

MS21250 REV L 53 ■ 9999912 0004885 6 ■

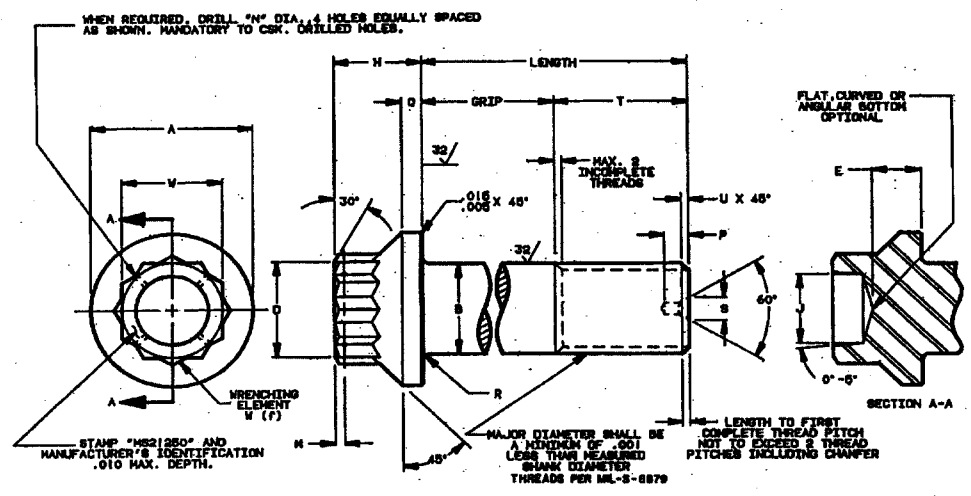
D-17-23

FED. SUP CLASS  
5306

USER SYMBOLS:  
DLA - IS  
ARMY - AR  
AIR FORCE - 82

Revision/Issue Information is current as of the date of this document.  
 For future continuation of changes to this document, craft cancellation  
 should be based on the information in the current DODDS.

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 be made from this document.



**REQUIREMENTS:**

1. MATERIAL: STEEL ALLOY, MIL-S-5626 (AISI 4140) MIL-S-5000 (AISI 4340) MIL-S-6049 (AISI 8740) MIL-S-8503 (AISI 6150).
  2. PLATING: CADMIUM PLATE IN ACCORDANCE WITH QQ-P-416, TYPE II, CLASS 2. CLASS 3 MAY BE USED UNTIL 1 JAN. 1974.
  3. SURFACE TEXTURE IN ACCORDANCE WITH ANSI (ASA) B46.1. UNLESS OTHERWISE SPECIFIED, THE SURFACE TEXTURE SHALL NOT EXCEED 125 MICRON INCHES.
  4. DIMENSIONS ARE IN INCHES, UNLESS OTHERWISE SPECIFIED. TOLERANCES: DECIMALS ±.010, ANGLES ±2°.
  5. DIMENSIONS TO BE MET AFTER PLATING.
  6. TENSILE STRENGTH TO BE 180,000 TO 200,000 PSI.
  7. DIAMETER DASH NO. AT TOP OF TABLE, SHEET 3, PLUS GRIP DASH NO. FIRST COLUMN ON LEFT OF TABLE CONSTITUTE A COMPLETE DASH NO. IDENTIFYING SPECIFIED LENGTHS OF A GIVEN SIZE OF BOLT. GRIP EQUALS LAST THREE DASH NUMBERS TIMES .0625.
  8. ADD LETTER H BEFORE DASH NO. TO DESIGNATE DRILLED HEAD, FIRST TWO DASH NUMBERS DESIGNATE DIAMETER IN SIXTEENTHS. LAST THREE DASH NUMBERS DESIGNATE GRIP LENGTH IN SIXTEENTHS. UNASSIGNED INTERMEDIATE OR LONGER GRIP LENGTHS NOT INCLUDED IN TABLE MAY BE SPECIFIED BY THE USE OF WHOLE DASH NUMBERS ONLY.  
 EXAMPLES OF PREFERRED PART NUMBER: MS21250-04008 = BOLT, UNDRILLED HEAD, .2500-28, .500 GRIP LENGTH  
 MS21250H04008 = BOLT, DRILLED HEAD, .2500-28, .500 GRIP LENGTH  
 EXAMPLES OF UNASSIGNED PART NUMBER: MS21250-04009 = BOLT, UNDRILLED HEAD, .2500-28, .562 GRIP LENGTH  
 MS21250H04009 = BOLT, DRILLED HEAD, .2500-28, .562 GRIP LENGTH
  9. HARDNESS: 39-43 HRC.
- FOR DESIGN FEATURE PURPOSES, THIS STANDARD TAKES PRECEDENCE OVER PROCUREMENT DOCUMENTS REFERENCED HEREIN. REFERENCED DOCUMENTS SHALL BE OF THE ISSUE IN EFFECT ON DATE OF INVITATIONS FOR BID.

INACTIVE FOR NEW DESIGN AFTER 4 DEC 1990.

Ⓛ DENOTES CHANGES

P.A. NAVY - AS Other Cust USAF - 99 ARMY - AV	TITLE	<b>MILITARY STANDARD</b> <b>MS21250</b>
	Ⓛ BOLT, TENSION, STEEL, EXTERNAL WRENCHING, FLANGED, 12-POINT, 180 KSI F <sub>tu</sub> , 450°F	
PROCUREMENT SPECIFICATION	SUPERSEDES:	SHEET OF
MIL-B-8831	MS21250(ASG)	1 OF 1

DD FORM 1 MAR 72 **672-1** (Continued)

PROJECT NO. 5306-1210

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TABLE 1

REVIEWER SYMBOLS:  
 DLA-1S  
 ARMY-AR  
 AIR FORCE-8Z

USER SYMBOLS:  
 REVIEWER SYMBOLS:  
 DLA-1S  
 ARMY-AR  
 AIR FORCE-8Z

FED. SUP CLASS  
 5306

DIA DASH NO.	THREAD MIL-S-8879	A DIA	B DIA	WOK SIZE (E)	D DIA	E MIN	H	J +.010 -0.030	K DIA ±.005	(e) P MAX	Q	R	(e) S MAX	(d) T MIN REF	D ±.016 REF	CONCENTRICITY SEE (e), (f) & (g)			DOUBLE SHEAR LBS MIN	ULT TENSILE LBS MIN
																X	Y	Z		
02	1640-32 UNJC-3A	.300	.1635	2.188	.219	.076	.250	.100			.050			.385			.003	.003	4,600	2,950
03	1900-32 UNJF-3A	.350	.1895	2.500	.250	.092	.265	.125	.037		.055	.041		.420	.031		.004	.003	6,100	3,910
04	2500-28 UNJF-3A	.438	.2495	3.125	.312	.135	.300	.180			.069	.031		.492			.005	.004	10,600	6,980
05	3125-24 UNJF-3A	.531	.3110	3.750	.375	.162	.348	.215			.082			.579			.006	.005	16,600	11,100
06	3750-24 UNJF-3A	.649	.3745	4.375	.437	.197	.388	.260	.070		.091			.625	.047		.008	.006	23,900	17,100
07	4375-20 UNJF-3A	.750	.4370	5.000	.500	.228	.435	.320			.099	.057		.721			.009	.008	32,500	23,200
08	5000-20 UNJF-3A	.828	.4995	5.625	.562	.254	.504	.380			.123	.047		.768			.010	.008	42,400	30,900
09	5625-18 UNJF-3A	.938	.5615	6.250	.625	.287	.557	.440	.094		.133			.852			.011	.009	53,700	39,200
10	6250-18 UNJF-3A	1.040	.6230	6.875	.687	.327	.618	.500			.150			.899			.012	.010	66,300	49,000
12	7500-16 UNJF-3A	1.230	.7480	8.125	.812	.380	.711	.570	.055	.200	.178			1.036			.015	.012	95,400	71,100
14	8750-14 UNJF-3A	1.438	.8740	9.375	.937	.438	.808	.650			.198	.073		1.244	.078		.018	.014	129,900	97,100
16	10000-12 UNJF-3A	1.625	.9990	10.625	1.062	.493	.923	.740	.125	.240	.222			1.479			.020	.016	169,600	126,000
18	11250-12 UNJF-3A	1.875	1.1240	12.500	1.250	.556	1.051	.840			.258			1.650			.022	.019	214,700	162,000
20	12500-12 UNJF-3A	2.125	1.2475	13.325	1.312	.636	1.155	.950		.320	.269			1.760	.094		.025	.021	265,100	202,000
22	13750-12 UNJF-3A	2.313	1.3740	14.375	1.437	.698	1.266	1.070	.188		.274	.077		1.885			.028	.023	320,700	247,000
24	15000-12 UNJF-3A	2.500	1.4990	16.250	1.625	.750	1.434	1.200			.335			2.010			.030	.025	361,700	296,000

(e) DIMENSIONS A, B AND J SHALL BE CONCENTRIC TO EACH OTHER WITHIN VALUES SPECIFIED FOR X, FM.  
 (b) DIMENSIONS W AND J SHALL BE CONCENTRIC TO EACH OTHER WITHIN VALUES SPECIFIED FOR Y, FM.  
 (c) DIMENSIONS B AND THREAD PITCH DIAMETER SHALL BE CONCENTRIC TO EACH OTHER WITHIN VALUES SPECIFIED FOR Z, FM.  
 (d) REFERENCE DIMENSIONS ARE FOR DESIGN PURPOSES ONLY AND ARE NOT AN INSPECTION OR MANUFACTURING REQUIREMENT.  
 (e) ON BOLTS 3/4 INCH OR LARGER, CENTER DRILLING OF SHAFT IS OPTIONAL FOR MANUFACTURER.  
 (f) ONLY BOLTS FOR WHICH THESE ARE QUALIFIED PRODUCTS LISTED IN QPL8831 SHALL BE USED FOR DESIGN.  
 (g) WRENCHING ELEMENT SHALL BE IN ACCORDANCE WITH AS 870.

APPROVED 23 NOV 60 REVISED (L) FOR CHANGES SEE SHEET 1 AND 2

NAVY-AS Other Cust USAF-99 ARMY-AV	TITLE BOLT, TENSION, STEEL, 180 KSI FTU, 450°F, 12 POINT, EXTERNAL WRENCHING FLANGED	MILITARY STANDARD <b>MS21250</b>
PROCUREMENT SPECIFICATION MIL-B-8831	SUPERSEDES MS21250(ASG)	SHEET 2 OF 3

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TABLE II

GRIP DASH NO.	GRIP 2.010	DIAMETER DASH NUMBERS															
		02	03	04	05	06	07	08	09	10	12	14	16	18	20	22	24
		LENGTH															
004	.250	.655	.690	.762	.849	.895	.991	1.038									
006	.375	.780	.815	.887	.974	1.020	1.116	1.163	1.247	1.294	1.431						
008	.500	.905	.940	1.012	1.099	1.145	1.241	1.288	1.372	1.419	1.556	1.764	1.999	2.170			
010	.625	1.030	1.065	1.137	1.224	1.270	1.366	1.413	1.497	1.544	1.681	1.889	2.124	2.295	2.403	2.530	2.655
012	.750	1.155	1.190	1.262	1.349	1.395	1.491	1.538	1.622	1.669	1.806	2.014	2.249	2.420	2.530	2.655	2.780
014	.875	1.280	1.315	1.387	1.474	1.520	1.616	1.663	1.747	1.794	1.931	2.139	2.374	2.545	2.655	2.780	2.905
018	1.000	1.405	1.440	1.512	1.599	1.645	1.741	1.788	1.872	1.919	2.056	2.264	2.499	2.670	2.780	2.905	3.030
020	1.125	1.530	1.565	1.637	1.724	1.770	1.866	1.913	1.997	2.044	2.181	2.389	2.624	2.795	2.905	3.030	3.155
022	1.375	1.780	1.815	1.887	1.974	2.020	2.116	2.163	2.247	2.294	2.431	2.639	2.874	3.045	3.155	3.280	3.405
024	1.500	1.905	1.940	2.012	2.099	2.145	2.241	2.288	2.372	2.419	2.556	2.764	2.999	3.170	3.280	3.405	3.530
026	1.625	2.030	2.065	2.137	2.224	2.270	2.366	2.413	2.497	2.544	2.681	2.889	3.124	3.295	3.405	3.530	3.655
028	1.750	2.155	2.190	2.262	2.349	2.395	2.491	2.538	2.622	2.669	2.806	3.014	3.249	3.420	3.530	3.655	3.780
030	1.875	2.280	2.315	2.387	2.474	2.520	2.616	2.663	2.747	2.794	2.931	3.139	3.374	3.545	3.655	3.780	3.905
032	2.000	2.405	2.440	2.512	2.599	2.645	2.741	2.788	2.872	2.919	3.056	3.264	3.499	3.670	3.780	3.905	4.030
034	2.125	2.530	2.565	2.637	2.724	2.770	2.866	2.913	2.997	3.044	3.181	3.389	3.624	3.795	3.905	4.030	4.155
035	2.188					2.888											
036	2.250	2.655	2.690	2.762	2.849	2.895	2.991	3.038	3.122	3.169	3.306	3.514	3.749	3.920	4.030	4.155	4.280
038	2.375	2.780	2.815	2.887	2.974	3.020	3.116	3.163	3.247	3.294	3.431	3.639	3.874	4.045	4.155	4.280	4.405
039	2.437							3.228									
040	2.500	2.905	2.940	3.012	3.099	3.145	3.241	3.288	3.372	3.419	3.556	3.764	3.999	4.170	4.280	4.405	4.530
042	2.625	3.030	3.065	3.137	3.224	3.270	3.366	3.413	3.497	3.544	3.681	3.889	4.124	4.295	4.405	4.530	4.655
044	2.750	3.155	3.190	3.262	3.349	3.395	3.491	3.538	3.622	3.669	3.806	4.014	4.249	4.420	4.530	4.655	4.780
046	2.875	3.280	3.315	3.387	3.474	3.520	3.616	3.663	3.747	3.794	3.931	4.139	4.374	4.545	4.655	4.780	4.905
048	3.000	3.405	3.440	3.512	3.599	3.645	3.741	3.788	3.872	3.919	4.056	4.264	4.499	4.670	4.780	4.905	5.030
050	3.125	3.530	3.565	3.637	3.724	3.770	3.866	3.913	3.997	4.044	4.181	4.389	4.624	4.795	4.905	5.030	5.155
052	3.250	3.655	3.690	3.762	3.849	3.895	3.991	4.038	4.122	4.169	4.306	4.514	4.749	4.920	5.030	5.155	5.280
054	3.375	3.780	3.815	3.887	3.974	4.020	4.116	4.163	4.247	4.294	4.431	4.639	4.874	5.045	5.155	5.280	5.405
056	3.500	3.905	3.940	4.012	4.099	4.145	4.241	4.288	4.372	4.419	4.556	4.764	4.999	5.170	5.280	5.405	5.530
058	3.625	4.030	4.065	4.137	4.224	4.270	4.366	4.413	4.497	4.544	4.681	4.889	5.124	5.295	5.405	5.530	5.655
060	3.750	4.155	4.190	4.262	4.349	4.395	4.491	4.538	4.622	4.669	4.806	5.014	5.249	5.420	5.530	5.655	5.780
062	3.875	4.280	4.315	4.387	4.474	4.520	4.616	4.663	4.747	4.794	4.931	5.139	5.374	5.545	5.655	5.780	5.905
064	4.000	4.405	4.440	4.512	4.599	4.645	4.741	4.788	4.872	4.919	5.056	5.264	5.499	5.670	5.780	5.905	6.030
066	4.125	4.530	4.565	4.637	4.724	4.770	4.866	4.913	4.997	5.044	5.181	5.389	5.624	5.795	5.905	6.030	6.155
068	4.250	4.655	4.690	4.762	4.849	4.895	4.991	5.038	5.122	5.169	5.306	5.514	5.749	5.920	6.030	6.155	6.280
070	4.375	4.780	4.815	4.887	4.974	5.020	5.116	5.163	5.247	5.294	5.431	5.639	5.874	6.045	6.155	6.280	6.405
072	4.500	4.905	4.940	5.012	5.099	5.145	5.241	5.288	5.372	5.419	5.556	5.764	5.999	6.170	6.280	6.405	6.530
074	4.625	5.030	5.065	5.137	5.224	5.270	5.366	5.413	5.497	5.544	5.681	5.889	6.124	6.295	6.405	6.530	6.655
076	4.750	5.155	5.190	5.262	5.349	5.395	5.491	5.538	5.622	5.669	5.806	6.014	6.249	6.420	6.530	6.655	6.780
078	4.875	5.280	5.315	5.387	5.474	5.520	5.616	5.663	5.747	5.794	5.931	6.139	6.374	6.545	6.655	6.780	6.905
080	5.000	5.405	5.440	5.512	5.599	5.645	5.741	5.788	5.872	5.919	6.056	6.264	6.499	6.670	6.780	6.905	7.030
082	5.125	5.530	5.565	5.637	5.724	5.770	5.866	5.913	5.997	6.044	6.181	6.389	6.624	6.795	6.905	7.030	7.155
084	5.250	5.655	5.690	5.762	5.849	5.895	5.991	6.038	6.122	6.169	6.306	6.514	6.749	6.920	7.030	7.155	7.280
086	5.375	5.780	5.815	5.887	5.974	6.020	6.116	6.163	6.247	6.294	6.431	6.639	6.874	7.045	7.155	7.280	7.405
088	5.500	5.905	5.940	6.012	6.099	6.145	6.241	6.288	6.372	6.419	6.556	6.764	6.999	7.170	7.280	7.405	7.530
090	5.625	6.030	6.065	6.137	6.224	6.270	6.366	6.413	6.497	6.544	6.681	6.889	7.124	7.295	7.405	7.530	7.655
092	5.750	6.155	6.190	6.262	6.349	6.395	6.491	6.538	6.622	6.669	6.806	7.014	7.249	7.420	7.530	7.655	7.780
094	5.875	6.280	6.315	6.387	6.474	6.520	6.616	6.663	6.747	6.794	6.931	7.139	7.374	7.545	7.655	7.780	7.905
096	6.000	6.405	6.440	6.512	6.599	6.645	6.741	6.788	6.872	6.919	7.056	7.264	7.499	7.670	7.780	7.905	8.030
098	6.125								6.997	7.044	7.181	7.389	7.624	7.795	7.905	8.030	8.155
100	6.250								7.122	7.169	7.306	7.514	7.749	7.920	8.030	8.155	8.280
102	6.375								7.247	7.294	7.431	7.639	7.874	8.045	8.155	8.280	8.405
104	6.500								7.372	7.419	7.556	7.764	7.999	8.170	8.280	8.405	8.530
106	6.625								7.497	7.544	7.681	7.889	8.124	8.295	8.405	8.530	8.655
108	6.750								7.622	7.669	7.806	8.014	8.249	8.420	8.530	8.655	8.780
110	6.875								7.747	7.794	7.931	8.139	8.374	8.545	8.655	8.780	8.905
112	7.000								7.872	7.919	8.056	8.264	8.499	8.670	8.780	8.905	9.030
114	7.125													8.795	8.905	9.030	9.155
116	7.250													8.920	9.030	9.155	9.280
118	7.375													9.045	9.155	9.280	9.405
120	7.500													9.170	9.280	9.405	9.530
122	7.625													9.295	9.405	9.530	9.655
124	7.750													9.420	9.530	9.655	9.780
126	7.875													9.545	9.655	9.780	9.905
128	8.000													9.670	9.780	9.905	10.030

REVIEWER SYMBOLS:  
 DLA-US  
 ARMY-AR  
 AIRFORCE-62

REVISIONS/USER INFORMATION IS CORRECT AS OF THE DATE OF THIS DOCUMENT.  
 FOR FUTURE CORRECTIONS OF THIS DOCUMENT, DRAFT SUBMISSIONS SHOULD BE BASED ON THE INFORMATION IN THE CURRENT 000155.

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 BE MADE FROM THIS DOCUMENT.

P.A. NAVY - AS Other Cust	TITLE BOLT, TENSION, STEEL, 180 KSI FTU, 450°F, 12 POINT, EXTERNAL WRENCHING FLANGED	MILITARY STANDARD <b>MS21250</b>
USAF - 99 ARMY - AV	PROCUREMENT SPECIFICATION MIL-B-8831	SHEET 3 OF 3

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