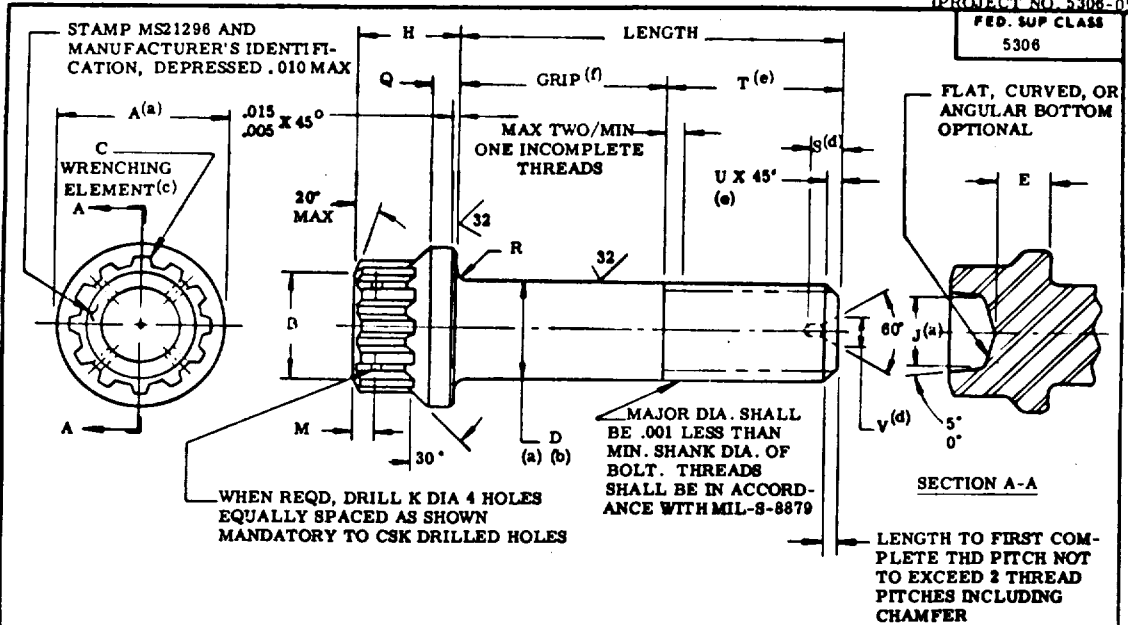


USER SYMBOLS:  
ARMY-MI

REVIEWER SYMBOLS:  
DSA-IS  
ARMY-AT

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NOTES:

- 1. MATERIAL: ALLOY STEEL PER AMS 6487.
- 2. HARDNESS: ROCKWELL C51-54
- 3. SURFACE TEXTURE IN ACCORDANCE WITH ANSI (ASA) B46.1-1962.
- 4. PLATING: CADMIUM COATED (VACUUM DEPOSITED); MIL-C-8837, TYPE II, CLASS 2.
- 5. DIMENSIONS IN INCHES, UNLESS OTHERWISE SPECIFIED, TOLERANCES: DECIMALS  $\pm .010$ , ANGLES  $\pm 2^\circ$ .
- 6. DIMENSIONS TO BE MET AFTER PLATING.
- 7. DESIGN AND USAGE INFORMATION: THESE BOLTS ARE DESIGNED TO BE USED WITH MS21085 NUTS AND MS21299 WASHERS.

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.

(A) REVISED		
P.A. NAVY - AS	TITLE	MILITARY STANDARD
Other Cust USAF-11 ARMY-AV	BOLT, TENSION, STEEL, 260 KSI F <sub>tu</sub> , 450° F., EXTERNAL WRENCHING, SPLINE DRIVE, FLANGED HEAD	<b>MS21296</b>
PROCUREMENT SPECIFICATION MIL-B-8907	SUPERSEDES:	SHEET 1 OF 6

USER SYMBOLS:  
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DASH NO.	NOMINAL SIZE	THREAD UNJF-3A	A-DIA (a)		B-DIA		C <sup>(c)</sup> WRENCHING ELEMENT	D-DIA. (a) (b)		DASH NO.
			MAX	MIN	MAX	MIN		MAX	MIN	
03	NO. 10	.1900-32	.359	.349	.188	.173	8	.1895	.1885	03
04	1/4	.2500-28	.470	.460	.250	.235	10	.2495	.2485	04
05	5/16	.3125-24	.585	.575	.375	.360	12	.3120	.3110	05
06	3/8	.3750-24	.701	.691	.438	.423	14	.3745	.3735	06
07	7/16	.4375-20	.817	.807	.500	.485	16	.4370	.4360	07
08	1/2	.5000-20	.932	.922	.562	.547	20	.4995	.4985	08
09	9/16	.5625-18	1.047	1.037	.625	.610	22	.5615	.5605	09
10	5/8	.6250-18	1.163	1.153	.688	.673	24	.6240	.6230	10
12	3/4	.7500-16	1.394	1.384	.812	.797	28	.7490	.7480	12
14	7/8	.8750-14	1.625	1.615	.938	.923	32	.8740	.8730	14
16	1	1.0000-12	1.856	1.846	1.062	1.047	38	.9990	.9980	16

DASH NO.	E MIN	H ±.010	J (a) ±.010 -.030	K ±.005	M	Q		R-(RAD)		S MAX (d)	T MIN REF (e)	DASH NO.
						MAX	MIN	MAX	MIN			
03	.113	.205	.100	.037	.062	.037	.017	.022	.016		.438	03
04	.149	.250	.125			.046	.026	.028	.022		.520	04
05	.187	.312	.215			.055	.035	.035	.029		.634	05
06	.224	.337	.260		.070	.064	.044	.043	.033		.719	06
07	.262	.393	.320			.073	.053	.049	.039		.833	07
08	.299	.450	.380	.065		.082	.062	.055	.045		.913	08
09	.336	.505	.440		.094	.091	.071	.061	.051		1.015	09
10	.374	.562	.500			.100	.080	.068	.058		1.095	10
12	.449	.600	.570			.118	.098	.080	.070	.200	1.283	12
14	.523	.700	.625		.125	.136	.116	.093	.083		1.468	14
16	.599	.800	.740			.154	.134	.105	.095	.260	1.698	16

APPROVED 28 JAN 1972 REVISED 4 FOR CHGS SEE SHT 1

P.A. NAVY-AS Other Cust USAF-11 ARMY-AV	TITLE BOLT, TENSION, STEEL, 260 KSI Ftu 450°F., EXTERNAL WRENCHING, SPLINE DRIVE, FLANGED HEAD	MILITARY STANDARD <b>MS21296</b>
PROCUREMENT SPECIFICATION MIL-B-8907	SUPERSEDES:	SHEET 2 OF 6

USER SYMBOLS:  
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DASH NO.	U REF (e)	V MAX (d)	CENTER DRILL SIZE (d)	BEARING AREA MEAN DIA. SQ. IN.	ULTIMATE TENSILE STRENGTH LB MIN	DOUBLE SHEAR STRENGTH LB MIN	CONCENTRICITY		DASH NO.
							x (a)	z (b)	
03	.039			.0517	5,640	8,840	.004		03
04	.045			.0914	10,100	15,300	.005		04
05	.052			.1442	16,000	23,900	.006	.0045	05
06				.2106	24,700	34,400	.008		06
07	.063			.2896	33,500	46,900	.009		07
08				.3786	44,600	61,200	.010		08
09	.069			.4808	56,600	77,500	.011	.0060	09
10				.5945	70,800	95,700	.012		10
12	.078	.187	2	.7512	103,000	138,000	.015		12
14	.089			1.1673	140,000	188,000	.018	.0090	14
16	.104	.250	3	1.5465	183,000	245,000	.020		16

- (a) DIMENSIONS A, D AND J SHALL BE CONCENTRIC TO EACH OTHER WITHIN VALUES SPECIFIED FOR X T.I.R.
- (b) DIMENSIONS D AND THREAD PITCH DIAMETER SHALL BE CONCENTRIC TO EACH OTHER WITHIN VALUES SPECIFIED FOR Z T.I.R.
- (c) WRENCHING ELEMENT PER MS 33787, DRIVERS PER MIL-W-8982.
- (d) ON BOLT SIZES .750 INCH AND LARGER, CENTER DRILLING OF SHANK IS OPTIONAL.
- (e) REFERENCE DIMENSIONS ARE FOR DESIGN PURPOSES ONLY AND ARE NOT INSPECTION OR MANUFACTURING REQUIREMENTS.
- (f) GRIP LENGTH OF BOLT SHALL BE MEASURED FROM UNDERSIDE OF HEAD TO THE END OF FULL CYLINDRICAL PORTION OF SHANK.

APPROVED 28 JAN 1972 REVISED A FOR CHGS SEE SHT 1

P.A. NAVY - AS Other Cust USAF-11 ARMY-AV	TITLE BOLT, TENSION, STEEL, 260 KSI Ft <sub>u</sub> , 450° F., EXTERNAL WRENCHING, SPLINE DRIVE, FLANGED HEAD	MILITARY STANDARD <b>MS21296</b>
PROCUREMENT SPECIFICATION MIL-B-8907	SUPERSEDES.	SHEET 3 OF 6



USER SYMBOLS:  
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GRIP DASH NO.	GRIP .010	DIAMETER DASH NUMBERS															
		.03	.04	.05	.06	.07	.08	.09	10	12	14	16					
		LENGTH *0.015															
036	2.250	2.703	2.785	2.899	2.984	3.098	3.178	3.290	3.360	3.558	3.753	3.961					
037	2.312	2.766	2.848	2.962	3.046	3.240	3.342	3.442	3.422	3.621	3.816	4.024					
038	2.375	2.828	2.910	3.024	3.109	3.223	3.303	3.405	3.485	3.683	3.878	4.086					
039	2.438	2.890	2.972	3.086	3.172	3.286	3.366	3.468	3.547	3.746	3.941	4.148					
040	2.500	2.953	3.035	3.149	3.234	3.348	3.428	3.530	3.610	3.808	4.003	4.211					
041	2.562	3.016	3.098	3.212	3.296	3.410	3.490	3.592	3.672	3.871	4.066	4.274					
042	2.625	3.078	3.160	3.274	3.359	3.473	3.553	3.655	3.735	3.933	4.128	4.336					
043	2.688	3.140	3.222	3.336	3.422	3.536	3.616	3.718	3.797	3.996	4.191	4.398					
044	2.750	3.203	3.285	3.399	3.484	3.598	3.678	3.780	3.860	4.058	4.253	4.461					
045	2.812	3.266	3.348	3.462	3.546	3.660	3.740	3.842	3.922	4.121	4.316	4.524					
046	2.875	3.328	3.410	3.524	3.609	3.723	3.803	3.905	3.985	4.183	4.378	4.586					
047	2.938	3.390	3.472	3.586	3.672	3.786	3.866	3.968	4.047	4.246	4.441	4.648					
048	3.000	3.453	3.535	3.649	3.734	3.848	3.928	4.030	4.110	4.308	4.503	4.711					
049	3.062	3.516	3.598	3.712	3.796	3.910	3.990	4.092	4.172	4.371	4.566	4.774					
050	3.125	3.578	3.660	3.774	3.859	3.973	4.053	4.155	4.235	4.433	4.628	4.836					
051	3.188	3.640	3.722	3.836	3.922	4.036	4.116	4.218	4.297	4.496	4.691	4.898					
052	3.250	3.703	3.785	3.899	3.984	4.098	4.178	4.280	4.360	4.558	4.753	4.961					
053	3.312	3.766	3.848	3.962	4.046	4.160	4.240	4.342	4.422	4.621	4.816	5.024					
054	3.375	3.828	3.910	4.024	4.109	4.223	4.303	4.405	4.485	4.683	4.878	5.086					
055	3.438	3.890	3.972	4.086	4.172	4.286	4.366	4.468	4.547	4.746	4.941	5.148					
056	3.500	3.953	4.035	4.149	4.234	4.348	4.428	4.530	4.610	4.808	5.003	5.211					
057	3.562	4.016	4.098	4.212	4.296	4.410	4.490	4.592	4.672	4.871	5.066	5.274					
058	3.625	4.078	4.160	4.274	4.359	4.473	4.553	4.655	4.735	4.933	5.128	5.336					
059	3.688	4.140	4.222	4.336	4.422	4.536	4.616	4.718	4.797	4.996	5.191	5.398					
060	3.750	4.203	4.285	4.399	4.484	4.598	4.678	4.780	4.860	5.058	5.253	5.461					
061	3.812	4.266	4.348	4.462	4.546	4.660	4.740	4.842	4.922	5.121	5.316	5.524					
062	3.875	4.328	4.410	4.524	4.609	4.723	4.803	4.905	4.985	5.183	5.378	5.586					
063	3.938	4.390	4.472	4.586	4.672	4.786	4.866	4.968	5.047	5.246	5.441	5.648					
064	4.000	4.453	4.535	4.649	4.734	4.848	4.928	5.030	5.110	5.308	5.503	5.711					
066	4.125		4.660	4.774	4.859	4.973	5.053	5.155	5.235	5.433	5.628	5.836					
068	4.250		4.785	4.899	4.984	5.098	5.178	5.280	5.360	5.558	5.753	5.961					
070	4.375		4.910	5.024	5.109	5.223	5.303	5.405	5.485	5.683	5.878	6.086					
072	4.500		5.035	5.149	5.234	5.348	5.428	5.530	5.610	5.808	6.003	6.211					

P.A. NAVY - AS  
Other Cust  
USAF-11  
ARMY-AV

TITLE  
BOLT, TENSION, STEEL, 260 KSI F<sub>tu</sub>, 450° F.,  
EXTERNAL WRENCHING,  
SPLINE DRIVE, FLANGED HEAD

PROCUREMENT SPECIFICATION  
MIL-B-8907

SUPERSEDES.

MILITARY STANDARD  
MS21296  
SHEET 5 OF 6

REVIEWER SYMBOLS:  
 DSA-IS  
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P.A.	GRIP DASH NO.	GRIP .010	DIAMETER DASH NUMBERS										FED. SUP CLASS
			03	04	05	06	07	08	09	10	12	14	
			LENGTH ±.015										
074		4.625	5.160	5.274	5.359	5.473	5.553	5.655	5.735	5.933	6.128	6.336	
076		4.750	5.285	5.399	5.484	5.598	5.678	5.780	5.860	6.058	6.253	6.461	
078		4.875	5.410	5.524	5.609	5.723	5.803	5.905	5.985	6.183	6.378	6.586	
080		5.000	5.535	5.649	5.734	5.848	5.928	6.030	6.110	6.308	6.503	6.711	
082		5.125	5.660	5.774	5.859	5.973	6.053	6.155	6.235	6.433	6.628	6.836	
084		5.250	5.785	5.899	5.984	6.098	6.178	6.280	6.360	6.558	6.753	6.961	
086		5.375	5.910	6.024	6.109	6.223	6.303	6.405	6.485	6.683	6.878	7.086	
088		5.500	6.035	6.149	6.234	6.348	6.428	6.530	6.610	6.808	7.003	7.211	
090		5.625	6.160	6.274	6.359	6.473	6.553	6.655	6.735	6.933	7.128	7.336	
092		5.750	6.285	6.399	6.484	6.598	6.678	6.780	6.860	7.058	7.253	7.461	
094		5.875	6.410	6.524	6.609	6.723	6.803	6.905	6.985	7.183	7.378	7.586	
096		6.000	6.535	6.649	6.734	6.848	6.928	7.030	7.110	7.308	7.503	7.711	
098		6.125						7.155	7.235	7.433	7.628	7.836	
100		6.250						7.280	7.360	7.558	7.753	7.961	
102		6.375						7.405	7.485	7.683	7.878	8.086	
104		6.500						7.530	7.610	7.808	8.003	8.211	
106		6.625						7.655	7.735	7.933	8.128	8.336	
108		6.750						7.780	7.860	8.058	8.253	8.461	
110		6.875						7.905	7.985	8.183	8.378	8.586	
112		7.000						8.030	8.110	8.308	8.503	8.711	

DIAMETER DASH NO. AT TOP OF TABLE, PLUS GRIP DASH NO. FIRST COLUMN ON LEFT OF TABLE CONSTITUTES A COMPLETE DASH NO.  
 IDENTIFYING SPECIFIED LENGTHS OF A GIVEN SIZE OF BOLT.  
 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 DASH NOS. SHALL NOT BE USED.  
 EXAMPLES OF PART NUMBER: MS21296-04008-1/4-28 BOLT, 1.035 LONG, .500 GRIP, UNDRILLED HEAD.  
 MS21296H04008-1/4-28 BOLT, 1.035 LONG, .500 GRIP, DRILLED HEAD.  
 MS21296-05012-5/16-24 BOLT, 1.399 LONG, .750 GRIP, UNDRILLED HEAD.  
 MS21296H05012-5/16-24 BOLT, 1.399 LONG, .750 GRIP, DRILLED HEAD.

P.A. NAVY - AS Other Cust USAF-11 ARMY-AV	TITLE BOLT, TENSION, STEEL, 360 KSI Ft <sub>u</sub> 450° F., EXTERNAL WRENCHING, SPLINE DRIVE, FLANGED HEAD	MILITARY STANDARD MS21296
PROCUREMENT SPECIFICATION MIL-B-8907	SUPERSEDES:	SHEET 6 OF 6

APPROVED 28 JAN 1972 REVISED (A) FOR CHGS SEE SHT. 1