

MIL-B-87114/2B (AS)

~~23 November 1981~~

SUPERSEDING

MIL-B-87114/2A(AS)

30 June 1981

MILITARY SPECIFICATION SHEET

BOLTS, 100⁰ REDUCED DOME HEAD, RIBBED-TORQ-SET RECESS, CLOSE TOLERANCE,
ALLOY STEEL, LONG THREAD, 95 KSI FSU

This specification sheet is approved for use by the Naval Air Systems Command, Department of the Navy, and is available for use by all Departments and Agencies of the Department of Defense.

The complete requirement for procuring the bolts described herein shall consist of this document and the latest issue of specification MIL-B-87114.

APPLICATION CRITERIA: These bolts, together with MS14179 nut are for use in bolted joints and access panels that require frequent opening.

COMPANION PARTS: MS14179 Nut, Plate, Self-Locking, Floating, Two Lug, Reduced Rivet Spacing, Steel, Vespel Insert, 500 Cycles Reuse, Replaceable Nut, 160 KSI Ftu, 450⁰F.

BOLTS RECESS: Bolts recess shall be in accordance with MS14191.

DRIVER BIT: The recess driver bit shall be accordance with MIL-B-9946.

GENERAL REQUIREMENTS:

Material Alloy Steel: AISI 4340 per MIL-S-5000 or AISI 8740 per MIL-S-6049 or AMS 6324.

Heat Treatment: Rockwell "C" 36 to 40.

Plating: Cadmium plate in accordance with QQ-P-416, Type II, Class 2.

Surface texture in accordance with ANSI B46.1 "D" diameter, conical surface of head, thread flanks, and thread root shall not exceed 32 microinches, other surfaces shall not exceed 125 microinches.

Dimensions:

Dimensions in inches.

Dimensions to be met after plating.

Tolerances: Unless otherwise specified, dimensions \pm \emptyset .010 and angles \pm 2⁰.

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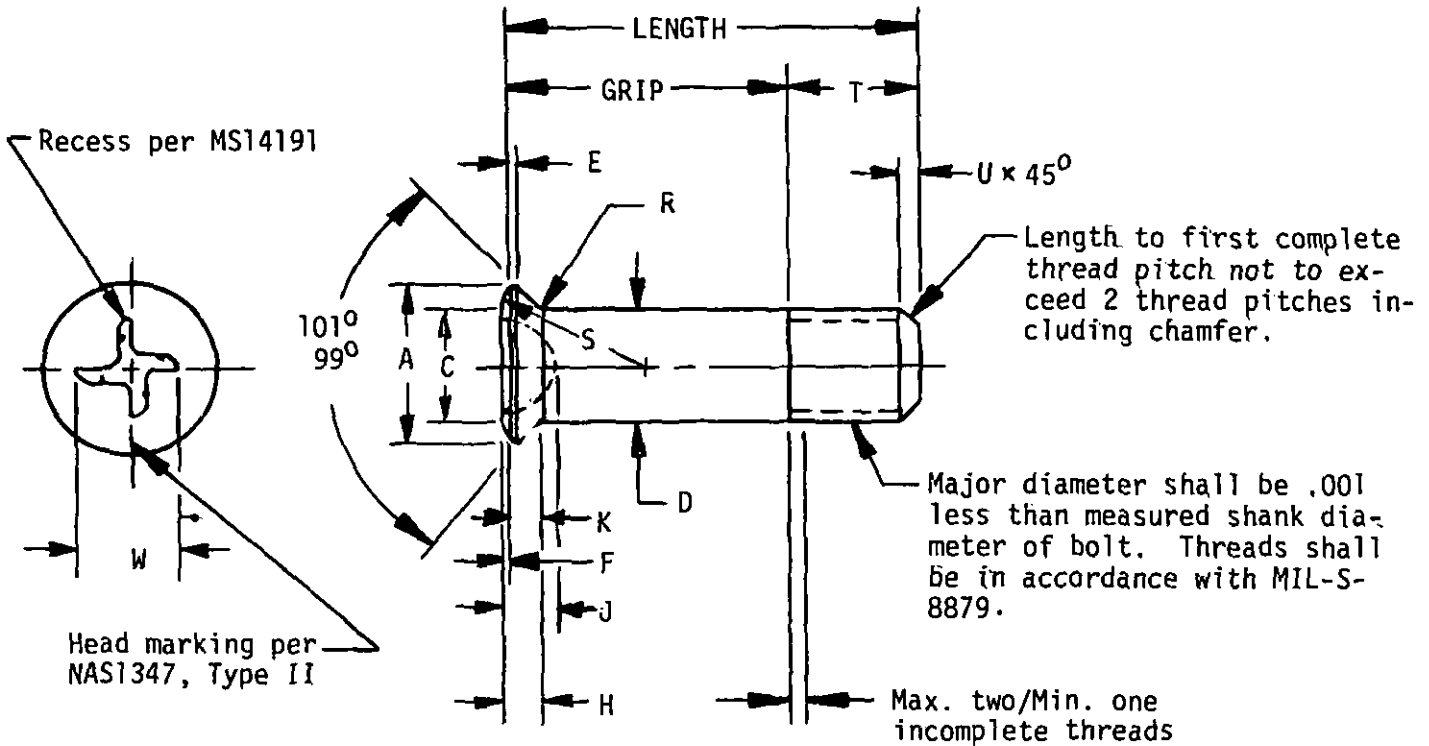


Figure 1 Bolt 100° Reduced Dome Head

Table I Bolt Dimensions

Dia. Dash No.	Normal Size	Threads UNJF3A MIL-S-8879	A		C Dia		D Dia		E Max	E		K Min Ref
			Max	Min	Max	Min	Max	Min		Max	Min	
3	No. 10	.1900-32	.298	.293	.239	.190	.1895	.1885	.012	.014	.010	.038
4	1/4	.2500-28	.393	.388	.272	.250	.2495	.2485	.014	.014	.010	.052
5	5/16	.3125-24	.476	.471	.349	.312	.3120	.3110	.016	.014	.010	.060

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Table I (cont'd)

Dia Dash No.	H		J		R Rad		T Min	W		S
	Max	Min	Max	Min	Max	Min	Ref (a,b)	Max	Min	Ref (a)
3	.062	.052	.090	.080	.030	.010	.430	.239	.229	.67
4	.076	.066	.102	.092	.030	.010	.539	.272	.262	1.16
5	.084	.074	.130	.120	.040	.010	.639	.349	.339	1.62

Table II Mechanical Properties

Dia Dash No.	U	Y (c)	Z (d)	Double Shear Min(lbs)(e)	Tension Min (lbs)(f)	Recess & Driver Size (g)
3	.045	.0045	.0030	5,400	2,000	8
4	.045	.0045	.0030	9,330	3,700	10
5	.052	.0045	.0030	14,600	5,000	1/4

Table I, II, notes:

(a) Reference dimensions are for design purposes only and are not for inspection or manufacturing.

(b) $T \text{ min} = H \text{ max (MS14179)} + 5 \text{ (Thread pitch)} - \emptyset.096$ for diameter dash no. 3 and 4, and 0.109 for diameter dash no. 5.

(c) Concentricity: Conical surface of head to "D" diameter within .003 full indicator measurement (FIM) "D" diameter to thread pitch diameter within "Y" FIM. Recess to shank shall be concentric to each other within $\emptyset.010$ FIM.

(d) Shank Straightness: Within "Z" FIM per inch of length.

(e) Based on MIL-HDBK-5 shear stress area.

(f) Based on head strength.

(g) Bolts recess shall be in accordance with MS14191.

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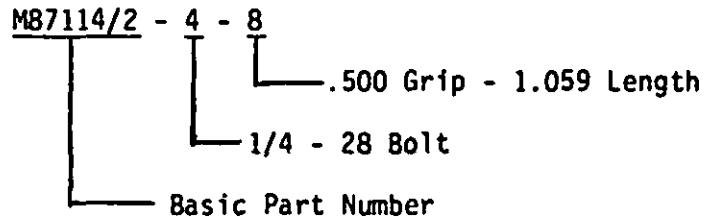
Table III Grip Lengths

Grip Dash No.	Grip +.010	Diameter Dash Numbers		
		3	4	5
		Length +.015		
01	0.062	0.517 (a)		
02	0.125	0.580	0.684	0.784 (a)
03	0.188	0.643	0.747	0.847
04	0.250	0.705	0.809	0.909
05	0.312	0.767	0.871	0.971
06	0.375	0.830	0.934	1.034
07	0.438	0.893	0.977	1.097
08	0.500	0.955	1.059	1.159
09	0.562	1.107	1.121	1.221
10	0.625	1.080	1.184	1.284
11	0.688	1.143	1.247	1.347
12	0.750	1.205	1.309	1.409
13	0.812	1.267	1.371	1.471
14	0.875	1.330	1.434	1.534
15	0.938	1.393	1.497	1.597
16	1.000	1.455	1.559	1.659
17	1.062	1.517	1.621	1.721
18	1.125	1.580	1.684	1.784
19	1.188	1.643	1.747	1.847
20	1.250	1.705	1.809	1.909
21	1.312	1.767	1.871	1.971
22	1.375	1.830	1.934	2.034
23	1.438	1.893	1.997	2.097
24	1.500	1.955	2.059	2.159
25	1.562	2.017	2.121	2.221
26	1.625	2.080	2.184	2.284
27	1.688	2.143	2.247	2.347
28	1.750	2.205	2.309	2.409
29	1.812	2.267	2.371	2.471
30	1.875	2.330	2.434	2.534
31	1.938	2.393	2.497	2.597
32	2.000	2.455	2.559	2.659
34	2.125	2.580	2.684	2.784
36	2.250	2.705	2.809	2.909
38	2.375	2.830	2.934	3.034
40	2.500	2.955	3.059	3.159
42	2.625	3.080	3.189	3.284
44	2.750	3.205	3.309	3.409
46	2.875	3.330	3.434	3.534
48	3.000	3.455	3.559	3.659

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Note (a) - Short bolts listed above heavy line shall be threaded to within two thread pitches of head to shank intersection, but thread shall not enter the fillet radius. Table II tensile requirements do not apply to these short bolts.

PART NUMBER EXAMPLE AND CODE:



ADMINISTRATIVE AND CONTRACTUAL PROVISIONS:

For design feature purposes, this document takes precedence over procurement documents specified herein.

Reference documents shall be of the issue in effect on date of invitation for bid.

CUSTODIANS:

Navy - AS

PREPARING ACTIVITY:

Navy - AS
Project No. 5306-N131

REVIEW ACTIVITY: