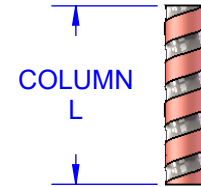
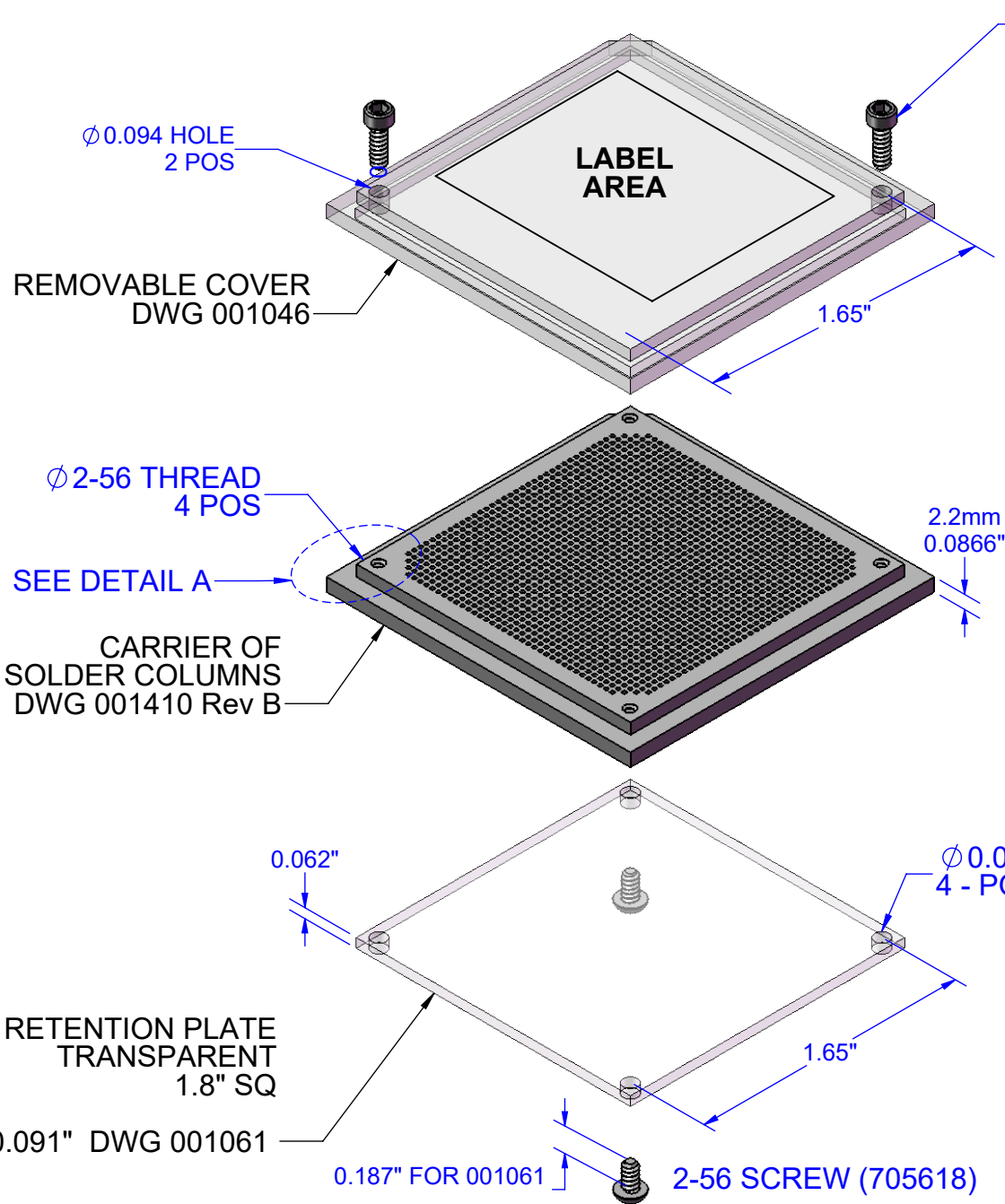
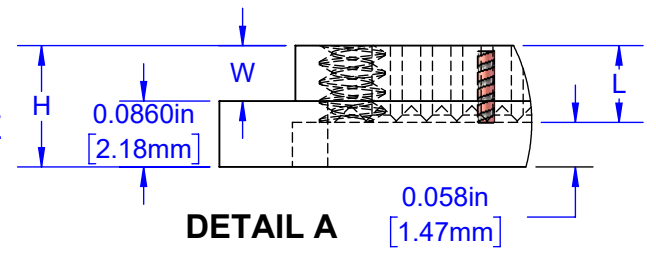


ASSEMBLY EXPLODED VIEW FLIP-PACK SYSTEM

U.S. PATENT
No. 9,108,262 and 9,629,259



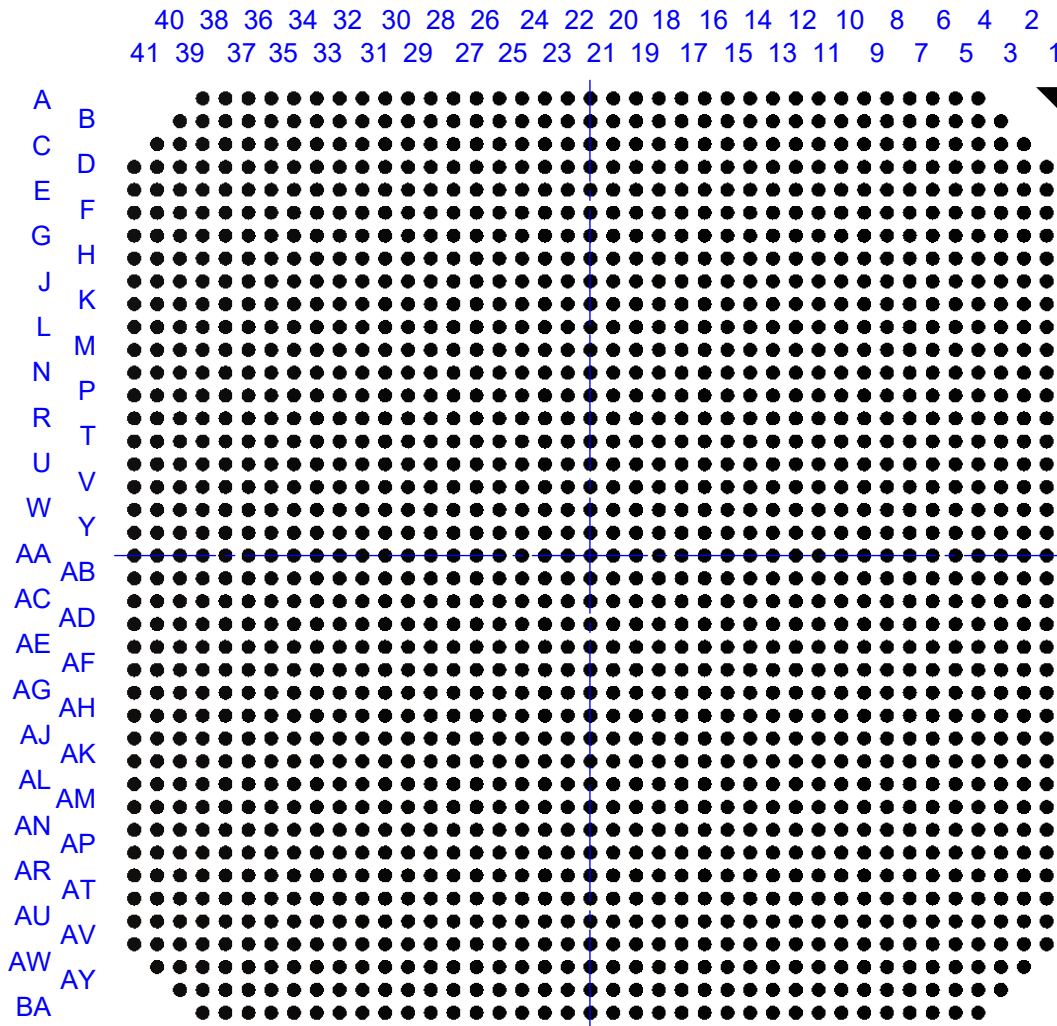
DIMENSION TABLE				
H	L MAX	Z	W	DWG
4.02mm 0.158"	2.54mm 0.100"	3.96mm 0.156"	1.82mm 0.072"	120254



APPROVALS	DATE	TopLine®			
DRAWN T. Au	12/18/2018				
ENG M. Hart	12/18/2018	TITLE FP1657 FLIP PACK® CCGA COLUMN CARRIER			
MFG		SCALE	SIZE	DRAWING NO.	REV
QA		1.25:1	A	001410	C
CUST		DO NOT SCALE DRAWING			SHEET 1 OF 11
REVISED					

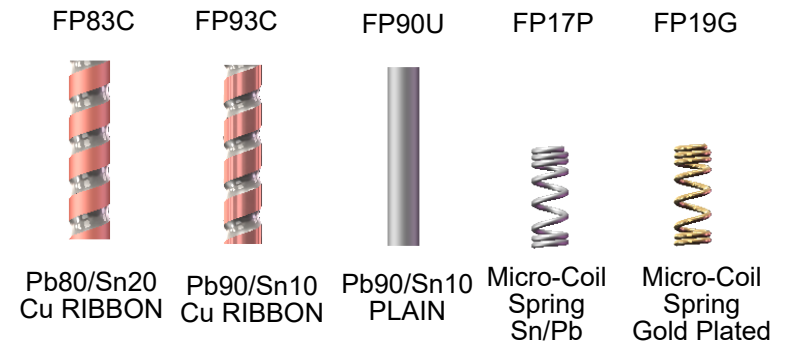
PART NUMBER TABLE

FLIP-PACK [®]	Pins	Pitch	Matrix	COLUMN				Empty DWG	Filled DWG
				Alloy	Construction	Ø Dia	Length		
FP83C1657E20x93A	1657	1.0mm	41x41	Pb80	Cu Ribbon	0.51mm	2.36mm	001410	831410
FP90U1657E20x93A				Pb90	Plain		2.36mm		901410
FP17P1657E20x50A				MCS	Micro Coil		1.27mm		171410



BOTTOM
COUNTERSINK SIDE

EXAMPLES OF COLUMNS

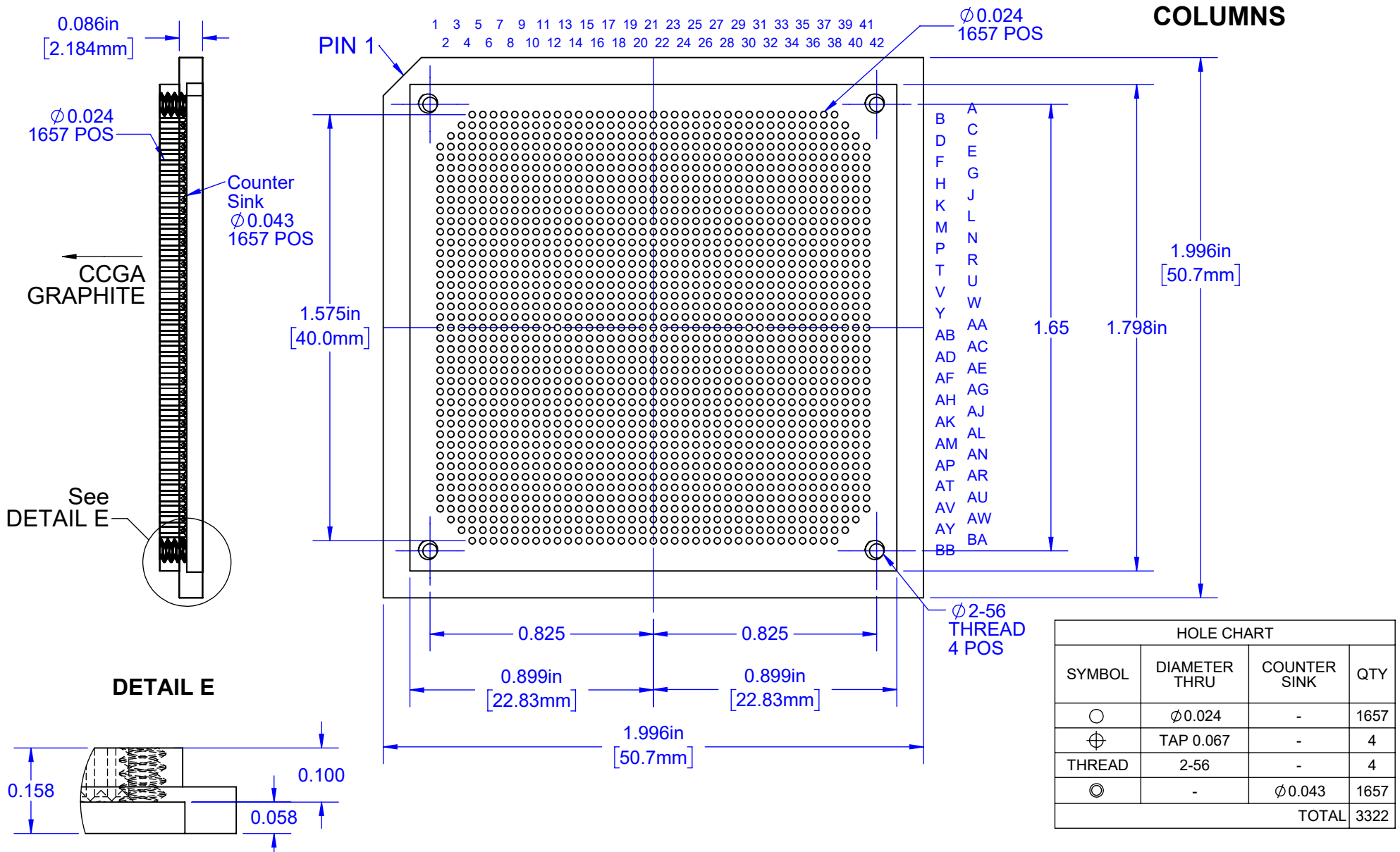


TopLine[®]			
TITLE FP1657 FLIP PACK [®] CCGA COLUMN CARRIER			
SCALE NONE	SIZE A	DRAWING NO. 001410	REV C
DO NOT SCALE DRAWING			SHEET 2 OF 11

SIDE

TOP VIEW

ARRAY OF COLUMNS



Notes: (Unless Otherwise Specified).
 1) MATERIAL: BLACK PLASTIC, CONDUCTIVE.
 2) DIMENSIONS : INCHES [MM].

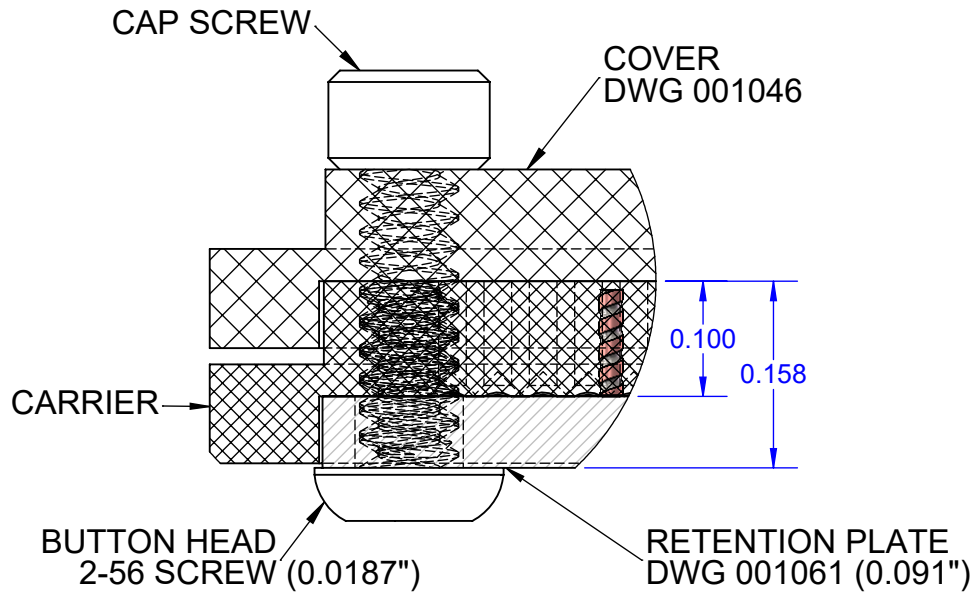
TopLine®

TITLE FP1657 FLIP PACK®
CCGA COLUMN CARRIER

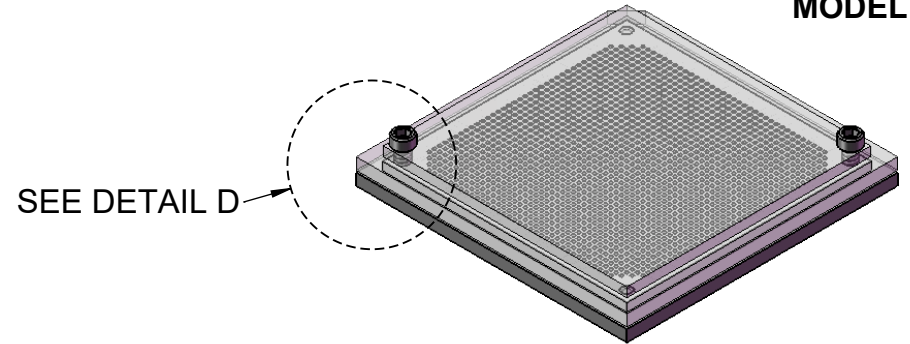
SCALE 2:1	SIZE A	DRAWING NO. 001410	REV C
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DO NOT SCALE DRAWING SHEET 3 OF 11

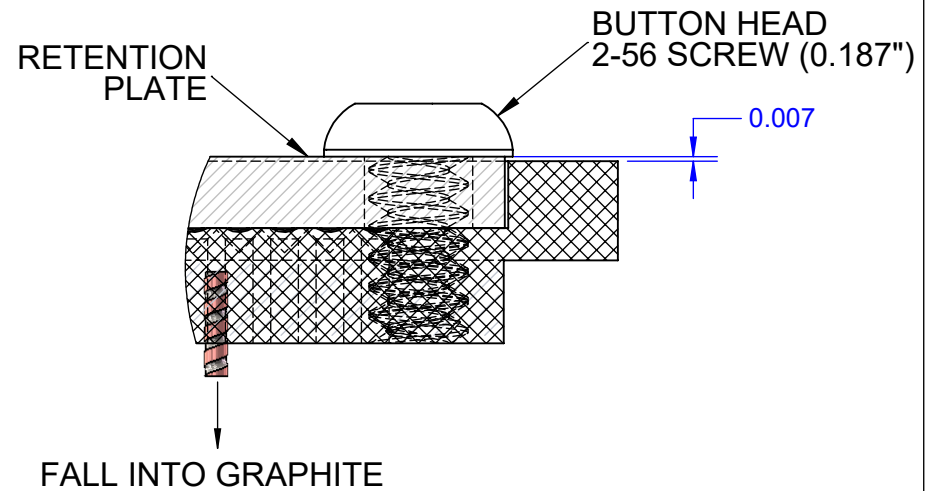
DETAIL D WITH COVER PLATE



MODEL



SHOWN INVERTED WITHOUT COVER PLATE

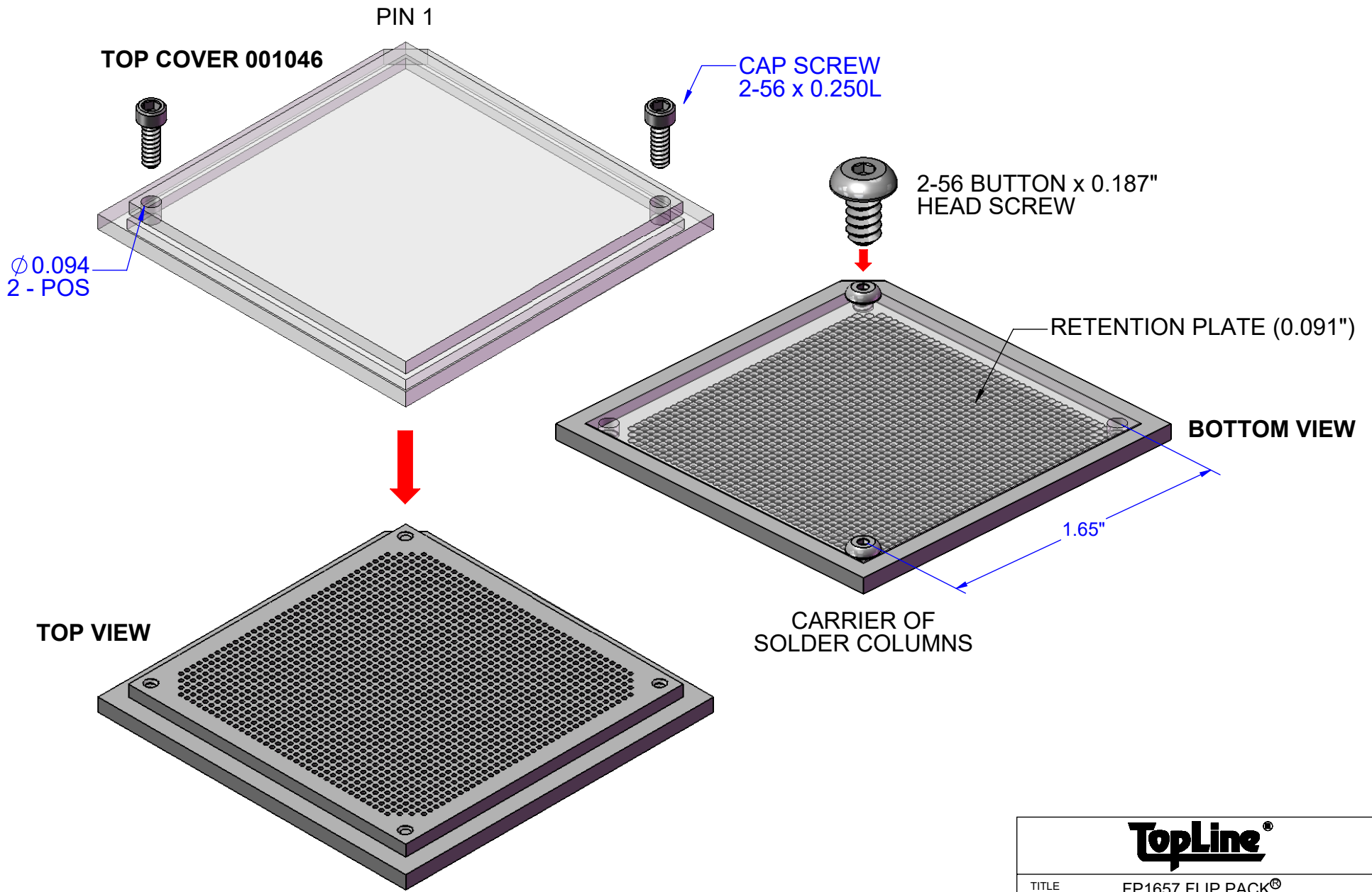


EXAMPLES OF COLUMNS

- | | | | | |
|------------------------|------------------------|--------------------|-------------------------------|-------------------------------------|
| FP83C | FP93C | FP90U | FP17P | FP19G |
| | | | | |
| Pb80/Sn20
Cu RIBBON | Pb90/Sn10
Cu RIBBON | Pb90/Sn10
PLAIN | Micro-Coil
Spring
Sn/Pb | Micro-Coil
Spring
Gold Plated |

TopLine®			
TITLE FP1657 FLIP PACK® CCGA COLUMN CARRIER			
SCALE 7:1	SIZE A	DRAWING NO. 001410	REV C
DO NOT SCALE DRAWING			SHEET 4 OF 11

FLIP PACK[®] MODEL

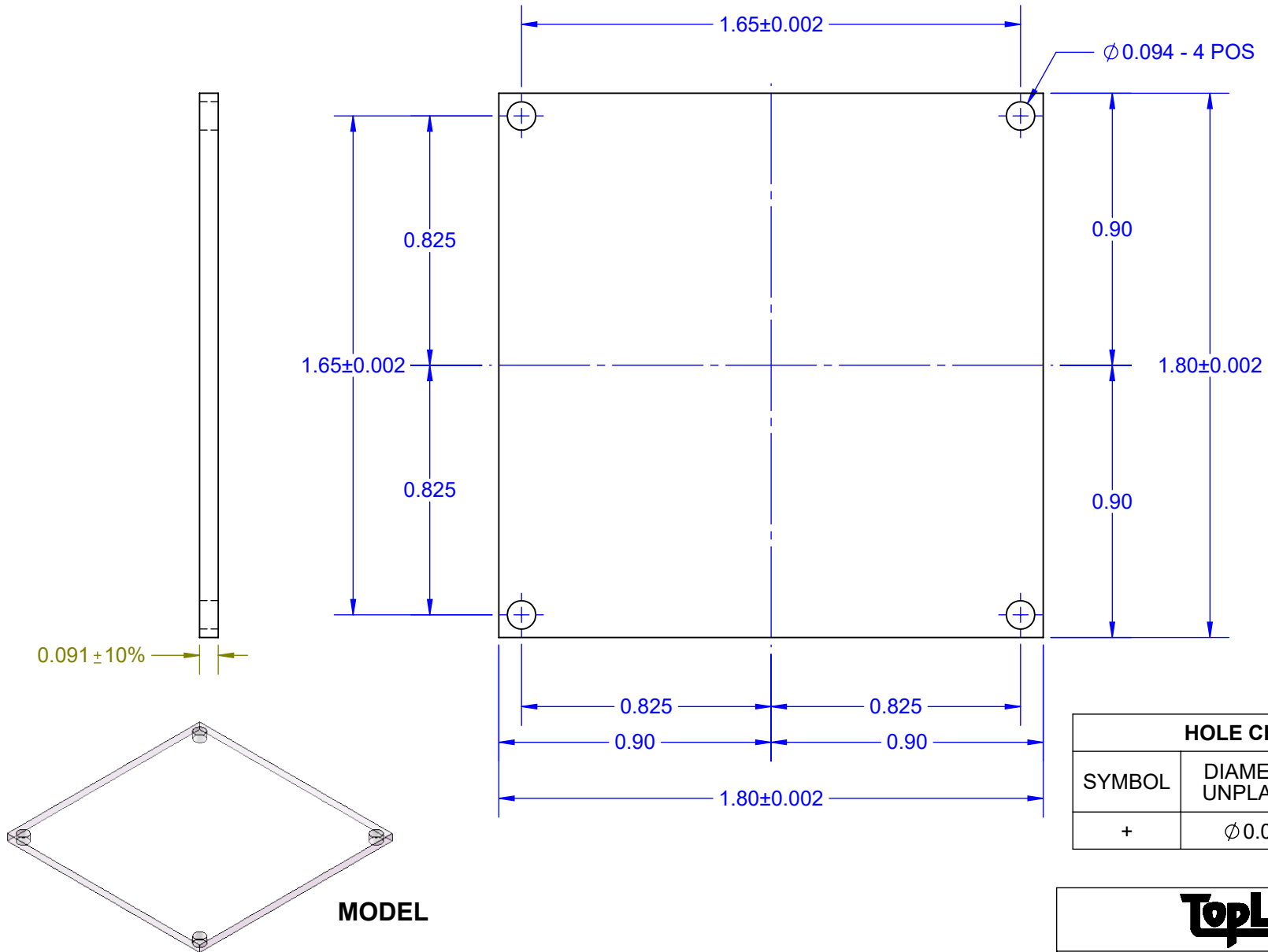


TopLine[®]			
TITLE FP1657 FLIP PACK [®] CCGA COLUMN CARRIER			
SCALE 2:1	SIZE A	DRAWING NO. 001410	REV C
DO NOT SCALE DRAWING		SHEET 5 OF 11	

BOTTOM RETENTION PLATE DWG 001061

SIDE VIEW

TOP VIEW



HOLE CHART		
SYMBOL	DIAMETER UNPLATED	QTY HOLES
+	$\phi 0.094$	4

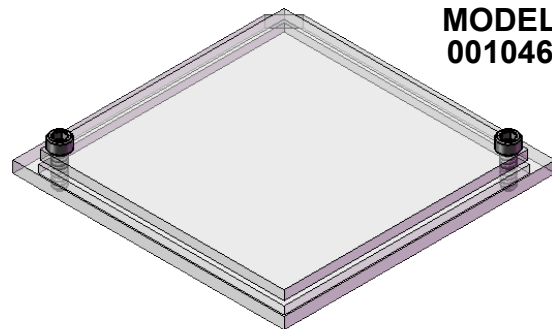
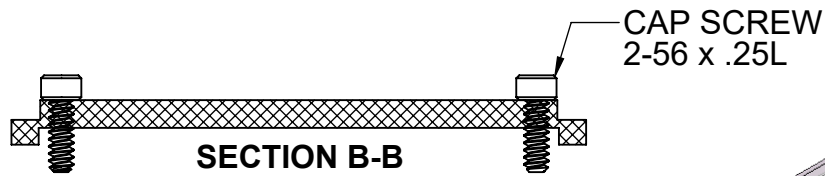
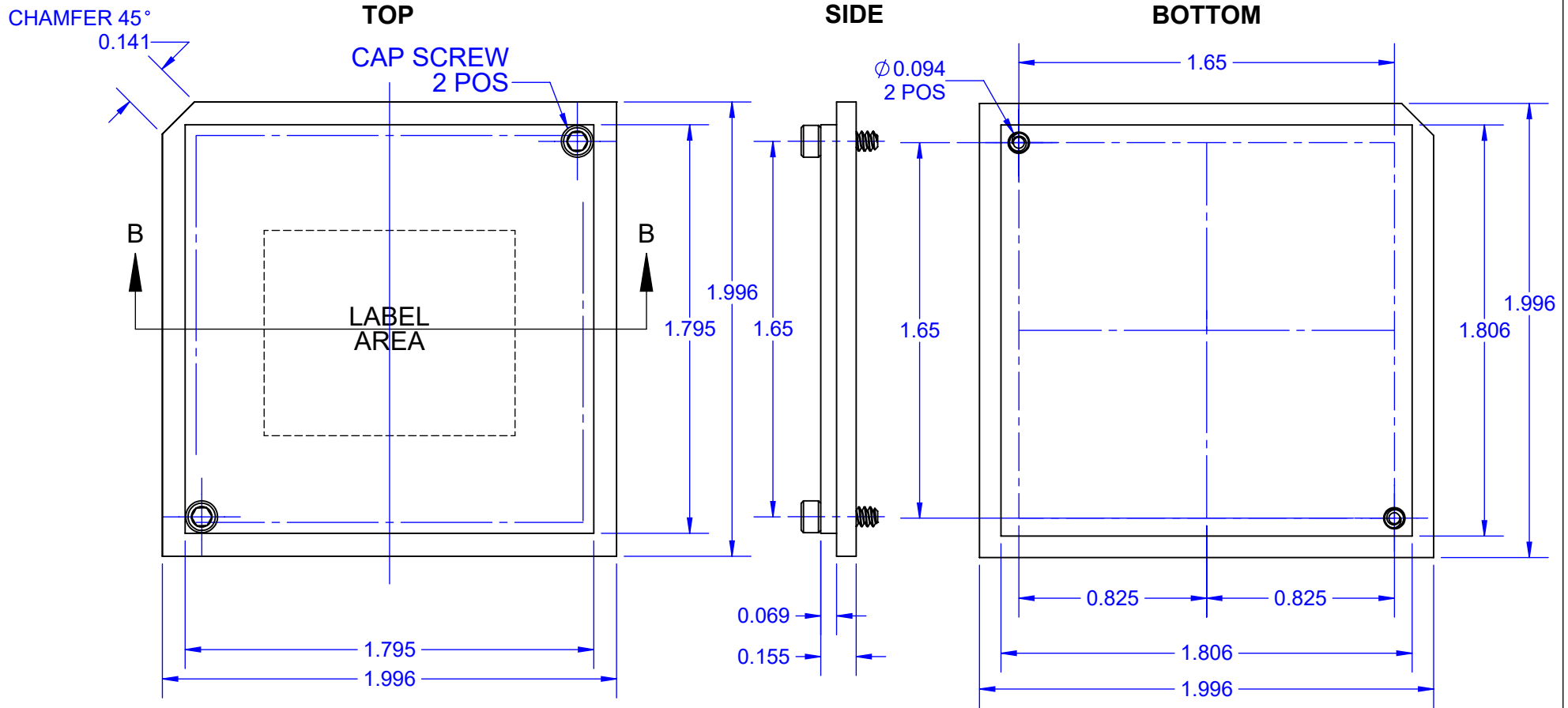
MODEL

NOTES:

1. DIMENSIONS INCHES UNLESS OTHERWISE STATED.
2. MATERIAL CLEAR PC-300 POLYCARBONATE (ESD SAFE).
3. STATIC DISIPATIVE $10^6 \sim 10^8 \Omega$.

TopLine®			
TITLE FP1657 FLIP PACK® CCGA COLUMN CARRIER			
SCALE	SIZE	DRAWING NO.	REV
2:1	A	001410	C
DO NOT SCALE DRAWING			SHEET 6 OF 11

SHOWN WITH SCREWS

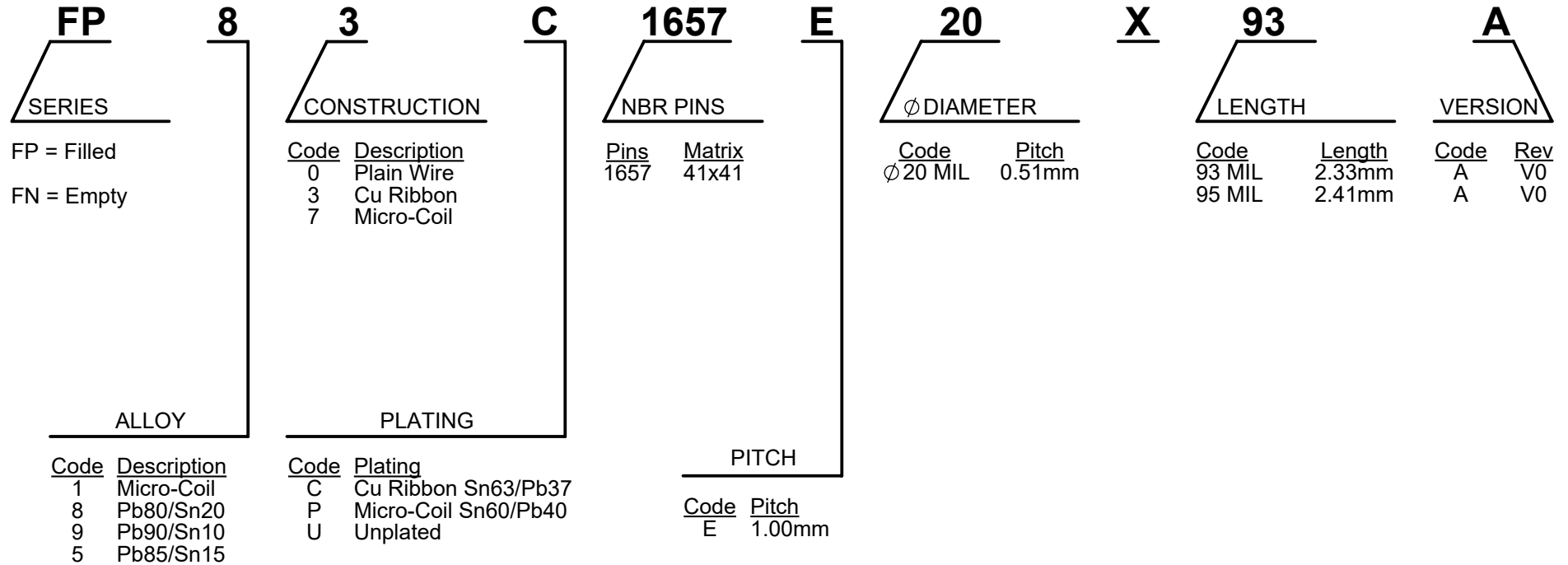


Notes: (Unless Otherwise Specified).

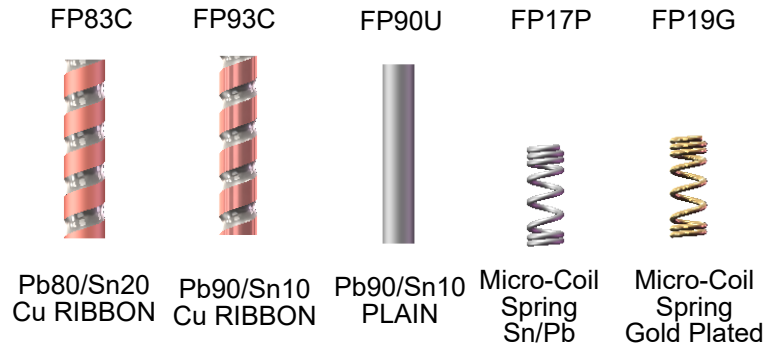
- 1) DIMENSIONS: INCH.
- 2) MATERIAL: TRANSPARENT PMMA PLASTIC.
- 3) ANTISTATIC: $10^{12} \Omega$ SURFACE RESISTANCE.

TopLine®			
TITLE FP1657 FLIP PACK® CCGA COLUMN CARRIER			
SCALE 3:2	SIZE A	DRAWING NO. 001410	REV C
DO NOT SCALE DRAWING			SHEET 7 OF 11

FLIP-PACK® PART NUMBERING SYSTEM



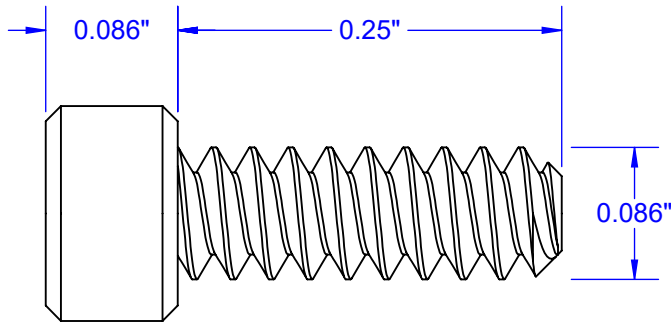
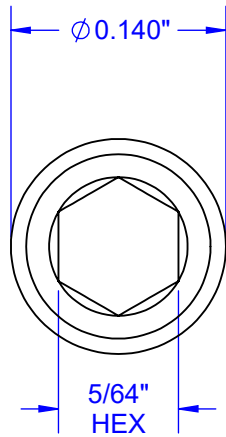
EXAMPLES OF COLUMNS



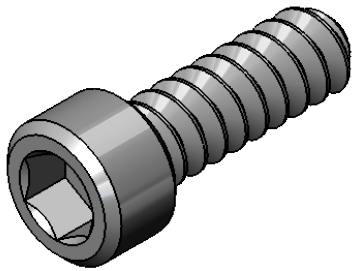
NOTE 1: FP83, FP90 and FP93 REQUIRES TRIMMING TO FINISHED LENGTH.
NOTE 2: COLUMN TO BE TRIMMED TO 2.21mm AFTER ATTACHMENT.

TopLine®			
TITLE FP1657 FLIP PACK® CCGA COLUMN CARRIER			
SCALE 10:1	SIZE A	DRAWING NO. 001410	REV C
DO NOT SCALE DRAWING			SHEET 8 OF 11

HARDWARE CAP SCREW



MODELS

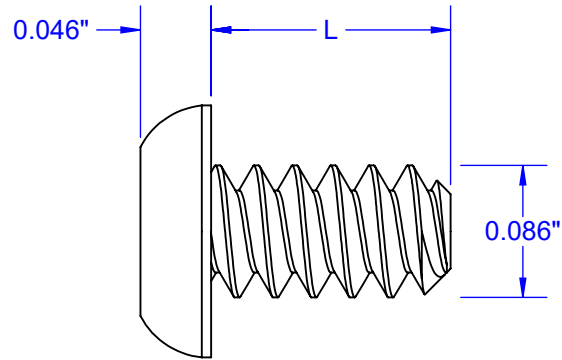
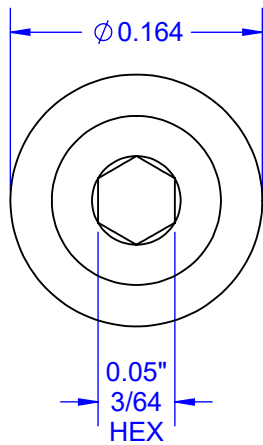


- NOTES:**
1. DIMENSIONS INCHES (UNLESS OTHERWISE SPECIFIED).
 2. SHAFT MATERIAL: SEE TABLE.
 3. HEAD: SEE TABLE.
 3. COLOR: STAINLESS.

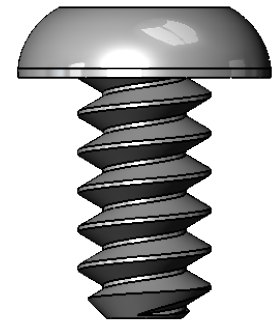
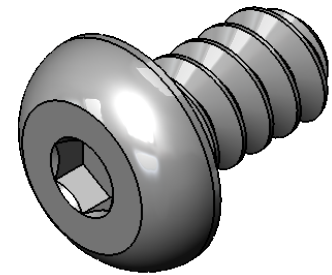
DRILL TABLE						
MATERIAL	THREAD	MAX OD	TAP DRILL Start Hole	CL HOLE Loose Fit	CL HOLE Close Fit	DWG
STAINLESS	2-56	0.086"	0.067"	0.106"	0.094"	705625

TopLine®			
TITLE		CAP SCREW 2-56 x 1/4"	
SCALE	SIZE	DRAWING NO.	REV
8:1	A	705625	B
DO NOT SCALE DRAWING			SHEET 10 OF 11

BUTTON HEAD SCREW



MODELS



NOTES:

1. DIMENSIONS INCHES (UNLESS OTHERWISE SPECIFIED).
2. MATERIAL: SEE TABLE.
3. COLOR: SEE TABLE.

DRILL TABLE

MATERIAL	COLOR	THREAD	MAX OD	TAP DRILL Start Hole	L	DWG
STAINLESS	STAINLESS	2-56	0.086"	0.067"	0.156"	705615
STAINLESS	BLACK	2-56	0.086"	0.067"	0.187"	705618

TopLine®

TITLE BUTTON HEAD CAP SCREW
2-56 x .156" (3/64"-HEX)

SCALE 8:1	SIZE A	DRAWING NO. 001410	REV B
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DO NOT SCALE DRAWING

SHEET 11 OF 11