

INCH-POUND

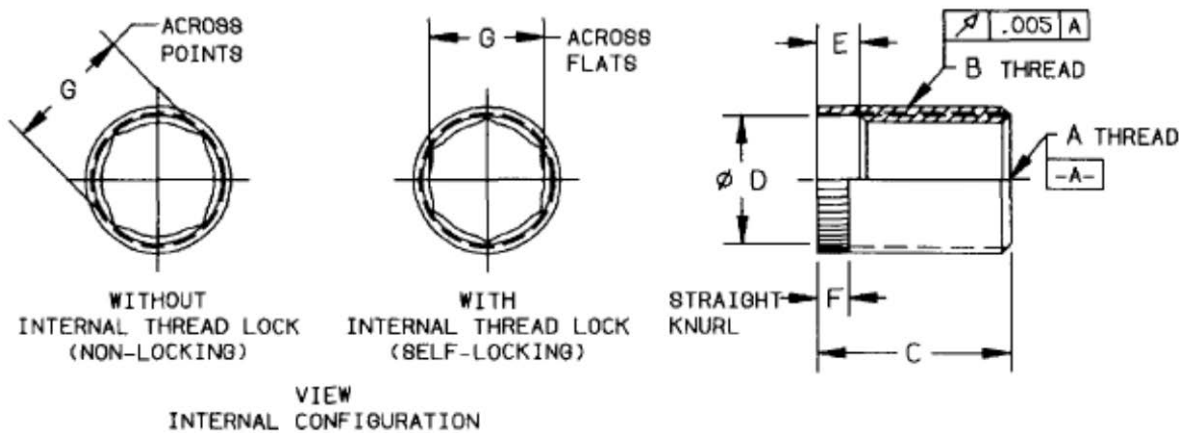
MIL-DTL-45932/3C
 5 May 2015
 SUPERSEDING
 MIL-I-45932/3B
 2 May 1994

DETAIL SPECIFICATION SHEET

INSERT, SCREW THREAD – THIN WALL, LOCKED IN, OVERSIZE REPLACER

This specification is approved for use by all Departments and Agencies of the Department of Defense.

The requirements for acquiring the product described herein shall consist of this specification sheet and procurement specification MIL-DTL-45932.

FIGURE 1. INSERT, SCREW THREAD.

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TABLE I. Dash Numbers and Characteristics.

Dash Numbers (Req. 7)				A Internal Thread Class 3B (Req. 4)	B External Thread Altered Minor Dia.		C ±.010	ØD +.008 -.002	E +.015 -.000	F (Ref)	G (Ref)	Min Shear Engagement Area Sq. In. (Note 2)						
17-4PH Cres 1/	Alloy Steel 1/	A286 Cres 1/			Thread Size	Max Minor Dia.												
		Silver Plated	Solid Film Lube															
3 L	3 AL	3 CL	3 DL	0.1120-40 UNC	0.1900-32 UNF	.1620	.190	.142	.060	.045	.092	.0439						
4	4 A	4 C	4 D								.100							
5 L	5 AL	5 CL	5 DL	0.1380-32 UNC	0.2160-28 UNF	.1758	.210	.142	.080	.055	.113	.0542						
6	6 A	6 C	6 D								.120							
7 L	7 AL	7 CL	7 DL	0.1640-32 UNC	0.2500-28 UNF	.2098	.250	.169	.080	.060	.138	.0871						
8	8 A	8 C	8 D								.150							
9 L	9 AL	9 CL	9 DL	0.1900-32 UNF	0.2812-28 UNS	.2410	.290	.214	.080	.075	.157	.1147						
10	10 A	10 C	10 D								.180							
11 L	11 AL	11 CL	11 DL	0.1900-24 UNC	0.3438-24 UNS	.2976	.380	.264	.095	.075	.157	.2153						
12	12 A	12 C	12 D								.180							
13 L	13 AL	13 CL	13 DL	0.2500-28 UNF	0.4219-20 UNS	.3651	.470	.336	.110	.075	.210	.3591						
14	14 A	14 C	14 D								.240							
15 L	15 AL	15 CL	15 DL	0.2500-20 UNC	0.4844-20 UNS	.4276	.560	.393	.110	.105	.210	.4938						
16	16 A	16 C	16 D								.240							
17 L	17 AL	17 CL	17 DL	0.3125-24 UNF	0.5625-18 UNF	.4993	.660	.466	.135	.105	.266	.6714						
18	18 A	18 C	18 D								.310							
19 L	19 AL	19 CL	19 DL	0.3125-18 UNC	0.6250-18 UNF	.5618	.750	.528	.135	.105	.266	.8717						
20	20 A	20 C	20 D								.310							
21 L	21 AL	21 CL	21 DL	0.3750-24 UNF							.322	.4938						
22	22 A	22 C	22 D								.370							
23 L	23 AL	23 CL	23 DL	0.3750-16 UNC							.322	.6714						
24	24 A	24 C	24 D								.370							
25 L	25 AL	25 CL	25 DL	0.4375-20 UNF							.377	.8717						
26	26 A	26 C	26 D								.430							
27 L	27 AL	27 CL	27 DL	0.4375-14 UNC							.377	.8717						
28	28 A	28 C	28 D								.430							
29 L	29 AL	29 CL	29 DL	0.5000-20 UNF							.439	.8717						
30	30 A	30 C	30 D								.490							
31 L	31 AL	31 CL	31 DL	0.5000-13 UNC							.439	.8717						
32	32 A	32 C	32 D								.490							

1/ "L" Suffix shown indicates self-locking insert.

REQUIREMENTS:

1. Material:

Steel, alloy, grade 4130 (UNS G41300) per SAE AMS6370 or grade 8740 (UNS G87400) per SAE AMS6322.

Steel, corrosion-resistant, type 17-4 PH (UNS S17400) per SAE AMS5643.

Steel, corrosion-resistant, type A286 (UNS S66286) per SAE AMS5731, SAE AMS5732, SAE AMS5734 or SAE AMS5737.

2. Protective coating or treatment:

Steel, alloy, shall be cadmium plated in accordance with SAE AMS-QQ-P-416, Type III, Class 3 plus solid film lubricant coating per MIL-PRF-46010. As an alternative to cadmium plating, may be ZnNi plated in accordance with ASTM F1941 Fe/Zn-Ni 8ET alkaline zinc nickel electroplate, 12%-16% mass percent nickel, with chemical conversion coating per MIL-DTL-5541 TYPE II CLASS 1A plus solid film lubricant coating per MIL-PRF-46010.

Steel, corrosion-resistant, type 17-4 PH, shall be solid film lubricant coated per MIL-PRF-46010.

Steel, corrosion-resistant, type A286,

Dash C & CL shall be silver plated per SAE AMS2411 grade B, .0002 thick minimum.

Dash D & DL shall be solid film lubricant coated per MIL-PRF-46010.

3. Surface roughness:

Machined surfaces shall be 125 microinches in accordance with ASME B46.1 except knurling.

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4. Threads:

Threads shall be in accordance with SAE AS8879 except as noted in Table I and shall accept external SAE AS8879 threads. All coarse internal threads have an increased minor diameter. Threads are prior to the addition of solid film lubricant.

5. Hardness:

Alloy steel, 25-34 HRC
Corrosion-resistant steel, 17-4 PH, 35-42 HRC
Corrosion-resistant steel, A286, 32-40 HRC

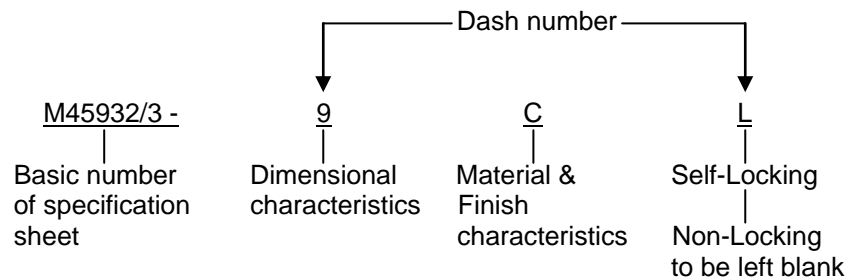
6. Internal thread locking feature:

The centerline of the internal thread locking feature shall be approximately mid-length of internal thread.

7. Part Identifying Number (PIN):

Consists of the letter M, the basic number of this specification sheet, and a dash number taken from Table I.

Example of PIN:



M45932/3-9CL Insert, Screw Thread - Thin Wall, Locked In, Oversize Replacer, 0.1900-32 UNF-3B Internal Thread, A286 Corrosion Resistant Steel, Silver Plated, Self-Locking

M45932/3-10D Insert, Screw Thread - Thin Wall, Locked In, Oversize Replacer, 0.1900-32 UNF-3B Internal Thread, A286 Corrosion Resistant Steel, Solid Film, Lubricant Coated, Non-Locking

NOTES: Table I

1. Dimensions:

All dimensions are in inches, to be met after plating and before the addition of solid film lubricant (see requirement 2 herein).

2. Shear engagement area:

Shear engagement area is the assembled dimensional value for the overall engaged area of mating thread members. It does not represent a dimension of either of the members in an unassembled condition.

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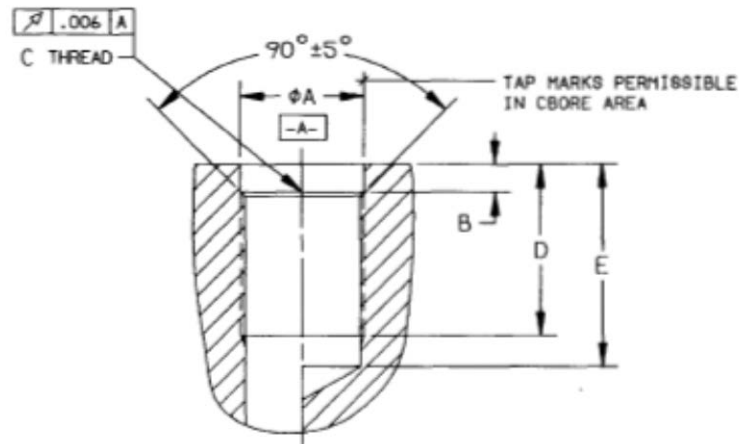


FIGURE 2. HOLE PREPARATION, INSTALLATION & REMOVAL REQUIREMENTS.

TABLE II. Installation & removal criteria.

Nominal External Thread Size of Insert (Ref)	Insert Dash Number M45932/3 (Ref)	ØA C Bore +.004 -.001	B C Bore Depth (Note 4a) ±.005	C Thread SAE AS8879		D Medium Full Thread Depth	E Minimum Drill Depth Blind Hole	Insert Removal Drill Size (Note 5)
				Class-3B Except Minor Ø	Controlled Minor Ø			
0.1900-32	3 4	.187	.065	0.1900-32 UNJF	.165-.170	.220	.298	#17
0.2160-28	5 6	.216	.065	0.2160-28 UNJF	.181-.186	.240	.329	#5
0.2500-28	7 8	.250	.065	0.2500-28 UNJF	.217-.222	.280	.369	15/64
0.2812-28	9 10 11 12	.281	.082	0.2812-28 UNJS	.241-.246	.325	.414	17/64
0.3438-24	13 14 15 16	.343	.082	0.3438-24 UNJS	.301-.306	.415	.519	21/64
0.4219-20	17 18 19 20	.422	.082	0.4219-20 UNJS	.367-.372	.505	.630	13/32
0.4844-20	21 22 23 24	.484	.113	0.4844-20 UNJS	.436-.441	.595	.720	29/64
0.5625-18	25 26 27 28	.562	.113	0.5625-18 UNJF	.514-.519	.695	.834	35/64
0.6250-18	29 30 31 32	.625	.113	0.6250-18 UNJF	.577-.582	.785	.924	39/64

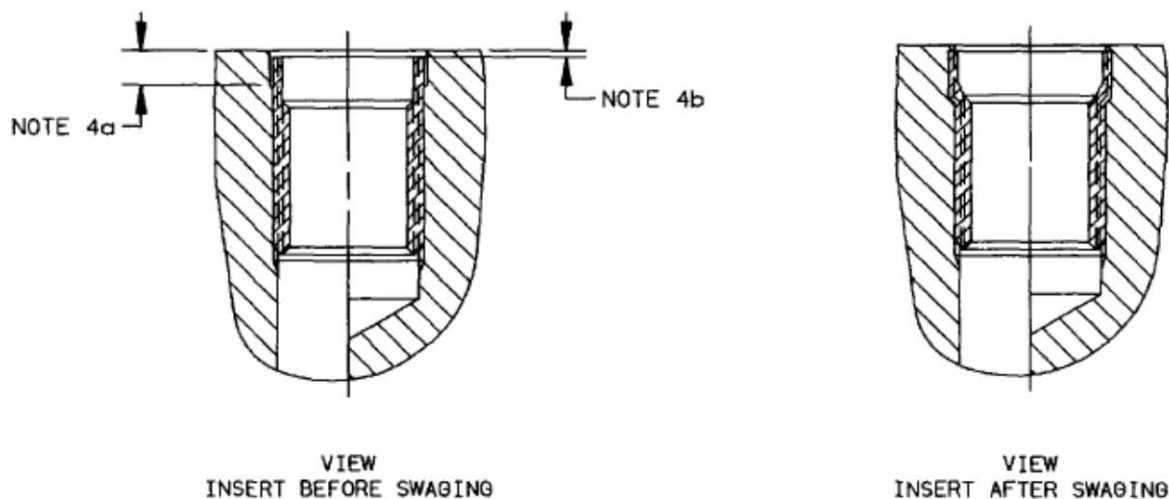
NOTES:

1. Axis of hole shall be normal to entry surface or provide spot face when required.
2. Machine surfaces shall be 125 microinches in accordance with ASME B46.1.
3. All dimensions are in inches.

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4. Install insert:

- (a) These inserts are primarily designed for use in aluminum, magnesium and other non-ferrous materials that do not exceed 187 HB (3000 kg load and 10 mm ball). Use in corrosion-resistant steels, titanium and hardened ferrous materials will require broach serrations in counterbore to accept the insert knurls during swaging operation. Installation in steel will also require counterbore depth "B" in Table II to be increased by .015 inches.
- (b) Install inserts -3 thru -8 into hole until the top of insert is .010-.020 below boss surface and -9 thru -32 inserts .015-.025 below boss surface.
- (c) Place swage tool in insert and apply a downward force sufficient to effect full swageout and external lock setting.

FIGURE 3. INSERT INSTALLATION.

5. Replacement of inserts are made with same size inserts as those removed. Using removal drill size shown in Table II, drill to depth "B" + .025 then back-out insert using installation wrench or a square type screw extractor. Remove loose chips, re-inspect hole and then re-install per note 4.
6. CHANGES FROM PREVIOUS ISSUE. Marginal notations are not used in this revision to identify changes with respect to the previous issue due to the extent of the changes.

MILITARY INTEREST

Custodians:

Army - AR
 Navy - AS
 Air Force - 99
 DLA - IS

Preparing activity:

DLA - IS

(Project 5325-2014-013)

Review activities:

Army - AT, AV, CR, CR4, MI
 Navy - MC, OS, YD
 Air Force - 71
 Other - NS

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