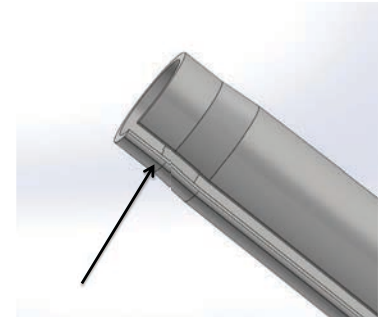




# M81969/14

## INSTALLING AND REMOVAL TOOLS



Radius added to edge to prevent wires from being cut

### QPL APPROVED - 04344113.AA/11- 26- 13

Part Number	Contact Size	Color Code	
		Installing Tip	Removal Tip
M81969/14-01 /1	22D, 22M	GREEN	WHITE
M81969/14-03 /1	16	BLUE	WHITE
M81969/14-04 /1	12	YELLOW	WHITE
M81969/14-05 /2	10	GREY	WHITE
M81969/14-06 /2	8	N/A	RED
M81969/14-07 /2	4	N/A	BLUE
M81969/14-08 /2	0	N/A	YELLOW
M81969/14-09 /3	22	BROWN	WHITE
M81969/14-10 /1	20	RED	ORANGE
M81969/14-11 /2	20	RED	WHITE
M81969/14-12 /1	8	N/A	GREEN

**/1** MIL-DTL-55302/68, /69, MIL-DTL-38999, MIL-DTL-24308 (SIZE 22D), MIL-DTL-83733 (SIZE 22D), AS81714 (SIZE 22D)

**/2** MIL-DTL-26482 SERIES II, AS81703 SERIES III, MIL-DTL-83733 (EXCEPT 22D), MIL-DTL-83723 SERIES II & III, AS50151, AS81714 (EXCEPT 22D)

**/3** For MIL-DTL-55302/269, 171 only

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The M81969/14 is an all plastic insertion & removal tool designed for rear release connectors.



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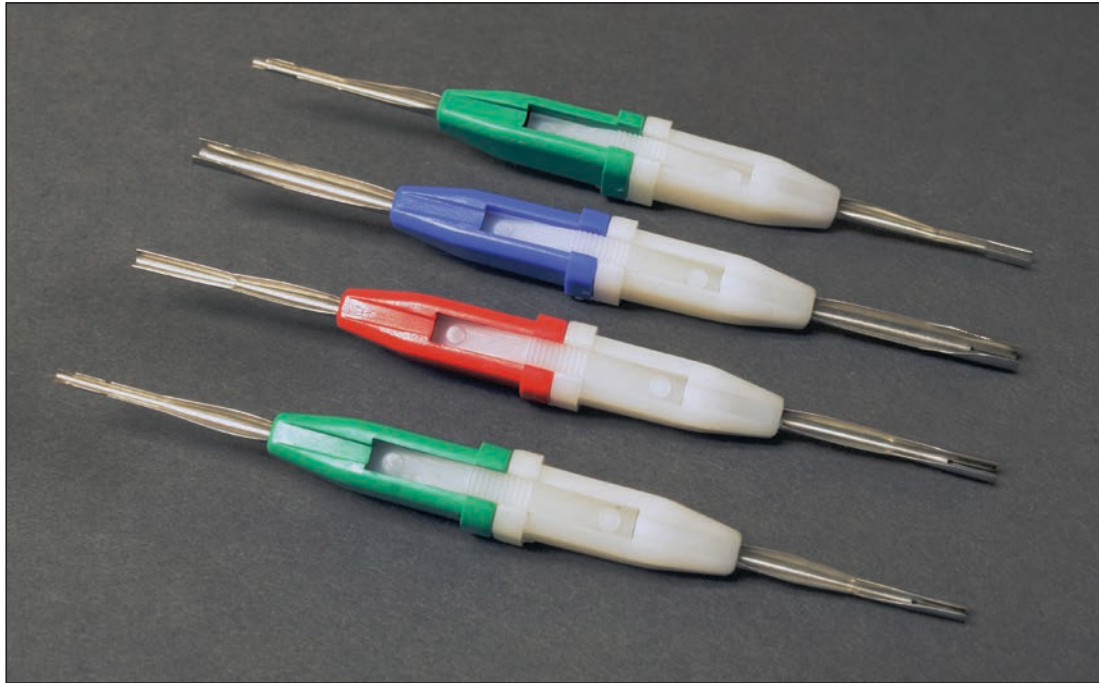
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# M81969/1

## INSTALLING AND REMOVAL TOOLS



### QPL APPROVED - 04344113.AA/11-26-13

Part Number	Contact Size	Color Code	
		Installing Tip	Removal Tip
M81969/1- 01	22	GREEN	WHITE
M81969/1- 02	20	RED	WHITE
M81969/1- 03	16	BLUE	WHITE
M81969/1- 04	22D	GREEN	WHITE

Tools are used to install and remove contacts from MIL-DTL-24308, sizes 22D and 20 and AS81659 connectors, series 2 AS81969/1 supersedes MIL-I-81969/1 which superseded MS3156 (Navy) and MIL-C-24308/18

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The M81969/1 is a plastic double-ended insertion & removal tool with metal tips designed for rear release connectors.



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# MS27488

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## SEALING PLUGS



Step'n Components specializes in the manufacturing and distribution of metal and composite components for the connector industry. We deliver precision components on time and to specification. The management team at Step'n Components has more than 50 years of innovation and engineering experience in the composite marketplace. Our experienced team delivers a high level of customer care to clients of all sizes.

Step'n Components' products are engineered to withstand demanding physical and environmental requirements. Our products offer exceptional performance in applications requiring mechanical endurance and they consistently achieve the goals of minimum weight, maximum durability and best value for our customers.



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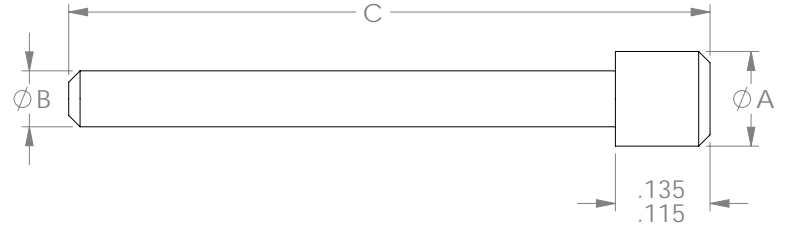
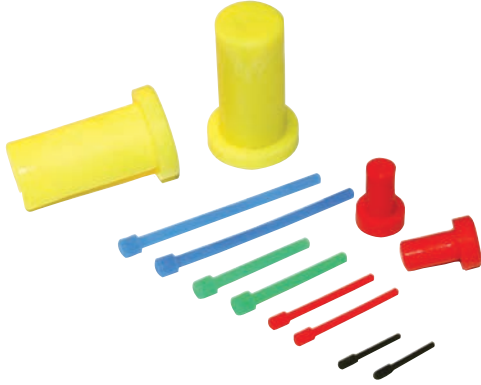
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# MS27488

## SEALING PLUGS



Revision P	Color	A Dia. Min/Max	B Dia. Min/Max	C Dim. Min/Max
MS27488-22-2	Black	.058/.066	.038/.045	.618/.668
MS27488-20-2	Red	.080/.090	.048/.058	.755/.805
MS27488-16-3	Blue	.120/.130	.069/.079	1.422/1.472
MS27488-16-2	Green	.120/.130	.069/.079	.822/.872
MS27488-12-3	Yellow	.160/.170	.115/.125	1.391/1.441
MS27488-12-2	Orange	.160/.170	.115/.125	.791/.841
MS27488-8-3	Red	.305/.315	.165/.175	1.139/1.189
MS27488-4-3	Blue	.404/.414	.273/.283	1.139/1.189
MS27488-0-3	Yellow	.596/.606	.416/.431	1.021/1.071

Revision M	Color	A Dia. Min/Max	B Dia. Min/Max	C Dim. Min/Max
MS27488-22-1	Black	.058/.066	.038/.045	.746/.796
MS27488-20-1	Red	.080/.090	.048/.058	.755/.805
MS27488-16-1	Blue	.120/.130	.069/.079	1.422/1.472
MS27488-12-1	Yellow	.160/.170	.115/.125	1.391/1.441
MS27488-8-1	Red	.305/.315	.165/.175	1.139/1.189
MS27488-4-1	Blue	.404/.414	.273/.283	1.139/1.189
MS27488-0-1	Yellow	.596/.606	.416/.431	1.021/1.071

Revision L	Color	A Dia. Min/Max	B Dia. Min/Max	C Dim. Min/Max
MS27488-22*	Black	.058/.068	.035/.045	.438/.500
MS27488-20	Red	.085/.100	.045/.065	.544/.584
MS27488-16	Blue	.128/.138	.073/.093	.544/.584
MS27488-12	Yellow	.166/.176	.111/.131	.544/.584
MS27488-8	Red	.310/.320	.175/.195	.460/.480
MS27488-4	Blue	.410/.420	.300/.320	.460/.480
MS27488-0	Yellow	.600/.610	.430/.450	.990/1.010

\*Special Head Design Not Shown Above



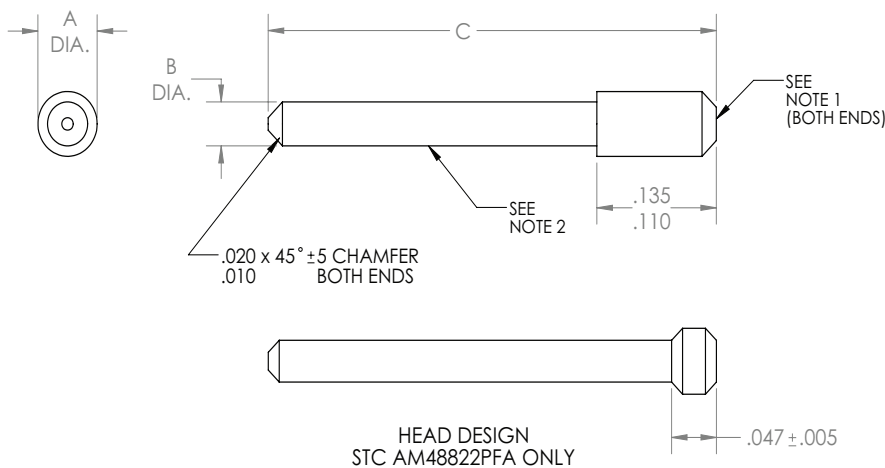
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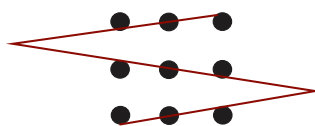
# STC AM488-PFA HIGH TEMPERATURE SEALING PLUGS



## NOTE:

1. Molding marks, protusions and blemishes from gate cutoffs are permissible but only on the plug ends or side of the head and shall not be greater than 0.005 inch in height.
2. The item shall be free from flash and burrs. The length of diameter B shall be free of all molding marks, protusions and blemishes.
3. PFA OPERATING TEMPERATURE RANGE FROM -65 C TO 260 C".

PART #	COLOR	A DIA	B DIA	C DIM	GROMMET CAVITY SIZE	MS27488	
						DASH	REV
STC AM48822PFA	BLACK	.066 .058	.045 .035	.500 .438	23-32	-22	L
STC AM48820PFA	RED	.100 .085	.065 .045	.584 .544	20	-20	L
STC AM48816PFA	BLUE	.138 .128	.093 .073	.584 .544	16	-16	L
STC AM48812PFA	YELLOW	.176 .166	.131 .111	.584 .544	12	-12	L



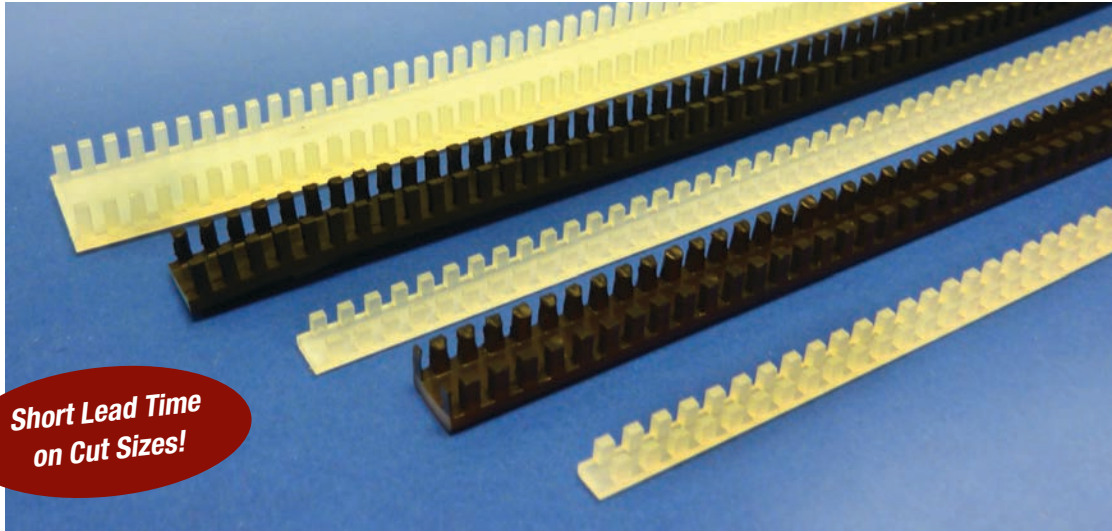
***Step'n Components***

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# MS21266 / BACG20Z

## CATERPILLAR GROMMET



**Short Lead Time  
on Cut Sizes!**

PART NUMBER			SHEET THICKNESS RANGE	
NASM	BOEING	STEPNCO		
MS21266-1(*)	BACG20Z-A	BACG20Z-M	STC 21266-1(*)	.015 - .052
MS21266-2(*)	BACG20Z-B	BACG20Z-N	STC 21266-2(*)	.052 - .085
MS21266-3(*)	BACG20Z-C	BACG20Z-P	STC 21266-3(*)	.085 - .128
MS21266-4(*)	BACG20Z-D	BACG20Z-Q	STC 21266-4(*)	.128 - .192
MS21266-5(*)	BACG20Z-E	BACG20Z-R	STC 21266-5(*)	.192 - .255
MS21266-6(*)	BACG20Z-F	BACG20Z-S	STC 21266-6(*)	.255 - .318
MS21266-7(*)	BACG20Z-G	BACG20Z-T	STC 21266-7(*)	.318 - .380
MS21266-8(*)	BACG20Z-H	BACG20Z-U	STC 21266-8(*)	.380 - .510

**Materials (\*):**

- (N) Nylon 6/6 per ASTM D4066
- (T) PTFE (Teflon) per AMS 3652 and ASTM D4895
- (F) FEP per ASTM D2116

**Boeing**

- A - H Nylon
- M - U Teflon

**Length:**

- Nylon – 12.75"
- Teflon - 12.75" (NASM), 19.00" (Boeing)
- FEP – 12.75"
- Bulk coils and custom cut lengths

AS9100 Rev C Certified

Teflon parts available with or without etch on Boeing and Stepnco part numbers



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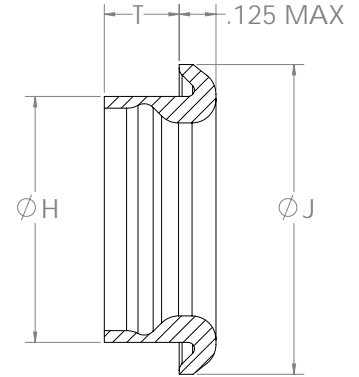
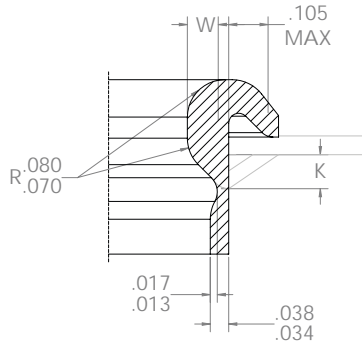
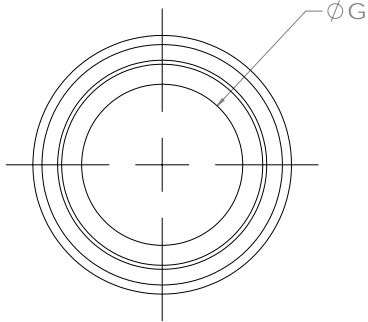
# NAS 1368

## FLIP GROMMET



**Material:**  
Nylon 6/6 PER L-P-410  
Self-extinguishing without fillers

**Color:**  
Natural



Dash Number	G Dia. Nom.	Structure Hole Dia (Ref) +.010 / -.005	W ±.003	H Dia.		J Dia. ±.005	K Approx.	T Length ±.005								Nom. Wt. # / 1000	
				Min	Max			Length Code									
								A	B	C	D	F	H	K	L		
3	.188	.313	.058	.302	.308	.505	.100	.235	.295	.360	.420	---	---	---	---	1.1	
4	.250	.375		.364	.370	.567						---	---	---	---	1.3	
6	.375	.500		.489	.495	.692						---	---	---	---	1.8	
8	.500	.625		.610	.620	.815						---	---	---	---	2.2	
10	.625	.781	.083	.766	.776	.971		.120	.275	.335	.400	.460	---	---	---	---	3.0
12	.750	.906		.891	.901	1.096							---	---	---	---	3.6
14	.875	1.031		1.016	1.026	1.221							---	---	---	---	4.3
16	1.000	1.188		1.173	1.183	1.378							---	---	---	---	5.7
18	1.125	1.313		1.298	1.308	1.503							---	---	---	---	6.4
20	1.250	1.438		1.423	1.433	1.628							---	---	---	---	7.2
22	1.375	1.563	.104	1.538	1.558	1.748	.275		.335	.400	.460	.460	---	---	---	---	7.7
24	1.500	1.688		1.663	1.683	1.873							---	---	---	---	8.3
28	1.750	1.938		1.913	1.933	2.123							---	---	---	---	9.7
32	2.000	2.188		2.163	2.183	2.373							---	---	---	---	10.7

Nominal Structure Thickness (Ref.)							
-3 To -18				-20 To -32			
A	B	C	D	F	H	K	L
.025 TO .080	.081 TO .140	.141 TO .200	.201 TO .250	.025 TO .040	.041 TO .091	.092 TO .160	.161 TO .220

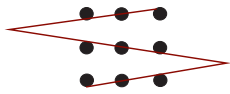


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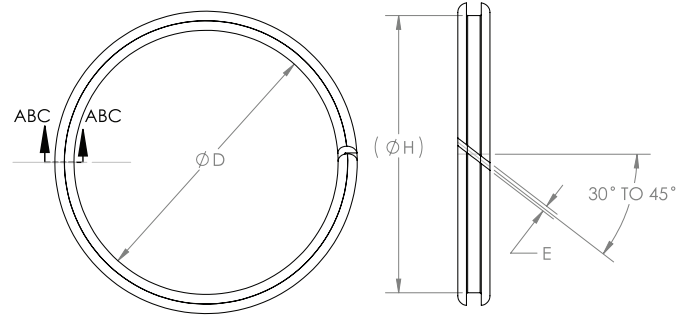
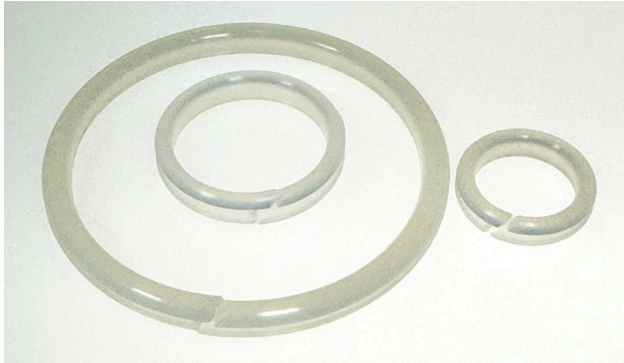




**Step'n Components**

# NAS557

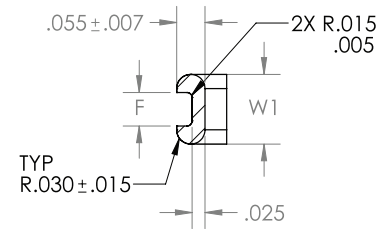
## SPLIT GROMMETS



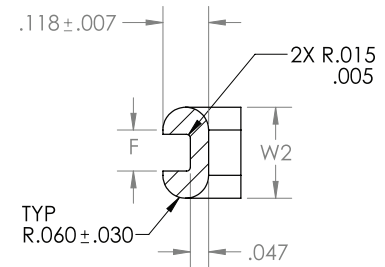
Dash Number	Ø D INSTALLED	E MAX INSTALLED	Ø H	SECTION
3	.188	.030	.241	A-A
4	.250		.303	
6	.375		.429	
8	.500	.47	.601	B-B
10	.625		.726	
12	.750		.851	
14	.875		.976	
16	1.000		1.101	
18	1.125		1.226	
20	1.250		1.351	
22	1.375	.062	1.507	C-C
24	1.500		1.632	
28	1.750		1.882	
32	2.000		2.132	
36	2.250		2.382	
40	2.500		2.632	
44	2.750		2.882	
46	2.875		3.007	
48	3.000	3.132		

**Material:**  
Nylon 6/6 PER  
ASTM D4066, PA0111

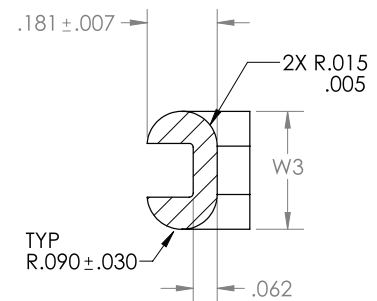
**Color:**  
Natural



SECTION A-A  
SCALE 4 : 1

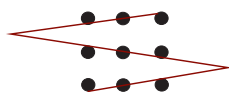


SECTION B-B  
SCALE 3 : 1



SECTION C-C  
SCALE 3 : 1

TYPE	F	W1	W2	W3
A	.070 .060	.135	.210	.230
B	.100 .090	.155	.235	.260
C	.144 .134	.179	.245	.305



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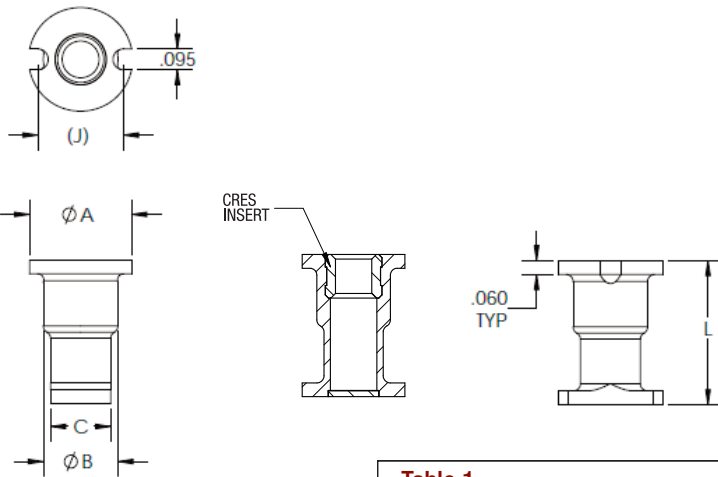






# BACI12AK / STC 1836

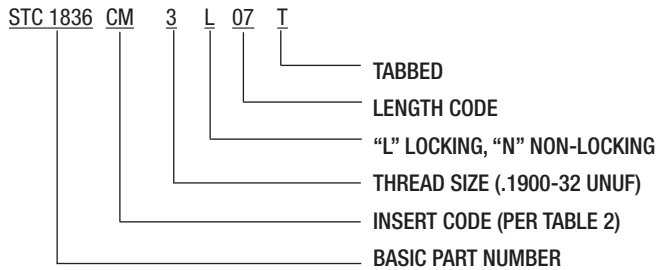
## HONEYCOMB INSERT



**Material:**  
Ultem 30% Glass Filled

**Color:**  
Natural

### SAMPLE PART NUMBER



CODE	THREAD SIZE	DIA A +.000 -.010	DIA B ±.010	C ±.010	J REF	L MIN
06	.1380-32 UNJC-3B	.451	.313	.250	.358	.217
08	.1640-32 UNJC-3B					
3	.1900-32 UNUF-3B					
4	.2500-28 UNUF-3B	.498	.375	.310	.405	.279

INSERT CODE	MATERIAL	FINISH
C	CRES 303 PER AMS 5640	PASSIVATE, SOLID FILM LUBE
CM	CRES 303 PER AMS 5640	PASSIVATE

### NOTES:

1. Dimension in .031 increments (example L10 X .031 = .310)
2. Passivate per AMS 2700 Type 2
3. Solid Film Lube Per AS5272 Type 1

THREAD CODE	L CODE	APPROXIMATE WEIGHT (EA)
3	-12	0.96 GRAMS
3	-16	1.04 GRAMS
3	-24	1.18 GRAMS

STC 1836	BACI12AK	DESCRIPTION
STC1836C06N07T	BACI12AK06C07N	CRES, .1380-32, .217 OAL, NO LOCK, TABBED
STC1836CM08L09	BACI12AK08CM09B	CRES, LUBED, .1640-32, .279 OAL, LOCKED, NO TAB
STC1836CM3L10T	BACI12AK3CM10	CRES, LUBED, .1900-32, .310 OAL, LOCKED & TABBED



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