

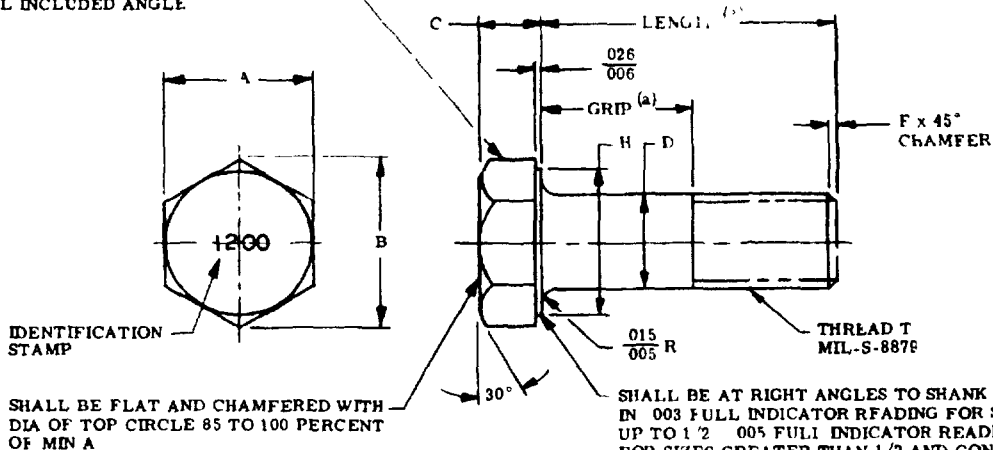
USER SYMBOLS  
NAVY - SH MC

REVIEWER SYMBOLS  
ARMY - MU  
NAVY - OS  
USAF - 82, 85

"Review/user information is current as of the date of this document.  
Per future coordination of changes to this document, draft circulation  
should be based on the information in the current DDG152."

This military standard is mandatory for use by all Departments  
in Agencies of the Department of Defense. Selection for all new  
engineering and design applications and for existing use shall  
be made from this document.

THE TAPER OF THE SIDES OF THE HEAD  
SHALL NOT EXCEED FOUR DEGREES  
TOTAL INCLUDED ANGLE.



SHALL BE FLAT AND CHAMFERED WITH  
DIA OF TOP CIRCLE 85 TO 100 PERCENT  
OF MIN A

SHALL BE AT RIGHT ANGLES TO SHANK WITH  
IN .003 FULL INDICATOR READING FOR SIZES  
UP TO 1 1/2 .005 FULL INDICATOR READING  
FOR SIZES GREATER THAN 1 1/2 AND CON-  
CENTRIC WITH SHANK WITHIN 3 PERCENT OF H

MS PART NUMBER	THREAD T UNJF-3A	A		B REF	C		D DIA		F		H DIA	
		MAX	MIN		MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
MS20033	0 1900-32	377	365	430	141	109	189	186	047	015	391	359
MS20034	0 2500-28	440	428	510	172	140	249	246	047	015	454	422
MS20035	0 3125-24	502	490	580	204	172	312	309	063	031	516	484
MS20036	0 3750-24	565	553	650	235	203	374	371	063	031	579	547
MS20037	0 4375-20	627	615	720	266	234	437	433	063	031	641	609
MS20038	0 5000-20	752	740	870	297	265	499	495	063	031	766	734
MS20039	0 5625-18	877	865	1 010	328	296	562	558	078	046	891	859
MS20040	0 6250-18	940	928	1 090	360	328	624	620	078	046	954	922
MS20042	0 7500-16	1 066	1 053	1 230	422	390	749	745	078	046	1 079	1 047
MS20044	0 8750-14	1 253	1 240	1 440	485	453	874	869	094	062	1 266	1 234
MS20046	1 0000-14	1 441	1 428	1 660	547	515	999	993	094	062	1 454	1 422
MS20045	1 0000 12	1 441	1 428	1 660	547	515	999	993	094	062	1 454	1 422

(a) SEE SHEET 2 FOR GRIP AND LENGTH DIMENSIONS. GRIP LENGTH OF BOLTS SHALL BE MEASURED FROM THE UNDERSIDE OF THE HEAD TO THE END OF THE FULL CYLINDRICAL PORTION OF THE SHANK. COM-  
PLTF THREADS SHALL BEGIN WITHIN TWO THREAD PITCH MAXIMUM.

△ INACTIVE FOR DESIGN

#### NOTES

1. MATERIAL CORROSION AND HEAT RESISTANT STEEL SEE PROCUREMENT SPECIFICATION
2. GRIP LENGTHS IN ADDITION TO THOSE TABULATED ON SHEET 2 ARE AVAILABLE IN 1/8 INCH INCREMENTS BY THE USE OF SIGNIFICANT DASH NUMBERS. EACH ADDITIONAL WHOLE INCH SHALL HAVE DASH NUMBERS IN UNITS OF TEN WITH DASH 1 TO 7 INDICATING EIGHTHS OF AN INCH. EX. DASH NO 70 = GRIP 7, DASH NO 77 = GRIP 7-7/8
3. EXAMPLE OF PART NUMBER MS20034-10 = 1 1/4 INCH DIA BOLT 1 33/64 INCHES LONG 1 INCH GRIP
4. BOLTS SHALL BE FREE FROM ALL HANGING BURRS AND SLIVERS WHICH MIGHT BECOME DISLODGED UNDER USAGE
5. DIMENSIONS IN INCHES UNLESS OTHERWISE SPECIFIED, TOLERANCES ANGLES .5°
6. UNLESS OTHERWISE SPECIFIED, THREADS IN ACCORDANCE WITH MIL S-7742 ARE ACCEPTABLE UNTIL 31 DECEMBER 1970
7. FOR INFORMATION MS20500 AND MS20501 NUTS WERE DESIGNED FOR USE WITH THIS BOLT STANDARD

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 INITIATION FOR BID

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P.A. NAVY - AS	TITLE	MILITARY STANDARD
Other Cust ARMY - MU USAF - 82	BOLT, MACHINE, HEXAGON HEAD, 1200 F	MS20033 THRU MS20046
PROCUREMENT SPECIFICATION MIL-B-7874	SUPERSEDES MS20033-MS20046 INCLUSIVE (AS)	SHEET 1 OF 2

DD FORM 672-1 (Coordinated)

PREVIOUS EDITIONS OF THIS FORM ARE OBSOLETE

PLATE 80 15320

APPROVED 28 FEB 52 REVISED 4 DEC 1968 13 JULY 1969 11 JUNE 1970

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DASH NO	GRIP +1/64	LENGTH +1/32 -1/64										MS20045 MS20046
		MS20033	MS20034	MS20035	MS20036	MS20037	MS20038	MS20039	MS20040	MS20042	MS20044	
1	1/8	35/64	41/64	11/16	51/64	13/16	61/64	1-1/16	1-1/8	1-1/4	1-13/32	1-17/32
2	1/4	43/64	49/64	13/16	59/64	15/16	1-5/64	1-3/16	1-1/4	1-3/8	1-17/32	1-21/32
3	3/8	51/64	57/64	15/16	1-3/64	1-1/16	1-13/64	1-5/16	1-3/8	1-1/2	1-21/32	1-25/32
4	1/2	59/64	1-1/64	1-1/16	1-11/64	1-3/16	1-21/64	1-7/16	1-1/2	1-5/8	1-25/32	1-29/32
5	5/8	1-3/64	1-9/64	1-3/16	1-19/64	1-5/16	1-29/64	1-9/16	1-5/8	1-3/4	1-29/32	2-1/32
6	3/4	1-11/64	1-17/64	1-5/16	1-27/64	1-7/16	1-37/64	1-11/16	1-3/4	1-7/8	2-1/32	2-5/32
7	7/8	1-19/64	1-25/64	1-7/16	1-35/64	1-9/16	1-45/64	1-13/16	1-7/8	2	2-5/32	2-9/32
10	1	1-27/64	1-33/64	1-9/16	1-43/64	1-11/16	1-53/64	1-15/16	2	2-1/8	2-9/32	2-13/32
11	1-1/8	1-35/64	1-41/64	1-11/16	1-51/64	1-13/16	1-61/64	2-1/16	2-1/8	2-1/4	2-13/32	2-17/32
12	1-1/4	1-43/64	1-49/64	1-13/16	1-59/64	1-15/16	2-5/64	2-3/16	2-1/4	2-3/8	2-17/32	2-21/32
13	1-3/8	1-51/64	1-57/64	1-15/16	2-3/64	2-1/16	2-13/64	2-5/16	2-3/8	2-1/2	2-21/32	2-25/32
14	1-1/2	1-59/64	2-1/64	2-1/16	2-11/64	2-3/16	2-21/64	2-7/16	2-1/2	2-5/8	2-25/32	2-29/32
15	1-5/8	2-3/64	2-9/64	2-3/16	2-19/64	2-5/16	2-29/64	2-9/16	2-5/8	2-3/4	2-29/32	3-1/32
16	1-3/4	2-11/64	2-17/64	2-5/16	2-27/64	2-7/16	2-37/64	2-11/16	2-3/4	2-7/8	3-1/32	3-5/32
17	1-7/8	2-19/64	2-25/64	2-7/16	2-35/64	2-9/16	2-45/64	2-13/16	2-7/8	3	3-5/32	3-9/32
20	2	2-27/64	2-33/64	2-9/16	2-43/64	2-11/16	2-53/64	2-15/16	3	3-1/8	3-9/32	3-13/32
21	2-1/8	2-35/64	2-41/64	2-11/16	2-51/64	2-13/16	2-61/64	3-1/16	3-1/8	3-1/4	3-13/32	3-17/32
22	2-1/4	2-43/64	2-49/64	2-13/16	2-59/64	2-15/16	3-5/64	3-3/16	3-1/4	3-3/8	3-17/32	3-21/32
23	2-3/8	2-51/64	2-57/64	2-15/16	3-3/64	3-1/16	3-13/64	3-5/16	3-3/8	3-1/2	3-21/32	3-25/32
24	2-1/2	2-59/64	3-1/64	3-1/16	3-11/64	3-3/16	3-21/64	3-7/16	3-1/2	3-5/8	3-25/32	3-29/32
25	2-5/8	3-3/64	3-9/64	3-3/16	3-19/64	3-5/16	3-29/64	3-9/16	3-3/4	3-29/32	4-1/32	4-5/32
26	2-3/4	3-11/64	3-17/64	3-5/16	3-27/64	3-7/16	3-37/64	3-11/16	3-3/4	3-7/8	4-1/32	4-5/32
27	2-7/8	3-19/64	3-25/64	3-7/16	3-35/64	3-9/16	3-45/64	3-13/16	3-7/8	4	4-5/32	4-9/32
30	3	3-27/64	3-33/64	3-9/16	3-43/64	3-11/16	3-53/64	3-15/16	4	4-1/8	4-9/32	4-13/32
31	3-1/8	3-35/64	3-41/64	3-11/16	3-51/64	3-13/16	3-61/64	4-1/16	4-1/8	4-1/4	4-13/32	4-17/32
32	3-1/4	3-43/64	3-49/64	3-13/16	3-59/64	3-15/16	4-5/64	4-3/16	4-1/4	4-3/8	4-17/32	4-21/32
33	3-3/8	3-51/64	3-57/64	3-15/16	4-3/64	4-1/16	4-13/64	4-5/16	4-3/8	4-1/2	4-21/32	4-25/32
34	3-1/2	3-59/64	4-1/64	4-1/16	4-11/64	4-3/16	4-21/64	4-7/16	4-1/2	4-5/8	4-25/32	4-29/32
35	3-5/8	4-3/64	4-9/64	4-3/16	4-19/64	4-5/16	4-29/64	4-9/16	4-5/8	4-3/4	4-29/32	5-1/32
36	3-3/4	4-11/64	4-17/64	4-5/16	4-27/64	4-7/16	4-37/64	4-11/16	4-3/4	4-7/8	5-1/32	5-5/32
37	3-7/8	4-19/64	4-25/64	4-7/16	4-35/64	4-9/16	4-45/64	4-13/16	4-7/8	5	5-5/32	5-9/32
40	4	4-27/64	4-33/64	4-9/16	4-43/64	4-11/16	4-53/64	4-15/16	5	5-1/8	5-9/32	5-13/32
41	4-1/8	4-35/64	4-41/64	4-11/16	4-51/64	4-13/16	4-61/64	5-1/16	5-1/8	5-1/4	5-13/32	5-17/32
42	4-1/4	4-43/64	4-49/64	4-13/16	4-59/64	4-15/16	5-5/64	5-3/16	5-1/4	5-3/8	5-17/32	5-21/32
43	4-3/8	4-51/64	4-57/64	4-15/16	5-3/64	5-1/16	5-13/64	5-5/16	5-3/8	5-1/2	5-21/32	5-25/32
44	4-1/2	4-59/64	5-1/64	5-1/16	5-11/64	5-3/16	5-21/64	5-7/16	5-1/2	5-5/8	5-25/32	5-29/32
45	4-5/8	5-3/64	5-9/64	5-3/16	5-19/64	5-5/16	5-29/64	5-9/16	5-5/8	5-3/4	5-29/32	6-1/32
46	4-3/4	5-11/64	5-17/64	5-5/16	5-27/64	5-7/16	5-37/64	5-11/16	5-3/4	5-7/8	6-1/32	6-5/32
47	4-7/8	5-19/64	5-25/64	5-7/16	5-35/64	5-9/16	5-45/64	5-13/16	5-7/8	6	6-5/32	6-9/32
50	5	5-27/64	5-33/64	5-9/16	5-43/64	5-11/16	5-53/64	5-15/16	6	6-1/8	6-9/32	6-13/32

NOTE

BOLT SIZE	BOLT STRENGTH REQUIREMENTS IN POUNDS LOAD		
	TENSILE BREAKING STRENGTH, MINIMUM		DOUBLE SHEAR STRENGTH MINIMUM
	ROOM TEMPERATURE	23 HOURS 1,200°F RUPTURE	
10	3 000	1 100	4 700
1/4	5 400	2 100	8 300
5/16	8 600	3 400	13 000
3/8	13 300	5 300	18 800
7/16	18 000	7 100	25 600
1/2	24 000	9 700	33 400
9/16	30 500	12 300	42 200
5/8	38 100	15 600	52 200
3/4	55 300	22 800	75 100
7/8	75 500	31 200	102 000
1	98 400	42 000	133 500

TENSILE AND RUPTURE STRENGTH FIGURES GIVEN IN THE ABOVE TABLE ARE FOR MINIMUM VALUES ONLY AND ARE CALCULATED FROM THE MEDIAN (MEAN BETWEEN BASIC PITCH AND BASIC ROOT DIAMETERS) AREA OF THE THREAD. MAXIMUM VALUES WILL NOT BE CAUSE FOR REJECTION, PROVIDED BOLTS SHOW SATISFACTORY DUCTILITY AS MEASURED BY THE BEND TEST. SHEAR STRENGTH FIGURES ARE CALCULATED ON THE BASIS OF 60 PERCENT OF THE TENSILE STRENGTH OF THE MATERIAL AT THE MINIMUM SHANK DIAMETER.

P.A. NAVY - AS Other Cost	TITLE BOLT, MACHINE, HEXAGON HEAD, 1200°F	MILITARY STANDARD MS20033 THRU 20046
PROCUREMENT SPECIFICATION MIL-B-7874	SUPPLEMENT MS20033-MS20046 INCLUSIVE (AS)	SHEET 2

DD FORM 672-1 (Coordinated)

PREVIOUS EDITIONS OF THIS FORM ARE OBSOLETE

PLA N 1108

APPROVED 20 FEB 52 REVISED (C) FOR CHANGES SEE SHEET 1