-632-.060-PH-KN-SS-P-**PATCH***

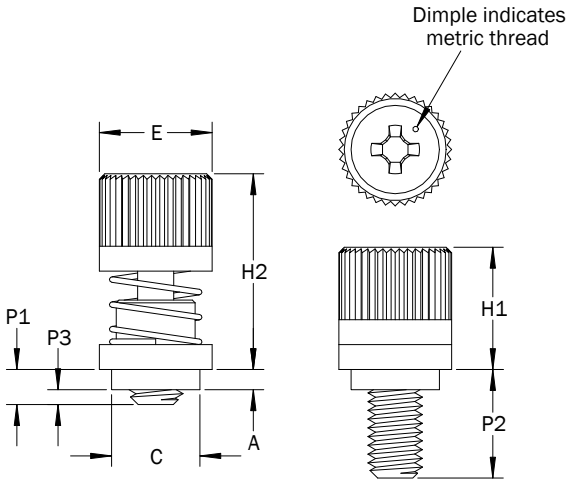
CNC

Flare-In Narrow Panel Fasteners

PART DESCRIPTION EXAMPLE

CNC	—	632	—	.060	—	PH	—	KN	—	SS	—	P
		Thread Code		Screw Length Code		Drive Code		Knurled Cap*		Material Code		Finish Code

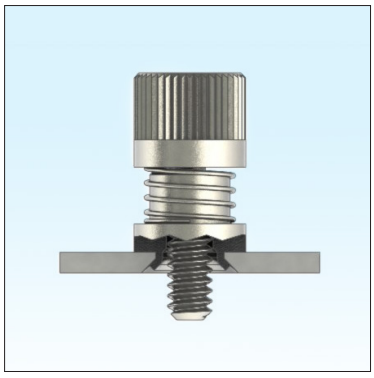
*Omit KN for smooth cap



Patented

DRIVE

Drive Code	Description	
PH	Cross-Recess	
SL	Slot	
TX	Six-Lobe recess	



Flare-In Narrow Panel Fasteners require low installation forces and are popular choices for painted sheets and close-to-edge applications. They provide greater push-out resistance in p.c. boards as well.

GENERAL

All dimensions in inches

	Thread	Thread Code	Screw Length Code	Sheet		A (Shank) Max.	C Max.	E ±.010	P_1 Ref.
				Minimum Thickness	Hole Size +.005 -.000				
INCH	4–40	440	.060	.031	.187	.041	.186	.312	.060
			.185						.185
	6–32	632	.060	.060	.213	.072	.212	.344	.060
			.185						.185
			.310						.310
	8–32	832	.060	.060	.266	.072	.265	.375	.060
			.185						.185
			.310						.310
	10–32	1032	.060	.060	.266	.072	.265	.406	.060
			.185						.185
			.310						.310
	1/4–20	2520	.060	.060	.323	.072	.322	.468	.060
			.185						.185
			.310						.310

All dimensions in inches

	Thread	Thread Code	Screw Length Code	P_2 ±.016	P_3 ±.025	H_1 Max.	H_2 Ref.	Drive Size		
								Cross-Recess	Six-Lobe	Slot
INCH (CONTINUED)	4–40	440	.060	.250	.019	.370	.540	#1	T–10	.040W .040D
			.185	.375	.144					
	6–32	632	.060	.250	.000	.380	.540	#2	T–15	.051W .047D
			.185	.375	.113					
			.310	.500	.238					
	8–32	832	.060	.312	.000	.480	.705	#2	T–20	.055W .055D
			.185	.437	.113					
			.310	.562	.238					
	10–32	1032	.060	.312	.000	.490	.705	#2	T–25	.059W .055D
			.185	.437	.113					
			.310	.562	.238					
	1/4–20	2520	.060	.375	.000	.620	.905	#3	T–25	.071W .059D
			.185	.500	.113					
			.310	.625	.238					

GENERAL (CONTINUED)

All dimensions in millimeters

	Thread	Thread Code	Screw Length Code	Sheet		A (Shank) Max.	C Max.	E ±0.25	P_1 Ref.
				Minimum Thickness	Hole Size +0.10 -0.00				
METRIC	M3 x 0.5	M3	1.53	0.79	4.75	1.05	4.73	7.92	1.53
			4.71						4.71
	M3.5 x 0.6	M3.5	1.53	1.53	5.41	1.83	5.38	8.74	1.53
			4.71						4.71
			7.88						7.88
	M4 x 0.7	M4	1.53	1.53	6.76	1.83	6.74	9.53	1.53
			4.71						4.71
			7.88						7.88
	M5 x 0.8	M5	1.53	1.53	6.76	1.83	6.74	10.31	1.53
			4.71						4.71
			7.88						7.88
	M6 x 1.0	M6	1.53	1.53	8.20	1.83	8.18	11.89	1.53
			4.71						4.71
			7.88						7.88

All dimensions in millimeters

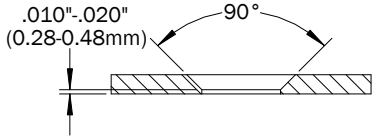
	Thread	Thread Code	Screw Length Code	P_2 ±0.40	P_3 ±0.64	H_1 Max.	H_2 Ref.	Drive Size		
								Cross-Recess	Six-Lobe	Slot
METRIC (CONTINUED)	M3 x 0.5	M3	1.53	6.35	0.48	9.40	13.72	#1	T–10	1.02W 1.02D
			4.71	9.53	3.66					
	M3.5 x 0.6	M3.5	1.53	6.35	0.00	9.65	13.72	#2	T–15	1.30W 1.19D
			4.71	9.53	2.88					
			7.88	12.70	6.05					
	M4 x 0.7	M4	1.53	7.92	0.00	12.19	17.91	#2	T–20	1.40W 1.40D
			4.71	11.10	2.88					
			7.88	14.27	6.05					
	M5 x 0.8	M5	1.53	7.92	0.00	12.45	17.91	#2	T–25	1.50W 1.40D
			4.71	11.10	2.88					
			7.88	14.27	6.05					
	M6 x 1.0	M6	1.53	9.53	0.00	15.75	22.99	#3	T–25	1.80W 1.50D
			4.71	12.70	2.88					
			7.88	15.88	6.05					

MATERIAL AND FINISH

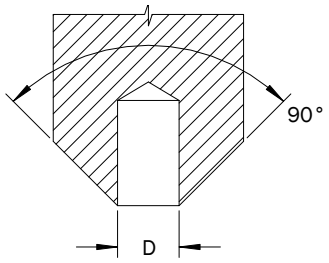
Material Code	Material Description			Finish Code	Finish Description		
	Retainer	Screw	Spring		Retainer	Screw	Spring
SS	300–Series Stainless Steel	400-Series Heat Treated Stainless Steel	300–Series Stainless Steel	P	Passivated and/or Tested per ASTM A 967	Passivated and/or Tested per ASTM A 967	Passivated and/or Tested per ASTM A 967

INSTALLATION

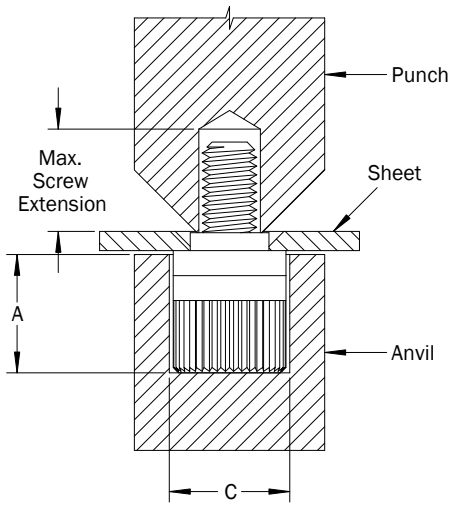
1. Prepare countersink and hole in sheet as shown.
2. Insert fastener in recessed anvil, locate sheet hole over captive screw shank and center punch over screw thread.
3. Squeeze the fastener between concentric and parallel anvil and punch. Flare the retainer shank into the sheet countersink using light pressure. Punch flare angle should match the sheet hole countersink angle. Anvil and punch should be made from hardened tool steel or may be ordered using the PENCOM part numbers shown in the tables below.



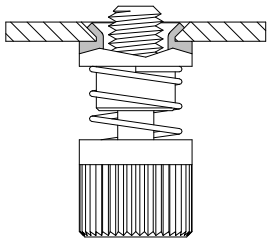
Sheet Hole Detail



Punch Detail



Before Installation



Installed

ANVIL AND PUNCH DIMENSIONS

All dimensions in inches

	Thread Code	Anvil			Punch	
		A ±.002	C ±.002	Part Number	D +.003 -.000	Part Number
INCH	440	.345	.358	TL1314	.123	TL1567
	632	.345	.390	TL1315	.143	TL1568
	832	.435	.421	TL1316	.169	TL1569
	1032	.435	.452	TL1317	.202	TL1570
	2520	.555	.514	TL1318	.255	TL1571

All dimensions in millimeters

	Thread Code	Anvil			Punch	
		A ±0.05	C ±0.05	Part Number	D +0.08 -0.00	Part Number
METRIC	M3	8.76	9.09	TL1314	3.12	TL1567
	M3.5	8.76	9.91	TL1315	3.63	TL1568
	M4	11.05	10.70	TL1316	4.29	TL1569
	M5	11.05	11.48	TL1317	5.13	TL1570
	M6	14.10	13.06	TL1318	6.48	TL1571

CP

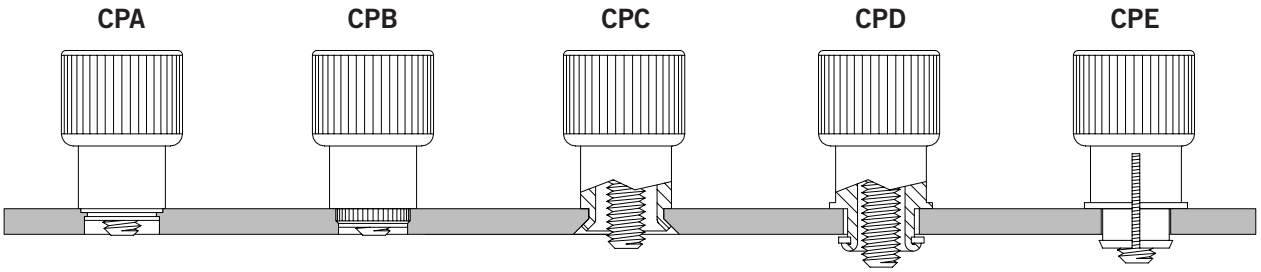
Captive Screw

PENCOM®
PENINSULA COMPONENTS

FEATURES

- Large stylized knob enables threading by hand.
- Accommodates significant misalignment between mating components.
- Concealed spring keeps screw retracted when not fastened.
- Wide variety of thread sizes, recess types and installation styles.
- Eliminates loose hardware.

TYPES



Page 2 Page 6 Page 8 Page 14 Page 20

COMPARISON MATRIX

Type	Style	Application Advantage	Installation Sheet Material				Installs Close to Edge
			Aluminum	Carbon Steel	PCB	Any	
CPA	Self-Clinching	Simple, common installation	•	•			Good
CPB	Broaching	Easily presses into aluminum or PCB	•		•		Good
CPC	Flare–in	Requires low installation force	•	•	•	•	Better
CPD	Floating	Maximum float of all styles	•	•	•	•	Best
CPE	Snap–in	Easy hand installation	•	•	•	•	Best

SELECTION GUIDE

1. Determine which captive screw type fits your application as shown in the table above and go to the appropriate page.
2. Select a thread size, screw length and shank length (Types CPC, CPD and CPE).
3. Select a knob style, recess type and material/finish (pages 26 and 27).
4. Pencom offers many options. See pages 5, 8, 14, 20, and 21 for details.

CPA

Self–Clinching Captive Screw

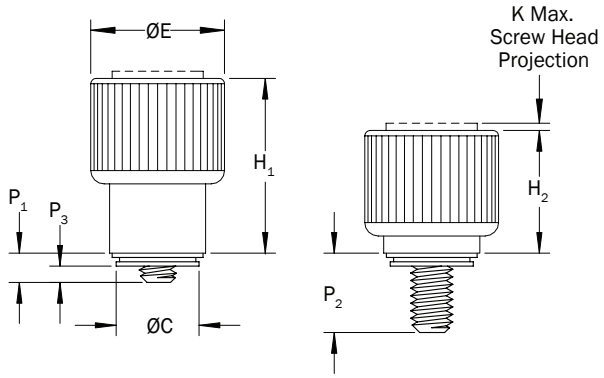
PENCOM® PENINSULA COMPONENTS

PART DESCRIPTION EXAMPLE

CPA — 440 — .030 — SL — KN — E

- 440: Thread Code
- .030: Screw Length Code
- SL: Drive Code
- KN: Knurled Cap*
- E: Material/ Finish Code

*Omit KN for smooth cap



DRIVE

Drive Code	Description	
SL	Slotted	
PH	Cross-recess	
SL-PH	Slotted Cross-recess	
TX	Six-lobe Recess	
SL-TX	Slotted Six-lobe Recess	

GENERAL

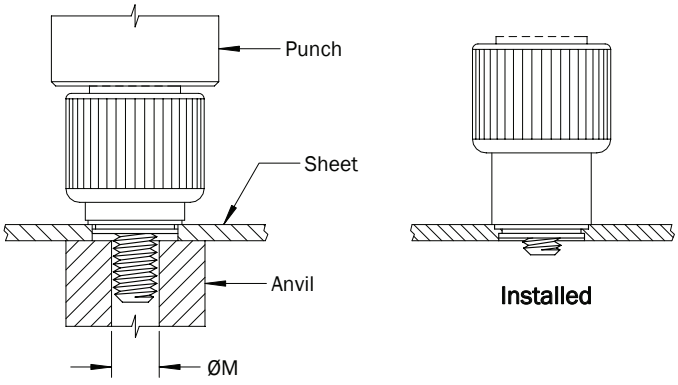
	Thread	Thread Code	Screw Length Code	Sheet			ØC	ØE	P_1
				Min. Thickness	Hole Size	Min. Dist. Hole Center to Edge			
INCH	4-40	440	.030	.036	.222/.219	.329	.217	.420	.030
			.100						.100
			.160						.160
			.200						.220
	6-32	632	.020	.036	.253/.250	.375	.250	.450	.020
			.080						.080
			.150						.150
			.210						.210
	8-32	832	.020	.036	.315/.312	.473	.311	.510	.020
			.080						.080
			.150						.150
			.210						.210
	10-32	1032	.020	.036	.315/.312	.473	.311	.510	.020
			.080						.080
			.150						.150
			.210						.210
	1/4-20	0420	.020	.036	.378/.375	.563	.372	.580	.020
			.080						.080
			.150						.150
			.210						.210

(1) All dimensions are reference unless toleranced.

PENCOM® PENINSULA COMPONENTS

INSTALLATION

1. Punch or drill hole in sheet. Do not deburr edges.
2. Insert captive screw in sheet hole and anvil as shown.
3. Squeeze the captive screw and sheet between parallel punch and anvil surfaces. Use only enough pressure to seat the retainer shoulder flush with the sheet. Punch and anvil should be made from hardened steel.



CPA Self–Clinching Captive Screws provide a permanent and reliable installation that installs flush on the back side of thin aluminum and carbon steel sheets.

(CONTINUED)

P_2	P_3	H_1	H_2	K Max.		Total Float of Screw in Ferrule	Cross-Recess Size	Six-Lobe Recess Size	Anvil ØM
				Cross-Recess and/or Slot Heads	Six-Lobe Recess Heads				
.150	.000	.450	.330	.000	.000	.03	#1	T10	.133/.121
.220	.064								
.280	.124								
.340	.184								
.210	.000	.630	.440	.000	.000	.03	#2	T15	.154/.142
.270	.044								
.340	.114								
.400	.174								
.220	.000	.640	.440	.012	.050	.03	#2	T25	.181/.169
.280	.044								
.350	.114								
.410	.174								
.220	.000	.640	.440	.000	.040	.03	#2	T25	.213/.201
.280	.044								
.350	.114								
.410	.174								
.280	.000	.790	.530	.000	.040	.03	#2	T30	.268/.256
.340	.044								
.410	.114								
.470	.174								

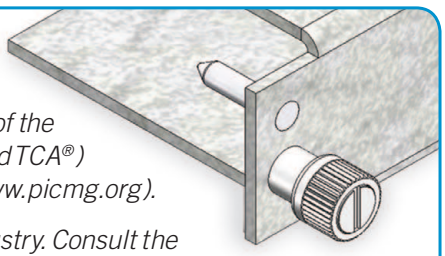
All dimensions in inches

GENERAL

	Thread	Thread Code	Screw Length Code	Sheet			ØC	ØE	P_1
				Min. Thickness	Hole Size	Min. Dist. Hole Center to Edge			
METRIC	M3 x 0.5	M3	0.80	0.90	5.64/5.56	8.40	5.50	10.60	0.80
			2.50						2.50
			4.00						4.00
			5.60						5.60
	M3.5 x 0.6	M3.5	0.50	0.90	6.43/6.35	9.60	6.30	11.50	0.50
			2.10						2.10
			3.70						3.70
			5.30						5.30
	M4 x 0.7	M4	0.60	0.90	8.00/7.92	12.00	7.90	13.00	0.60
			2.20						2.20
			3.80						3.80
			5.40						5.40
	M5 x 0.8	M5	0.60	0.90	8.00/7.92	12.00	7.90	13.00	0.60
			2.20						2.20
			3.80						3.80
			5.40						5.40
	M6 x 1.0	M6	0.50	0.90	9.60/9.50	14.25	9.50	14.70	0.50
			2.10						2.10
			3.70						3.70
			5.30						5.30

(1) All dimensions are reference unless toleranced.

APPLICATION IDEA



When used in conjunction with Pencom 3mm guide pins, CP Captive Screws satisfy the requirements of PICMG 3.0 of the Advanced Telecom Computing Architecture (AdvancedTCA®) specifications for telecommunications rack equipment (www.picmg.org).

Pencom offers the largest variety of guide pins in the industry. Consult the Pencom website or contact an Account Representative to learn how Pencom can meet your alignment needs.

PENCOM® PENINSULA COMPONENTS

(CONTINUED)

P_2	P_3	H_1	H_2	K Max.		Total Float of Screw in Ferrule	Cross-Recess Size	Six-Lobe Recess Size	Anvil ØM
				Cross-Recess and/or Slot Heads	Six-Lobe Recess Heads				
3.80	0.00	11.30	8.30	0.00	0.00	0.7	#1	T10	3.40/3.10
5.50	1.60								
7.00	3.10								
8.60	4.70								
5.30	0.00	15.90	11.10	0.00	0.00	0.8	#2	T15	3.90/3.60
6.90	1.20								
8.50	2.80								
10.10	4.40								
5.50	0.00	16.20	11.30	0.30	1.30	0.8	#2	T25	4.60/4.30
7.10	1.30								
8.70	2.90								
10.30	4.50								
5.50	0.00	16.20	11.30	0.30	1.30	0.6	#2	T25	5.40/5.10
7.10	1.30								
8.70	2.90								
10.30	4.50								
7.10	0.00	20.00	13.40	0.30	1.30	0.8	#2	T30	6.40/6.10
8.70	1.20								
10.30	2.80								
11.90	4.40								

All dimensions in millimeters

CPB

Broaching Captive Screw

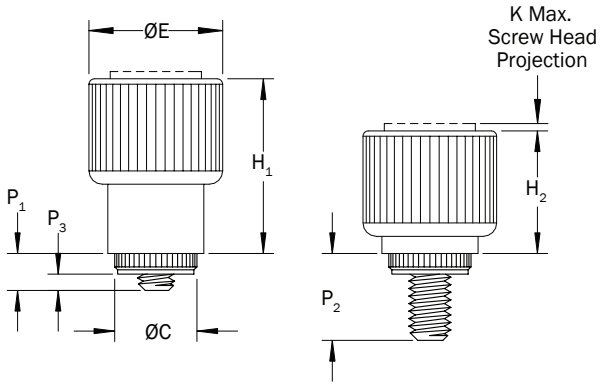
PENCOM® PENINSULA COMPONENTS

PART DESCRIPTION EXAMPLE

CPB — 440 — .060 — SL — KN — A

- 440: Thread Code
- .060: Screw Length Code
- SL: Drive Code
- KN: Knurled Cap*
- A: Material/ Finish Code

*Omit KN for smooth cap



DRIVE

Drive Code	Description	
SL	Slotted	
PH	Cross-recess	
SL-PH	Slotted Cross-recess	
TX	Six-lobe Recess	
SL-TX	Slotted Six-lobe Recess	

GENERAL

	Thread	Thread Code	Screw Length Code	Sheet		ØC	ØE	P_1	P_2
				Min. Thickness	Hole Size				
INCH	4-40	440	.060	.063	.223/.217	.240	.420	.060	.180
			.130					.130	.240
			.190					.190	.300
			.250					.250	.370
	6-32	632	.060	.063	.256/.248	.270	.450	.060	.240
			.120					.120	.300
			.180					.180	.360
			.240					.240	.420

(1) All dimensions are reference unless toleranced.
(2) Pull–out force 80 lbs and side load force against unfastened knob 45 lbs based on drilled holes in G-10 PC board. Variations in panel hole size, thickness, material and installation methods will affect the loads. Pencom recommends testing in the application. Contact your account representative for samples.

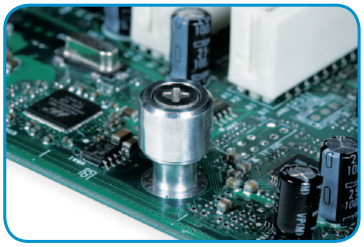
	Thread	Thread Code	Screw Length Code	Sheet		ØC	ØE	P_1	P_2
				Min. Thickness	Hole Size				
METRIC	M3 x 0.5	M3	1.50	1.6	5.70/5.55	6.10	10.60	1.50	4.60
			3.30					3.30	6.10
			4.80					4.80	7.60
			6.40					6.40	9.40
	M3.5 x 0.6	M3.5	1.40	1.6	6.50/6.30	6.90	11.50	1.40	6.20
			3.00					3.00	7.80
			4.60					4.60	9.40
			6.20					6.20	11.00

(1) All dimensions are reference unless toleranced.
(2) Pull–out force 360N and side load force against unfastened knob 200N based on drilled holes in G-10 PC board. Variations in panel hole size, thickness, material and installation methods will affect the loads. Pencom recommends testing in the application. Contact your account representative for samples.

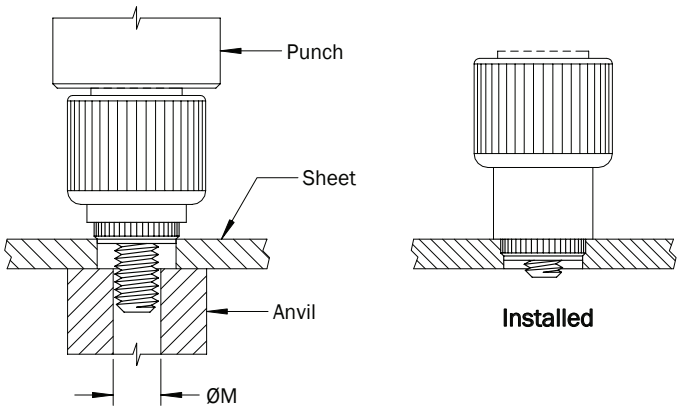
PENCOM® PENINSULA COMPONENTS

INSTALLATION

1. Punch or drill hole in sheet. Do not deburr edges.
2. Insert captive screw in sheet hole and anvil as shown.
3. Squeeze the captive screw and sheet between parallel punch and anvil surfaces. Use only enough pressure to seat the retainer shoulder flush with the sheet. Punch and anvil should be made from hardened steel.



CPB Broaching Captive Screws provide permanent and reliable installation in P.C. boards, aluminum and other soft materials.



(CONTINUED)

P_3	H_1	H_2	Total Float of Screw in Ferrule	Cross-Recess Size	Six-Lobe Recess Size	Anvil ØM
.000	.440	.330	.03	#1	T10	.120
.067						
.127						
.187						
.000	.580	.390	.03	#2	T15	.144
.057						
.117						
.177						

All dimensions in inches

P_3	H_1	H_2	Total Float of Screw in Ferrule	Cross-Recess Size	Six-Lobe Recess Size	Anvil ØM
0.00	11.20	8.40	0.7	#1	T10	3.20
1.70						
3.20						
4.80						
0.00	14.80	10.00	0.8	#2	T15	3.70
1.40						
3.00						
4.60						

All dimensions in millimeters

CPC

Flare–In Captive Screw

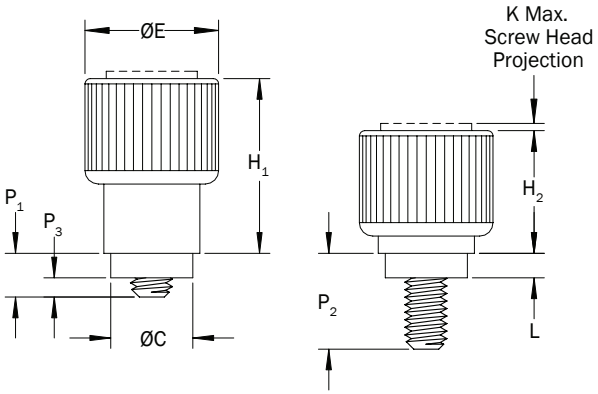
PENCOM® PENINSULA COMPONENTS

PART DESCRIPTION EXAMPLE

CPC — 440 — .030 — A — SL — KN — J

Thread Code	Screw Length Code	Shank Length Code	Drive Code	Knurled Cap*	Material/ Finish Code

*Omit KN for smooth cap



DRIVE

Drive Code	Description	
SL	Slotted	
PH	Cross-recess	
SL-PH	Slotted Cross-recess	
TX	Six-lobe Recess	
SL-TX	Slotted Six-lobe Recess	

OPTION

*A nylon thread locking element can be added to the screw threads to prevent loosening due to vibration. To specify, insert **PATCH** at the end of the part description. Other locking elements available by request.*

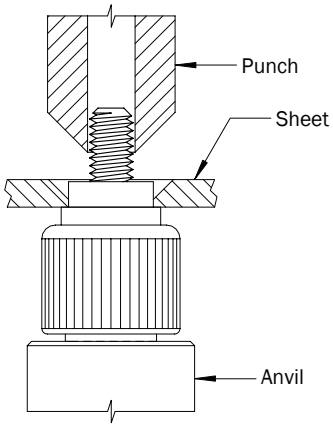
*Ex: CPA-440-.030-SL-KN-E-**PATCH***

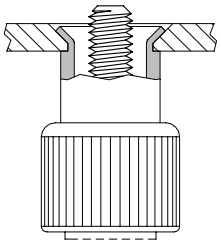
PENCOM® PENINSULA COMPONENTS

INSTALLATION

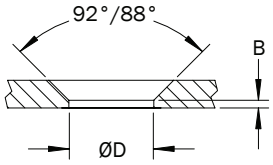
1. Prepare sheet as shown.
2. Insert captive screw shank in sheet hole and center punch over screw thread.
3. Squeeze the captive screw between a smooth anvil surface and punch. Flare retainer shank into sheet countersink using light pressure. Punch and anvil should be made from hardened steel.

CPC Flare–In Captive Screws are popular choices for painted sheet and close–to–edge applications.





Installed



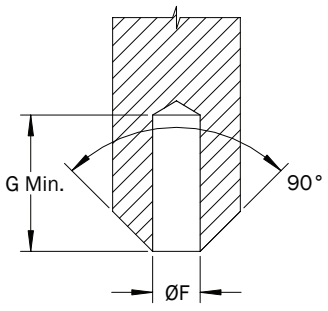
PUNCH DIMENSIONS

	Thread	ØF +.003 -.000	G Min.
INCH	4-40	.123	.75
	6-32	.143	.75
	8-32	.169	.75
	10-32	.202	.75
	1/4-20	.253	1.00

All dimensions in inches

	Thread	ØF +0.08 -0.00	G Min.
METRIC	M3	3.12	19.0
	M3.5	3.63	19.0
	M4	4.29	19.0
	M5	5.13	19.0
	M6	6.43	25.4

All dimensions in millimeters



GENERAL

	Thread	Thread Code	Screw Length Code	Shank Length Code	L	Sheet			ØC	ØE
						Thickness	ØD	B ±.005		
INCH	4-40	440	.030	A	.041	.058/.031	.192/.187	.015	.181	.420
			.100							
			.160							
			.220							
			.060	B	.070	.100/.059		.015		
			.130							
			.190							
			.250							
			.100	C	.104	.156/.100		.031		
			.160							
			.220							
			.160	D	.166	.219/.157		.093		
			.100							
			.220	E	.229	281/.220		.156		
	6-32	632	.040	A	.070	.125/.058	.218/.213	.015	.210	.450
			.110							
			.170							
			.230							
			.110	B	.135	.189/.125		.062		
			.170							
			.230							
			.170	C	.197	.250/.189		.125		
			.230							
			.230	D	.260	.312/.250		.189		
	8-32	832	.040	A	.070	.125/.058	.271/.266	.015	.262	.510
			.110							
			.170							
			.230							
			.110	B	.135	.189/.125		.062		
			.170							
			.230							
			.170	C	.197	.250/.189		.125		
			.230							
			.230	D	.260	.312/.250		.189		
	10-32	1032	.040	A	.070	.125/.058	.271/.266	.015	.262	.510
			.110							
			.170							
			.230							
			.110	B	.135	.189/.125		.062		
			.170							
			.230							
			.170	C	.197	.250/.189		.125		
			.230							
			.230	D	.260	.312/.250		.189		
	1/4-20	0420	.050	A	.070	.125/.058	.328/.323	.015	.319	.580
			.110	B	.135	.187/.126		.062		
			.170	C	.197	.250/.188		.125		
			.240	D	.260	.312/.251		.187		
			.110	E	.070	.125/.058		.015		
			.170							
			.240							
			.170	F	.135	.187/.126		.062		
			.240							
			.240	G	.197	.250/.188		.125		

(1) All dimensions are reference unless toleranced.

PENCOM® PENINSULA COMPONENTS

(CONTINUED)

P_1	P_2	P_3	H_1	H_2	K Max.		Total Float of Screw in Ferrule	Cross-Recess Size	Six-Lobe Recess Size
					Cross-Recess and/or Slot Heads	Six-Lobe Recess Heads			
.030	.160	.000	.450	.320	.000	.000	.03	#1	T10
.100	.220	.059							
.160	.280	.119							
.220	.350	.179							
.060	.190	.000							
.130	.250	.060							
.190	.310	.120							
.250	.370	.180							
.100	.220	.000							
.160	.280	.056							
.220	.350	.116							
.160	.280	.000							
.100	.220	.000							
.220	.350	.000							
.040	.240	.000	.600	.410	.000	.000	.03	#2	T15
.110	.300	.040							
.170	.360	.100							
.230	.430	.160							
.110	.300	.000							
.170	.360	.035							
.230	.430	.095							
.170	.360	.000							
.230	.430	.000							
.230	.430	.130							
.040	.240	.000	.610	.410	.012	.050	.03	#2	T25
.110	.300	.040							
.170	.360	.100							
.230	.430	.160							
.110	.300	.000							
.170	360	.035							
.230	.430	.095							
.170	.360	.000							
.230	.430	.000							
.230	.430	.130							
.040	.240	.000	.610	.410	.000	.040	.03	#2	T25
.110	.300	.040							
.170	.360	.100							
.230	.430	.160							
.110	.300	.000							
.170	.360	.035							
.230	.430	.095							
.170	.360	.000							
.230	.430	.033							
.230	.430	.000							
.050	.310	.000	.760	.500	.000	.040	.03	#2	T30
.110	.370	.000							
.170	.430	.000							
.240	.500	.000							
.110	.370	.040							
.170	.430	.100							
.240	.500	.017							
.170	.430	.035							
.240	.500	.105							
.240	.500	.043							

All dimensions in inches

GENERAL

	Thread	Thread Code	Screw Length Code	Shank Length Code	L	Sheet			ØC	ØE
						Thickness	ØD	B ±0.13		
METRIC	M3 x 0.5	M3	0.80	A	1.00	1.50/0.80	4.93/4.80	0.40	4.60	10.60
			2.50							
			4.00							
			5.60							
			1.50	B	1.80	2.50/1.50		0.40		
			3.30							
			4.80							
			6.40							
			2.50	C	2.60	4.00/2.50		0.80		
			4.00							
			5.60							
			4.00	D	4.20	5.60/4.00		2.40		
			2.50							
			5.60	E	5.80	7.10/5.60		4.00		
	M3.5 x 0.6	M3.5	1.10	A	1.80	3.20/1.50	5.53/5.40	0.40	5.30	11.50
			2.70							
			4.30							
			5.90							
			2.70	B	3.40	4.80/3.20		1.60		
			4.30							
			5.90							
			4.30	C	5.00	6.40/4.80		3.20		
			5.90							
			5.90	D	6.60	7.90/6.40		4.80		
	M4 x 0.7	M4	1.20	A	1.80	3.20/1.50	6.88/6.76	0.40	6.70	13.00
			2.80							
			4.40							
			6.00							
			2.80	B	3.40	4.80/3.20		1.60		
			4.40							
			6.00							
			4.40	C	5.00	6.40/4.80		3.20		
			6.00							
			6.00	D	6.60	7.90/6.40		4.80		
	M5 x 0.8	M5	1.20	A	1.80	3.20/1.50	6.88/6.76	0.40	6.70	13.00
			2.80							
			4.40							
			6.00							
			2.80	B	3.40	4.80/3.20		1.60		
			4.40							
			6.00							
			4.40	C	5.00	6.40/4.80		3.20		
			6.00							
			6.00	D	6.60	7.90/6.40		4.80		
	M6 x 1	M6	1.20	A	1.80	3.20/1.50	8.3/8.2	0.40	8.10	14.70
			2.80							
			4.40							
			6.00							
			2.80	B	3.40	4.80/3.20		1.60		
			4.40							
			6.00							
			4.40	C	5.00	6.40/4.80		3.20		
			6.00							
			6.00	D	6.60	7.90/6.40		4.80		

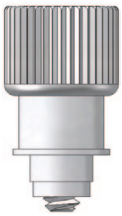
(1) All dimensions are reference unless toleranced.

PENCOM® PENINSULA COMPONENTS

(CONTINUED)

P_1	P_2	P_3	H_1	H_2	K Max.		Total Float of Screw in Ferrule	Cross-Recess Size	Six-Lobe Recess Size
					Cross-Recess and/or Slot Heads	Six-Lobe Recess Heads			
0.80	4.00	0.00	11.30	8.10	0.00	0.00	0.7	#1	T10
2.50	5.70	1.50							
4.00	7.20	3.00							
5.60	8.80	4.60							
1.50	4.80	0.00							
3.30	6.40	1.50							
4.80	7.90	3.00							
6.40	9.40	4.60							
2.50	5.70	0.00							
4.00	7.20	1.40							
5.60	8.80	3.00							
4.00	7.20	0.00							
2.50	5.70	0.00							
5.60	8.80	0.00							
1.10	6.00	0.00	15.30	10.40	0.00	0.00	0.8	#2	T15
2.70	7.60	0.90							
4.30	9.20	2.50							
5.90	10.80	4.10							
2.70	7.60	0.00							
4.30	9.20	0.90							
5.90	10.80	2.50							
4.30	9.20	0.00							
5.90	10.80	0.90							
5.90	10.80	0.00							
1.20	6.30	0.00	15.60	10.50	0.30	1.30	0.9	#2	T25
2.80	7.90	1.00							
4.40	9.50	2.60							
6.00	11.10	4.20							
2.80	7.90	0.00							
4.40	9.50	1.00							
6.00	11.10	2.60							
4.40	9.50	0.00							
6.00	11.10	1.00							
6.00	11.10	0.00							
1.20	6.30	0.00	15.60	10.50	0.30	1.30	0.9	#2	T25
2.80	7.90	1.00							
4.40	9.50	2.60							
6.00	11.10	4.20							
2.80	7.90	0.00							
4.40	9.50	1.00							
6.00	11.10	2.60							
4.40	9.50	0.00							
6.00	11.10	1.00							
6.00	11.10	0.00							
1.20	7.80	0.00	19.30	12.70	0.30	1.30	0.9	#2	T30
2.80	9.40	1.00							
4.40	11.00	2.60							
6.00	12.60	4.20							
2.80	9.40	0.00							
4.40	11.00	1.00							
6.00	12.60	2.60							
4.40	11.00	0.00							
6.00	12.60	1.00							
6.00	12.60	0.60							

All dimensions in millimeters



CPD

Floating Captive Screw

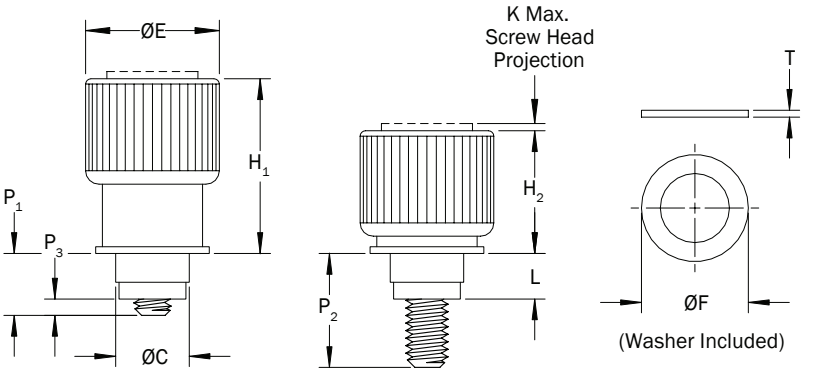
PENCOM®
PENINSULA COMPONENTS

PART DESCRIPTION EXAMPLE

CPD — 440 — .070 — A — SL — KN — J

Thread Code	Screw Length Code	Shank Length Code	Drive Code	Knurled Cap*	Material/ Finish Code

*Omit KN for smooth cap



DRIVE

Drive Code	Description	
SL	Slotted	
PH	Cross-recess	
SL-PH	Slotted Cross-recess	
TX	Six-lobe Recess	
SL-TX	Slotted Six-lobe Recess	

OPTION

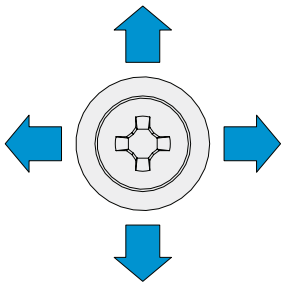
Custom caps and recess styles available by request.
Contact a Pencom Account Representative for details.

CPD Floating Captive Screw

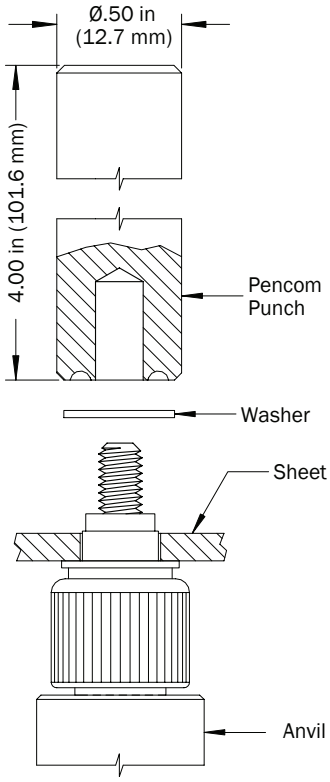
PENCOM® PENINSULA COMPONENTS

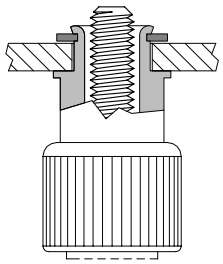
INSTALLATION

1. Prepare sheet as shown for non–flush or flush installation.
2. Insert captive shank in sheet hole, place washer over shank and center punch over screw thread.
3. Squeeze the captive screw between a smooth anvil surface and Pencom punch. Swage captive screw shank over washer using light pressure. Anvil should be made from hardened steel.

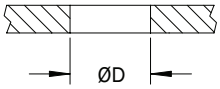


CPD Floating Captive Screws offer the most lateral float of all captive screw types.

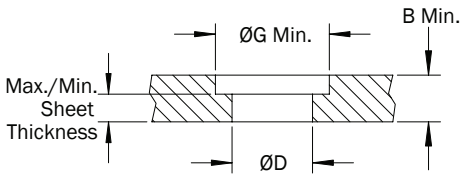




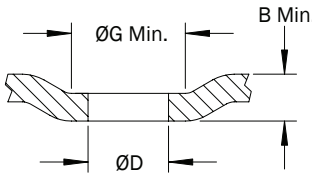
Non-flush Installation with Washer



Non-flush Installation



Flush Installation - Option A



Flush Installation - Option B

PUNCH

Thread	Punch Part Number
4-40 or M3	TL1140
6-32 or M3.5	TL1141
8-32 or M4	TL1142
M5	TL1143
10-32	TL1144
1/4-20 or M6	TL1145

GENERAL

INCH

Thread	Thread Code	Screw Length Code	Shank Length Code	L	Sheet Thickness	Sheet ØD	Sheet ØG Min.	Sheet B	ØC	ØE
4-40	440	.070	A	.101	.031 Max.	.253/.249	.370	.079	.194	.420
		.130								
		.190								
		.070	B	.132	.063/.031			.110		
		.130								
		.190								
		.130	C	.164	.094/.063			.142		
		.190								
		.130	D	.195	.126/.094			.173		
		.190								
		.190	E	.226	.157/.126			.205		
		.190	F	.257	.189/.157			.236		
6-32	632	.090	A	.113	.031 Max.	.286/.282	.410	.083	.220	.450
		.160								
		.220								
		.090	B	.144	.063/.031			.114		
		.160								
		.220								
		.160	C	.176	.094/.063			.146		
		.220								
		.160	D	.207	.126/.094			.177		
		.220								
		.220	E	.238	.157/.126			.209		
		.220	F	.269	.189/.157			.240		
8-32	832	.090	A	.127	.031 Max.	.349/.345	.472	.090	.287	.510
		.160								
		.220								
		.090	B	.158	.063/.031			.122		
		.160								
		.220								
		.160	C	.190	.094/.063			.153		
		.220								
		.160	D	.221	.125/.094			.185		
		.220								
		.220	E	.252	.157/.125			.216		
		.220	F	.283	.189/.157			.248		
10-32	1032	.090	A	.127	.031 Max.	.349/.345	.472	.090	.287	.510
		.160								
		.220								
		.090	B	.158	.063/.031			.122		
		.160								
		.220								
		.160	C	.190	.094/.063			.153		
		.220								
		.160	D	.221	.125/.094			.185		
		.220								
		.220	E	.252	.157/.125			.216		
		.220	F	.283	.189/.157			.248		
1/4-20	0420	.080	A	.127	.031 Max.	.416/.412	.531	.090	.349	.580
		.150								
		.210								
		.080	B	.158	.063/.031			.122		
		.150								
		.210								
		.150	C	.190	.094/.063			.153		
		.210								
		.150	D	.221	.125/.094			.185		
		.210								
		.210	E	.252	.157/.125			.216		
		.210	F	.283	.189/.157			.248		

(1) All dimensions are reference unless toleranced.

PENCOM® PENINSULA COMPONENTS

(CONTINUED)

P_1	P_2	P_3	H_1	H_2	K Max.		Total Float of Screw in Ferrule	Cross-Recess Size	Six-Lobe Recess Size	Washer	
					Cross-Recess and/or Slot Heads	Six-Lobe Recess Heads				ØF	T
.070	.200	.000	.450	.340	.000	.000	.08	#1	T10	.307	.025
.130	.260	.029									
.190	.320	.089									
.070	.200	.000									
.130	.260	.000									
.190	.320	.058									
.130	.260	.000									
.190	.320	.026									
.130	.260	.000									
.190	.320	.000									
.190	.320	.000									
.190	.320	.000									
.090	.280	.000	.600	.420	.000	.000	.09	#2	T15	.340	.020
.160	.350	.047									
.220	.410	.107									
.090	.280	.000									
.160	.350	.016									
.220	.410	.076									
.160	.350	.000									
.220	.410	.044									
.160	.350	.000									
.220	.410	.013									
.220	.410	.000									
.220	.410	.000									
.090	.280	.000	.630	.440	.012	.050	.09	#2	T25	.402	.025
.160	.350	.033									
.220	.410	.093									
.090	.280	.000									
.160	.350	.002									
.220	.410	.062									
.160	.350	.000									
.220	.410	.030									
.160	.350	.000									
.220	.410	.000									
.220	.410	.000									
.220	.410	.000									
.090	.280	.000	.630	.440	.000	.040	.09	#2	T25	.402	.025
.160	.350	.033									
.220	.410	.093									
.090	.280	.000									
.160	.350	.002									
.220	.410	.062									
.160	.350	.000									
.220	.410	.030									
.160	.350	.000									
.220	.410	.000									
.220	.410	.000									
.220	.410	.000									
.080	.350	.000	.790	.520	.000	.040	.09	#2	T30	.469	.025
.150	.410	.023									
.210	.470	.083									
.080	.350	.000									
.150	.410	.000									
.210	.470	.052									
.150	.410	.000									
.210	.470	.020									
.150	.410	.000									
.210	.470	.000									
.210	.470	.000									
.210	.470	.000									

All dimensions in inches

GENERAL

	Thread	Thread Code	Screw Length Code	Shank Length Code	L	Sheet				ØC	ØE
						Thickness	ØD	ØG Min.	B		
METRIC	M3 x 0.5	M3	1.90	A	2.60	0.8 Max.	6.48/6.37	9.40	2.00	4.90	10.60
			3.40								
			5.00								
			1.90	B	3.40	1.60/0.80			2.80		
			3.40								
			5.00								
			3.40	C	4.20	2.40/1.60			3.60		
			5.00								
			3.40	D	5.00	3.20/2.40			4.40		
			5.00								
			5.00	E	5.70	4.00/3.20			5.20		
			5.00	F	6.50	4.80/4.00			6.00		
	M3.5 x 0.6	M3.5	2.40	A	2.90	0.8 Max.	7.28/7.17	10.30	2.10	5.70	11.50
			4.00								
			5.60								
			2.40	B	3.70	1.60/0.80			2.90		
			4.00								
			5.60								
			4.00	C	4.50	2.40/1.60			3.70		
			5.60								
			4.00	D	5.30	3.20/2.40			4.50		
			5.60								
			5.60	E	6.00	4.00/3.20			5.30		
			5.60	F	6.80	4.80/4.00			6.10		
	M4 x 0.7	M4	2.40	A	3.20	0.8 Max.	8.88/8.77	12.00	2.30	7.30	13.00
			4.00								
			5.60								
			2.40	B	4.00	1.60/0.80			3.10		
			4.00								
			5.60								
			4.00	C	4.80	2.40/1.60			3.90		
			5.60								
			4.00	D	5.60	3.20/2.40			4.70		
			5.60								
			5.60	E	6.40	4.00/3.20			5.50		
			5.60	F	7.20	4.80/4.00			6.30		
	M5 x 0.8	M5	2.40	A	3.20	0.8 Max.	8.88/8.77	12.00	2.30	7.30	13.00
			4.00								
			5.60								
			2.40	B	4.00	1.60/0.80			3.10		
			4.00								
			5.60								
			4.00	C	4.80	2.40/1.60			3.90		
			5.60								
			4.00	D	5.60	3.20/2.40			4.70		
			5.60								
			5.60	E	6.40	4.00/3.20			5.50		
			5.60	F	7.20	4.80/4.00			6.30		
	M6 x 1	M6	2.10	A	3.20	0.8 Max.	10.58/10.47	13.50	2.50	8.90	14.70
			3.70								
			5.30								
			2.10	B	4.00	1.60/0.80			3.30		
			3.70								
			5.30								
			3.70	C	4.80	2.40/1.60			4.10		
			5.30								
			3.70	D	5.60	3.20/2.40			4.90		
			5.30								
			5.30	E	6.40	4.00/3.20			5.60		
			5.30	F	7.20	4.80/4.00			6.40		

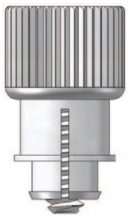
(1) All dimensions are reference unless toleranced.

PENCOM® PENINSULA COMPONENTS

(CONTINUED)

P_1	P_2	P_3	H_1	H_2	K Max.		Total Float of Screw in Ferrule	Cross-Recess Size	Six-Lobe Recess Size	Washer	
					Cross-Recess and/or Slot Heads	Six-Lobe Recess Heads				ØF	T
1.90	5.10	0.00	11.40	8.60	0.00	0.00	2.0	#1	T10	7.80	0.60
3.40	6.60	0.80									
5.00	8.20	2.40									
1.90	5.10	0.00									
3.40	6.60	0.00									
5.00	8.20	1.60									
3.40	6.60	0.00									
5.00	8.20	0.80									
3.40	6.60	0.00									
5.00	8.20	0.00									
5.00	8.20	0.00									
5.00	8.20	0.00									
2.40	7.20	0.00	15.40	10.60	0.00	0.00	2.2	#2	T15	8.60	0.60
4.00	8.80	1.10									
5.60	10.40	2.70									
2.40	7.20	0.00									
4.00	8.80	0.30									
5.60	10.40	1.90									
4.00	8.80	0.00									
5.60	10.40	1.10									
4.00	8.80	0.00									
5.60	10.40	0.30									
5.60	10.40	0.00									
5.60	10.40	0.00									
2.40	7.20	0.00	16.00	11.20	0.30	1.30	2.3	#2	T25	10.20	0.60
4.00	8.80	0.80									
5.60	10.40	2.40									
2.40	7.20	0.00									
4.00	8.80	0.00									
5.60	10.40	1.60									
4.00	8.80	0.00									
5.60	10.40	0.80									
4.00	8.80	0.00									
5.60	10.40	0.00									
5.60	10.40	0.00									
5.60	10.40	0.00									
2.40	7.20	0.00	16.00	11.20	0.30	1.30	2.3	#2	T25	10.20	0.60
4.00	8.80	0.80									
5.60	10.40	2.40									
2.40	7.20	0.00									
4.00	8.80	0.00									
5.60	10.40	1.60									
4.00	8.80	0.00									
5.60	10.40	0.80									
4.00	8.80	0.00									
5.60	10.40	0.00									
5.60	10.40	0.00									
5.60	10.40	0.00									
2.10	8.80	0.00	20.00	13.30	0.30	1.30	2.3	#2	T30	11.90	0.60
3.70	10.40	0.50									
5.30	12.00	2.10									
2.10	8.80	0.00									
3.70	10.40	0.00									
5.30	12.00	1.30									
3.70	10.40	0.00									
5.30	12.00	0.50									
3.70	10.40	0.00									
5.30	12.00	0.00									
5.30	12.00	0.00									
5.30	12.00	0.00									

All dimensions in millimeters



CPE

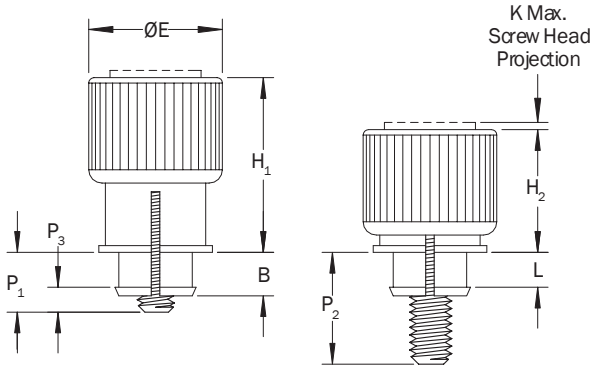
Snap–In Captive Screw

PART DESCRIPTION EXAMPLE

CPE — 632 — .030 — A — SL — KN — J

632	.030	A	SL	KN	J
Thread Code	Screw Length Code	Shank Length Code	Drive Code	Knurled Cap*	Material/ Finish Code

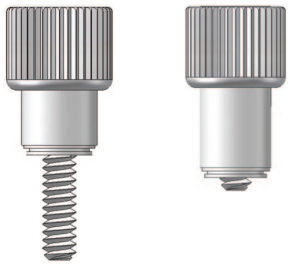
*Omit KN for smooth cap



DRIVE

Drive Code	Description	
SL	Slotted	
PH	Cross-recess	
SL-PH	Slotted Cross-recess	
TX	Six-lobe Recess	
SL-TX	Slotted Six-lobe Recess	

OPTION

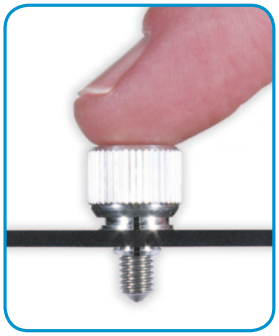


Pencom Engineers can work with you to create captive screws with custom screw lengths and travel to meet specific application needs.

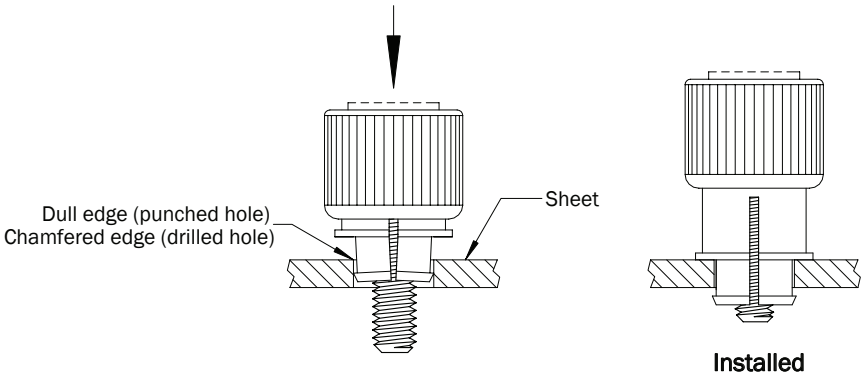
PENCOM® PENINSULA COMPONENTS

INSTALLATION

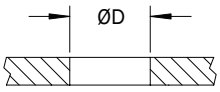
1. Prepare sheet as shown for non–flush or flush installation. Lightly chamfer top edge of hole if drilled. For installation with sheet near maximum thickness, lightly deburr outside edge of hole as well.
2. Install captive screw in sheet hole from punched or chamfered side using light pressure.



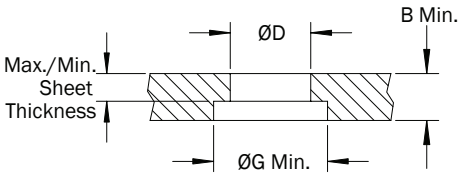
CPE Snap–In Captive Screws install easily with light pressure and are removable.



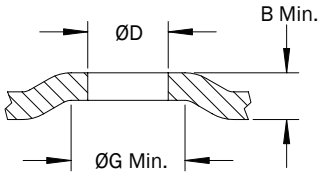
Installed



Non-flush Installation

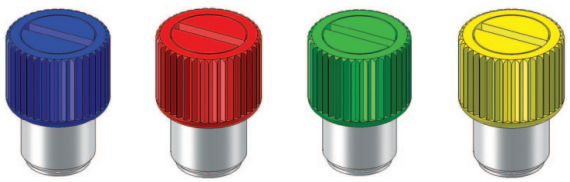


Flush Installation - Option A



Flush Installation - Option B

OPTION



Screw caps can be color–matched to virtually any specification. Contact a Pencom Account Representative for details.

GENERAL

	Thread	Thread Code	Screw Length Code	Shank Length Code	L	Sheet			
						Thickness	ØD	ØG Min.	B
INCH	6-32	632	.030	A	.040	.040/.020	.252/.248	.295	.080
			.090						
			.160						
			.220						
			.090	B	.070	.060/.040			.100
			.160						
			.220						
			.090	C	.080	.080/.060			.130
			.090	D	.100	.100/.060			.140
			.160						
			.220						
			.160	E	.130	.130/.100			.170
			.220						
			.220	F	.200	.200/.130			.240
	8-32	832	.040	A	.040	.040/.020	.252/.248	.295	.080
			.110						
			.170						
			.230						
			.110	B	.070	.060/.040			.100
			.170						
			.230						
			.110	C	.100	.100/.060			.140
			.170						
			.230						
			.170	D	.130	.130/.100			.170
			.230						
			.230	E	.200	.200/.130			.240
	10-32	1032	.040	A	.040	.040/.020	.252/.248	.295	.080
			.110						
			.170						
			.230						
			.110	B	.070	.060/.040			.100
			.170						
			.230						
			.110	C	.100	.100/.060			.140
			.170						
			.230						
			.170	D	.130	.130/.100			.170
			.230						
			.230	E	.200	.200/.130			.240

(1) All dimensions are reference unless toleranced.

PENCOM® PENINSULA COMPONENTS

(CONTINUED)

ØE	P_1	P_2	P_3	H_1	H_2	K Max.		Total Float of Screw in Ferrule	Cross-Recess Size	Six-Lobe Recess Size
						Cross-Recess and/or Slot Heads	Six-Lobe Recess Heads			
.450	.030	.220	.000	.610	.420	.000	.000	.03	#2	T15
	.090	.280	.010							
	.160	.350	.080							
	.220	.410	.140							
	.090	.280	.000							
	.160	.350	.060							
	.220	.410	.120							
	.090	.280	.000							
	.090	.280	.000							
	.160	.350	.020							
	.220	.410	.080							
	.160	.350	.000							
	.220	.410	.050							
	.220	.410	.000							
.510	.040	.220	.000	.620	.440	.012	.050	.03	#2	T25
	.110	.280	.030							
	.170	.350	.090							
	.230	.410	.150							
	.110	.280	.010							
	.170	.350	.070							
	.230	.410	.130							
	.110	.280	.000							
	.170	.350	.030							
	.230	.410	.090							
	.170	.350	.000							
	.230	.410	.060							
	.230	.410	.000							
.510	.040	.220	.000	.620	.440	.000	.040	.03	#2	T25
	.110	.280	.030							
	.170	.350	.090							
	.230	.410	.150							
	.110	.280	.010							
	.170	.350	.060							
	.230	.410	.130							
	.110	.280	.000							
	.170	.350	.030							
	.230	.410	.090							
	.170	.350	.000							
	.230	.410	.060							
	.230	.410	.000							

All dimensions in inches

GENERAL

	Thread	Thread Code	Screw Length Code	Shank Length Code	L	Sheet			
						Thickness	ØD	ØG Min.	B
METRIC	M3.5 x 0.6	M3.5	0.80	A	1.10	1.00/0.50	6.40/6.30	7.50	2.00
			2.40						
			4.00						
			5.60						
			2.40	B	1.70	1.60/1.00			2.60
			4.00						
			5.60						
			2.40	C	2.60	2.50/1.60			3.50
			4.00						
			5.60						
			4.00	D	3.30	3.20/2.50			4.20
			5.60						
			5.60	E	5.10	5.00/3.20			6.00
	M4 x 0.7	M4	1.10	A	1.10	1.00/0.50	6.40/6.30	7.50	2.00
			2.70						
			4.30						
			5.90						
			2.70	B	.170	1.60/1.00			2.60
			4.30						
			5.90						
			2.70	C	2.60	2.50/1.60			3.50
			4.30						
			5.90						
			4.30	D	3.30	3.20/2.50			4.20
			5.90						
			5.90	E	5.10	5.00/3.20			6.00
	M5 x 0.8	M5	1.10	A	1.10	1.00/0.50	6.40/6.30	7.50	2.00
			2.70						
			4.30						
			5.90						
			2.70	B	1.70	1.60/1.00			2.60
			4.30						
			5.90						
			2.70	C	2.60	2.50/1.60			3.50
			4.30						
			5.90						
			4.30	D	3.30	3.20/2.50			4.20
			5.90						
			5.90	E	5.10	5.00/3.20			6.00

(1) All dimensions are reference unless toleranced.

PENCOM® PENINSULA COMPONENTS

(CONTINUED)

ØE	P_1	P_2	P_3	H_1	H_2	K Max.		Total Float of Screw in Ferrule	Cross-Recess Size	Six-Lobe Recess Size
						Cross-Recess and/or Slot Heads	Six-Lobe Recess Heads			
11.50	0.80	5.60	0.00	15.40	10.60	0.00	0.00	0.8	#2	T15
	2.40	7.20	0.40							
	4.00	8.80	2.00							
	5.60	10.40	3.60							
	2.40	7.20	0.00							
	4.00	8.80	1.40							
	5.60	10.40	3.00							
	2.40	7.20	0.00							
	4.00	8.80	0.50							
	5.60	10.40	2.10							
	4.00	8.80	0.00							
	5.60	10.40	1.40							
	5.60	10.40	0.00							
13.00	1.10	5.60	0.00	15.70	11.20	0.30	1.30	0.9	#2	T25
	2.70	7.20	0.70							
	4.30	8.80	2.30							
	5.90	10.40	3.90							
	2.70	7.20	0.10							
	4.30	8.80	1.70							
	5.90	10.40	3.30							
	2.70	7.20	0.00							
	4.30	8.80	0.80							
	5.90	10.40	2.40							
	4.30	8.80	0.10							
	5.90	10.40	1.70							
	5.90	10.40	0.00							
13.00	1.10	5.60	0.00	15.70	11.20	0.30	1.30	0.9	#2	T25
	2.70	7.20	0.70							
	4.30	8.80	2.30							
	5.90	10.40	3.90							
	2.70	7.20	0.10							
	4.30	8.80	1.70							
	5.90	10.40	3.30							
	2.70	7.20	0.00							
	4.30	8.80	0.80							
	5.90	10.40	2.40							
	4.30	8.80	0.10							
	5.90	10.40	1.70							
	5.90	10.40	0.00							

All dimensions in millimeters

MATERIAL AND FINISH

Material/Finish Code	Type Availability					Retainer	
	CPA	CPB	CPC	CPD	CPE	Material	Finish
A		•				300-Series Stainless Steel	Passivate[3]
B		•					
C		•					
D		•					
E	•					Heat-Treated Carbon Steel	Zinc[1]
F	•						
G	•						
H	•						
J			•	•	•	6000-Series Aluminum	Plain
K			•	•	•		
L			•	•	•		
M			•	•	•		

(1) Zinc SC1 .0002" (5 µm) min. with Type III Clear Chromate per ASTM B 633.
(2) Zinc SC1 .0002" (5 µm) min. with Type III Clear Chromate per ASTM B 633 and black powder coat (screw head only).
(3) Passivate per ASTM A 967
(4) Passivate per ASTM A 967 and black powder coat (screw head only).

PENCOM® PENINSULA COMPONENTS

(CONTINUED)

Spring & CPD Washer		Knob		Screw	
Material	**Finish**	**Material**	**Finish**	**Material**	**Finish**
300-Series Stainless Steel	Passivate[3]	6000-Series Aluminum	Natural	Heat-Treated Carbon Steel	Zinc[1]
			Black Powder Coat		Zinc and Black Powder Coat[2]
			Natural	400-Series Stainless Steel	Passivate[3]
			Black Powder Coat		Passivate and Black Powder Coat[4]
300-Series Stainless Steel	Passivate[3]	6000-Series Aluminum	Natural	Heat-Treated Carbon Steel	Zinc[1]
			Black Powder Coat		Zinc and Black Powder Coat[2]
			Natural	400-Series Stainless Steel	Passivate[3]
			Black Powder Coat		Passivate and Black Powder Coat[4]
300-Series Stainless Steel	Passivate[3]	6000-Series Aluminum	Natural	Heat-Treated Carbon Steel	Zinc[1]
			Black Powder Coat		Zinc and Black Powder Coat[2]
			Natural	400-Series Stainless Steel	Passivate[3]
			Black Powder Coat		Passivate and Black Powder Coat[4]

This information may be updated periodically. Contact Pencom for current information or see ***www.pencomsf.com***

CV

PENCOM™ PENINSULA COMPONENTS

Panel Fastener Assembly

FEATURES

- Attractive, compact design for limited space applications.
- Choices of screw length, material, finish and drive.
- RoHS compliant.
- For use in sheets HRB 60 or less.

PART DESCRIPTION EXAMPLE

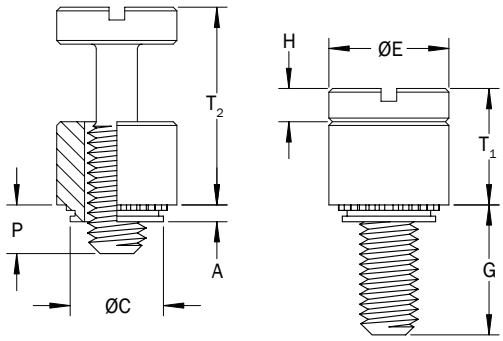
CVST — 440 — 1 — PH — SL — NI

CVST	440	1	PH — SL	NI
Material Code	Thread Code	Screw Length Code	Drive Code	Finish Code

OPTIONS

A nylon thread locking element can be added to the screw threads to prevent loosening due to vibration. To specify, insert **PATCH** at the end of the part description. Other locking elements available by request.

ex: CVST-440-1-PH-SL-NI-**PATCH**



GENERAL

	Thread	Thread Code	Screw Length Code	Sheet			A Max.	ØC Max.	ØE ±.010	G ±.025	H ±.005	P ±.025	T_1 Nom.	T_2 Nom.	Recess Size	
				Min. Thick.	Hole Size +.003 -.000	Min. Dist. Hole Center to Edge									Cross	Six–Lobe
Inch	4-40	440	0	.036	.203	.213	.036	.202	.260	.216	.080	.000	.260	.436	#1	T15
			1							.316		.095				
	6-32	632	0	.036	.219	.230	.036	.218	.276	.234	.092	.000	.290	.484	#2	T20
			1							.359		.120				

All dimensions in inches

	Thread	Thread Code	Screw Length Code	Sheet			A Max.	ØC Max.	ØE ±0.25	G ±0.64	H ±0.13	P ±0.64	T_1 Nom.	T_2 Nom.	Recess Size	
				Min. Thick.	Hole Size +0.08 -0.00	Min. Dist. Hole Center to Edge									Cross	Six–Lobe
Metric	M3X0.5	M3	0	0.92	5.5	5.8	0.92	5.49	6.95	5.55	2.03	0.00	6.69	11.25	#1	T15
			1							7.56		1.90				
	M3.5X0.6	M3.5	0	0.92	6.0	6.3	0.92	5.98	7.45	6.01	2.34	0.00	7.45	12.47	#2	T20
			1							8.42		2.30				
	M4X0.7	M4	0	.0.92	6.4	6.7	0.92	6.38	7.85	6.59	2.79	0.00	8.50	14.10	#2	T20
			1							9.39		2.70				

All dimensions in millimeters

CV Panel Fastener Assembly

DRIVE

Drive Code	Drive Description	
SL-PH	Slotted Cross Recess	
SL-TX	Slotted Six-Lobe Recess	

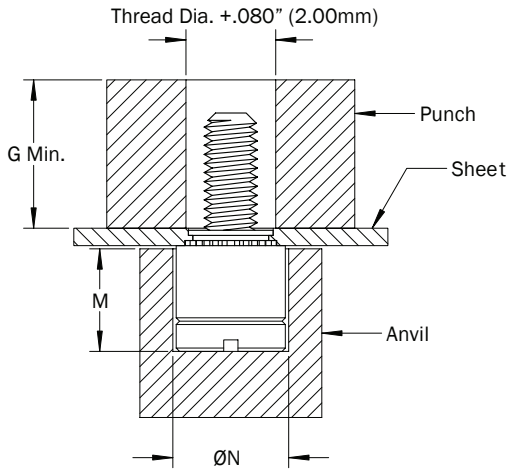
CV with
Six-Lobe Recess

MATERIAL & FINISH

Material Code	Material Description		Finish Code	Finish Description
	Retainer	Screw		
ST	Carbon Steel	Heated-Treated Carbon Steel	NI	Bright Nickel per ASTM B 689
SS	300-Series Stainless Steel	300- Series Stainless Steel	P	Passivate and/or test per ASTM A 967

INSTALLATION

1. Punch or drill hole in sheet of hardness HRB 60 or less. Do not deburr edges.
2. Place fastener in anvil recess and locate sheet hole over the retainer shank.
3. Squeeze the sheet and fastener between parallel anvil and punch surfaces. Use only enough pressure to seat the retainer shoulder flush with the sheet.



Installed

(Anvil and punch should be made from hardened alloy steel)

ANVIL DIMENSIONS

	Thread Code	Screw Length Code	Anvil Dimensions		
			G. Min.	M ±.002	ØN ±.002
Inch	440	0	.216	.220	.285
		1	.316		
	632	0	.234	.250	.301
		1	.359		

All dimensions in inches

	Thread Code	Screw Length Code	Anvil Dimensions		
			G. Min.	M ±0.05	ØN ±0.05
Metric	M3	0	5.55	5.59	7.24
		1	7.56		
	M3.5	0	6.01	6.35	7.65
		1	8.42		
	M4	0	6.59	7.24	8.43
		1	9.39		

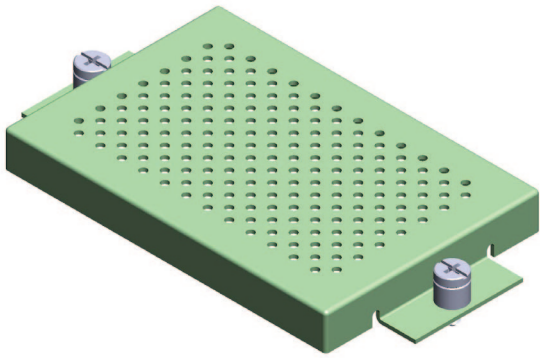
All dimensions in millimeters

PERFORMANCE

	Thread Code	Test Sheet Material			
		Aluminum		Cold-Rolled Steel	
		Installation (lbs)	Push-out (lbs)	Installation (lbs)	Push-out (lbs)
Inch	440	1700	108	2200	118
	632	1850	117	2400	128

	Thread Code	Test Sheet Material			
		Aluminum		Cold-Rolled Steel	
		Installation (kN)	Push-out (N)	Installation (kN)	Push-out (N)
Metric	M3	8.1	516	10.5	564
	M3.5	8.8	561	11.4	614
	M4	9.4	599	12.1	656

(1) Performance data represents the average destructive result when all installation specifications are strictly followed. Variations in panel hole size, thickness, material and installation methods will affect the loads. Pencom recommends testing in the application. Contact your account representative for samples.



CV Panel Fastener Assemblies offer an attractive alternative to loose hardware in a variety of applications

This information may be updated periodically. Contact Pencom for current information or see ***www.pencomsf.com***