

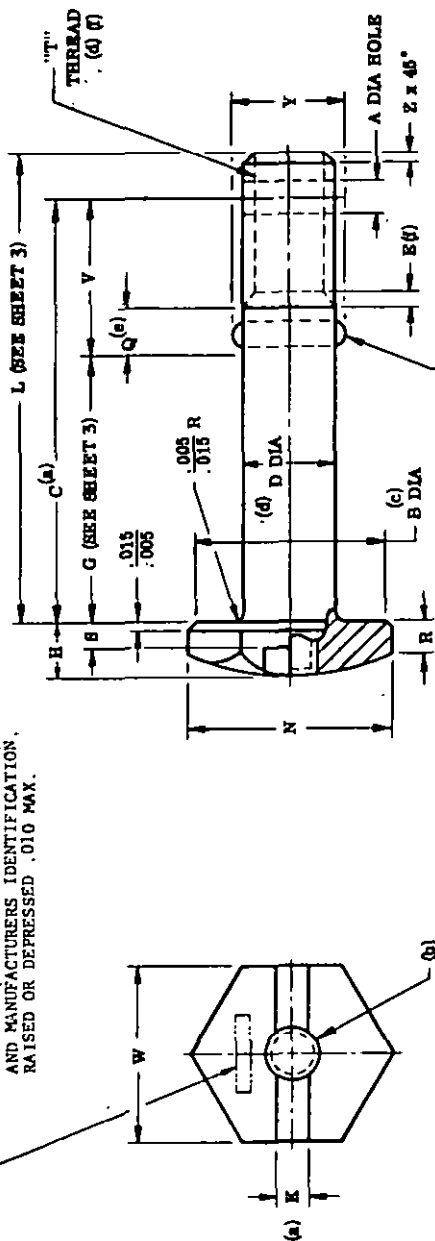
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LOCKING BALLS OR ELEMENTS (2 REQUIRED)  
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P.A. NAVY - AS Other Cust USAF - 11 ARMY - AV		TITLE BOLTS, SELF-RETAINING, POSITIVE LOCKING, CRES 90 KSI F <sub>tu</sub> , 63 KSI F <sub>cu</sub> , HEXAGON SLOTTED HEAD, 450°F AND 650°F		MILITARY STANDARD	
PROCUREMENT SPECIFICATION MIL-B-23964		SUPERSEDES MS3369 (AS)		MS3369	
				SHEET 1 OF 8	

APPROVED 7 APR 1969 REVISED (B) 12 OCT 79 (C) 11 MARCH 1981 (D) 20 JUN 85

FED. SUP CLASS  
5306

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TABLE I

TABLE I																												
DASH NO.	"T" THREAD DESIGNATION	A		B		D		H		K		N		Q		R		S		V		W		Y		Z		
		MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	BASIC	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
-3	1800-32UNJF-3A	.080	.070	.335	.1894	.1889	.110	.095	.087	.047	.413	.094	.079	.083	.063	.033	.033	.393	.376	.367	.325	.315					.041	.021
-4	2500-28UNJF-3A	.086	.076	.398	.2492	.2487	.141	.126	.073	.063	.488	.125	.110	.104	.084			.333	.439	.430	.294	.284						
-5	3125-24UNJF-3A			.660	.3117	.3112	.172	.157	.088	.078	.557	.156	.141	.125	.105	.047	.037	.375	.502	.492	.380	.370						
-6	3750-24UNJF-3A			.522	.3743	.3737	.204	.189		.104	.094	.638	.171	.156	.146	.126		.421	.564	.553	.445	.435				.067	.037	
-7	4375-20UNJF-3A	.116	.106	.585	.4367	.4363	.235	.220			.698	.202	.187	.186	.146	.063	.053	.460	.627	.617	.514	.504						
-8	5000-20UNJF-3A			.710	.4991	.4986	.266	.251	.119	.109	.840	.234	.219	.188	.188	.078	.068	.523	.752	.741	.599	.589						
-9	5625-18UNJF-3A	.161	.141	.835	.6616	.6611	.297	.282			.910	.265	.250	.208	.188	.084	.084	.638	.877	.865	.671	.661	.072	.052				
-10	6250-18UNJF-3A	.151	.141	.898	.6241	.6236	.328	.313	.135	.125	1.050	.305	.290	.228	.208	.125	.115	.682	.940	.928	.756	.746	.072	.052				
-12	7500-16UNJF-3A	.151	.141	1.022	.7491	.7486	.391	.376	.151	.141	1.200	.343	.328	.271	.251	.140	.130	.815	1.064	.052	.893	.883	.087	.067				

(D)

## GENERAL DIMENSIONAL AND MECHANICAL REQUIREMENTS:

- (a) COTTER PIN HOLE SHALL BE WITHIN .010 INCH OF BOLT CENTERLINE FOR BOLTS 5/16 DIA AND SMALLER; AND WITHIN .015 INCH FOR BOLTS 3/8 DIA AND LARGER. THE PIN HOLE SHALL BE PERPENDICULAR TO BOLT CENTERLINE WITHIN  $\pm 2^\circ$ . LOCATION OF COTTER PIN HOLE FROM BEARING SURFACE IS GIVEN BY C = (C MIN + V)  $\pm$  .010. THE COTTER PIN HOLE SHALL BE PERPENDICULAR TO THE SLOT IN HEAD WITHIN  $\pm 5^\circ$ . ORIENTATION OF BOLLS OR ELEMENT TO COTTER PIN HOLE SHALL BE IN LINE WITHIN  $\pm 3^\circ$ .
- (b) THE RETAINING DEVICE SHALL BE RELEASED ONLY BY DEPRESSING THE PLUNGER LOCATED IN THE HEAD OF THE BOLT.
- (c) RADIUS RELIEF OR CHAMFER TO "B" DIA.
- (d) CONCENTRICITY: D DIA SHALL BE CONCENTRIC TO P. D. OF THREAD WITHIN .002 TIR AT MAXIMUM MATERIAL CONDITION.
- (e) BOLLS OR RETAINING ELEMENTS SHALL BE LOCATED WITHIN THE LIMITS OF Q DIMENSION AND AT MAXIMUM PROTRUSION SHALL FIT WITHIN THE GROOVES OF THE APPROPRIATE SPACER OF MS21126 AND MS21128 WITHOUT INTERFERENCE OR BINDING. BALL OR ELEMENT PROTRUSION FROM THE BOLT CENTERLINE SHALL BE EQUAL TO OR LESS THAN 1/2 Y MAX.
- (f) THREAD: IN ACCORDANCE WITH MIL-S-8879 EXCEPT THAT INCOMPLETE THREAD LENGTH (E) SHALL BE A MAXIMUM OF 1-1/2 AND A MINIMUM OF 1/2 THREAD PITCHES IN LENGTH AND THE MAJOR DIA SHALL BE .001 LESS THAN THE MEASURED SHANK DIA.

P.A. NAVY - AS Other Cust USAF-11 ARMY-AV		TITLE BOLTS, SELF-RETAINING, POSITIVE LOCKING, CRES 90 KSI F <sub>tu</sub> , 63 KSI F <sub>cu</sub> , HEXAGON SLOTTED HEAD, 450°F AND 650°F		MILITARY STANDARD <b>MS3369</b>	
PROCUREMENT SPECIFICATION MIL-B-23964		SUPERSEDES MS3369 (AS)		SHEET 2 OF 8	

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TABLE II																		
GRIP DASH NO.	NOMINAL SIZE		.1900 (10)		.2500 (1/4)		.3125 (5/16)		.3750 (3/8)		.4375 (7/16)		.5000 (1/2)		.5625 (9/16)		GRIP DASH NO.	
	THREAD DESIGNATION		32 UNJF-3A		28 UNJF-3A		24 UNJF-3A		24 UNJF-3A		20 UNJF-3A		20 UNJF-3A		18 UNJF-3A			
	MAX	MIN	L-LENGTH	MAX	L-LENGTH	MAX	MIN	L-LENGTH	MAX	MIN	L-LENGTH	MAX	MIN	L-LENGTH	MAX	MIN		
03	.204	.188	.580	.560	.626	.606											03	
04	.266	.250	.642	.622	.688	.668	.748	.728	.809	.789							04	
05	.328	.312	.705	.685	.751	.731	.810	.790	.871	.851							05	
06	.390	.375	.767	.747	.813	.793	.873	.853	.934	.914	.978	.958	1.041	1.021			06	
07	.454	.438	.830	.810	.876	.856	.935	.915	.996	.976	1.040	1.020	1.103	1.083	1.244	1.224	07	
08	.516	.500	.892	.872	.938	.918	.998	.978	1.059	1.039	1.103	1.083	1.166	1.146	1.306	1.286	08	
09	.578	.562	.955	.935	1.001	.981	1.060	1.040	1.121	1.101	1.165	1.145	1.228	1.208	1.369	1.349	09	
10	.641	.625	1.017	.997	1.063	1.043	1.123	1.103	1.184	1.164	1.228	1.208	1.291	1.271	1.431	1.411	10	
11	.704	.688	1.080	1.060	1.126	1.106	1.185	1.165	1.246	1.226	1.290	1.270	1.353	1.333	1.494	1.474	11	
12	.766	.750	1.142	1.122	1.188	1.168	1.248	1.228	1.309	1.289	1.353	1.333	1.416	1.396	1.556	1.536	12	
13	.828	.812	1.205	1.185	1.251	1.231	1.310	1.290	1.371	1.351	1.415	1.395	1.478	1.458	1.619	1.599	13	
14	.891	.875	1.267	1.247	1.313	1.293	1.373	1.353	1.434	1.414	1.478	1.458	1.541	1.521	1.681	1.661	14	
15	.954	.938	1.330	1.310	1.376	1.356	1.435	1.415	1.496	1.476	1.540	1.520	1.603	1.583	1.744	1.724	15	
16	1.016	1.000	1.392	1.372	1.438	1.418	1.498	1.478	1.559	1.539	1.603	1.583	1.666	1.646	1.806	1.786	16	
17	1.078	1.062	1.455	1.435	1.501	1.481	1.560	1.540	1.621	1.601	1.665	1.645	1.728	1.708	1.869	1.849	17	
18	1.141	1.125	1.517	1.497	1.563	1.543	1.623	1.603	1.684	1.664	1.728	1.708	1.791	1.771	1.931	1.911	18	
19	1.203	1.188	1.580	1.560	1.626	1.606	1.685	1.665	1.746	1.726	1.790	1.770	1.853	1.833	1.994	1.974	19	
20	1.266	1.250	1.643	1.623	1.688	1.668	1.748	1.728	1.809	1.789	1.853	1.833	1.916	1.896	2.056	2.036	20	
21	1.328	1.312	1.705	1.685	1.751	1.731	1.810	1.790	1.871	1.851	1.915	1.895	1.978	1.958	2.119	2.099	21	
22	1.391	1.375	1.767	1.747	1.813	1.793	1.873	1.853	1.934	1.914	1.978	1.958	2.041	2.021	2.181	2.161	22	
23	1.454	1.438	1.830	1.810	1.876	1.856	1.935	1.915	1.996	1.976	2.040	2.020	2.103	2.083	2.244	2.224	23	
24	1.516	1.500	1.892	1.872	1.938	1.918	1.998	1.978	2.059	2.039	2.103	2.083	2.166	2.146	2.306	2.286	24	
25	1.578	1.562	1.954	1.934	2.001	1.981	2.060	2.040	2.121	2.101	2.165	2.145	2.228	2.208	2.369	2.349	25	
26	1.641	1.625	2.017	1.997	2.063	2.043	2.123	2.103	2.184	2.164	2.228	2.208	2.291	2.271	2.431	2.411	26	
27	1.704	1.688	2.080	2.060	2.126	2.106	2.185	2.165	2.246	2.226	2.290	2.270	2.353	2.333	2.494	2.474	27	
28	1.766	1.750	2.142	2.122	2.188	2.168	2.248	2.228	2.309	2.289	2.353	2.333	2.416	2.396	2.556	2.536	28	
29	1.828	1.812	2.205	2.185	2.251	2.231	2.310	2.290	2.371	2.351	2.415	2.395	2.478	2.458	2.619	2.599	29	
30	1.891	1.875	2.267	2.247	2.313	2.293	2.373	2.353	2.434	2.414	2.478	2.458	2.541	2.521	2.681	2.661	30	
31	1.953	1.937	2.330	2.310	2.376	2.356	2.435	2.415	2.496	2.476	2.540	2.520	2.603	2.583	2.744	2.724	31	
32	2.016	2.000	2.392	2.372	2.438	2.418	2.498	2.478	2.559	2.539	2.603	2.583	2.666	2.646	2.806	2.786	32	
33	2.078	2.062	2.455	2.435	2.501	2.481	2.560	2.540	2.621	2.601	2.665	2.645	2.728	2.708	2.869	2.849	33	
34	2.141	2.125	2.517	2.497	2.563	2.543	2.623	2.603	2.684	2.664	2.728	2.708	2.791	2.771	2.931	2.911	34	

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

TITLE  
 BOLTS, SELF-RETAINING, POSITIVE LOCKING, CRES  
 90 KSI Ftu, 63 KSI Ftu, HEXAGON SLOTTED HEAD, 450° F  
 AND 650°F

MILITARY STANDARD  
**MS3369**

PROCUREMENT SPECIFICATION  
 MIL-B-23964

SUPERSEDES  
 MS3369 (AS)

SHEET 3 OF 8

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TABLE II. (CONTINUED)		.6250 (5/8)		.7500 (3/4)		GRIP DASH NO.	
GRIP DASH NO.	NOMINAL SIZE THREAD DESIGNATION	18 UNJF - 3A		16 UNJF - 3A		GRIP DASH NO.	
		L-LENGTH MAX	L-LENGTH MIN	L-LENGTH MAX	L-LENGTH MIN		
03	.204	.188					03
04	.266	.250					04
05	.328	.312					05
06	.390	.375					06
07	.454	.438					07
08	.516	.500					08
09	.578	.562					09
10	.641	.625					10
11	.704	.688					11
12	.766	.750					12
13	.828	.812					13
14	.891	.875					14
15	.954	.938					15
16	1.016	1.000					16
17	1.078	1.062					17
18	1.141	1.125					18
19	1.203	1.188					19
20	1.266	1.250	2.187	2.167			20
21	1.328	1.312	2.249	2.229			21
22	1.391	1.375	2.312	2.292			22
23	1.454	1.438	2.375	2.355			23
24	1.516	1.500	2.437	2.417	2.523	2.503	24
25	1.578	1.562	2.499	2.479	2.585	2.565	25
26	1.641	1.625	2.562	2.542	2.648	2.628	26
27	1.704	1.688	2.625	2.605	2.711	2.691	27
28	1.766	1.750	2.687	2.667	2.773	2.753	28
29	1.828	1.812	2.749	2.729	2.835	2.815	29
30	1.891	1.875	2.812	2.792	2.898	2.878	30
31	1.953	1.937	2.874	2.854	2.960	2.940	31
32	2.016	2.000	2.937	2.917	3.023	3.003	32
33	2.078	2.062	2.998	2.979	3.085	3.065	33
34	2.141	2.125	3.063	3.042	3.148	3.128	34

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5306

APPROVED 7 APR 1969 REVISED (D) FOR CHANGES SEE SHEET 2

P.A. NAVY - AS Other Cust	TITLE BOLTS, SELF-RETAINING, POSITIVE LOCKING, CRES 90 KSI F <sub>tu</sub> , 63 KSI F <sub>tu</sub> , HEXAGON SLOTTED HEAD, 450°F AND 650°F	MILITARY STANDARD <b>MS3369</b>
PROCUREMENT SPECIFICATION MIL-B-23964	SUPERSEDES. MS3369 (AS)	SHEET 4 OF 8

REVIEWER SYMBOLS:  
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USAF - 99  
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DIA - IS

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Other Cust

USAF - 11  
ARMY - AV

PROCUREMENT SPECIFICATION  
MIL-B-23984

TITLE

BOLTS, SELF-RETAINING, POSITIVE LOCKING, CRES  
90 KSI F<sub>u</sub>, 63 KSI F<sub>u</sub>, HEXAGON SLOTTED HEAD, 450° F  
AND 650° F

SUPERSEDES  
MS3369 (AS)

MILITARY STANDARD

MS3369

SHEET 5 OF 8

TABLE III

GRIP DASH NO.	NOMINAL SIZE		.1800 (10)		.2500 (1/4)		.3125 (5/16)		.3750 (3/8)		.4375 (7/16)		.5000 (1/2)		.5625 (9/16)		GRIP DASH NO.
	THREAD DESIGNATION	G-GRIP LENGTH	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	
35	2.204	2.188	2.580	2.560	2.626	2.606	2.685	2.665	2.746	2.726	2.790	2.770	2.853	2.833	2.894	2.874	35
36	2.266	2.250	2.642	2.622	2.688	2.668	2.748	2.728	2.809	2.789	2.853	2.833	2.916	2.896	2.958	2.938	36
37	2.328	2.312	2.705	2.685	2.751	2.731	2.810	2.790	2.871	2.851	2.915	2.895	2.978	2.958	3.021	3.001	37
38	2.390	2.375	2.767	2.747	2.813	2.793	2.873	2.853	2.934	2.914	2.978	2.958	3.041	3.021	3.101	3.081	38
39	2.454	2.438	2.830	2.810	2.876	2.856	2.935	2.915	2.996	2.976	3.040	3.020	3.103	3.083	3.244	3.224	39
40	2.516	2.500	2.892	2.872	2.938	2.918	2.998	2.978	3.059	3.039	3.103	3.083	3.166	3.146	3.306	3.286	40
41	2.578	2.562	2.954	2.934	3.001	2.981	3.060	3.040	3.121	3.101	3.165	3.145	3.228	3.208	3.369	3.349	41
42	2.641	2.625	3.017	2.997	3.063	3.043	3.123	3.103	3.184	3.164	3.228	3.208	3.291	3.271	3.431	3.411	42
43	2.704	2.688	3.080	3.060	3.126	3.106	3.185	3.165	3.246	3.226	3.290	3.270	3.353	3.333	3.494	3.474	43
44	2.766	2.750	3.142	3.122	3.188	3.168	3.248	3.228	3.309	3.289	3.353	3.333	3.416	3.396	3.556	3.536	44
45	2.828	2.812	3.205	3.185	3.251	3.231	3.310	3.290	3.371	3.351	3.415	3.395	3.478	3.458	3.619	3.599	45
46	2.891	2.875	3.267	3.247	3.313	3.293	3.373	3.353	3.434	3.414	3.478	3.458	3.541	3.521	3.681	3.661	46
47	2.954	2.938	3.330	3.310	3.376	3.356	3.435	3.415	3.496	3.476	3.540	3.520	3.603	3.583	3.744	3.724	47
48	3.016	3.000	3.392	3.372	3.438	3.418	3.498	3.478	3.559	3.539	3.603	3.583	3.666	3.646	3.806	3.786	48
49	3.078	3.062	3.455	3.435	3.501	3.481	3.560	3.540	3.621	3.601	3.665	3.645	3.728	3.708	3.869	3.849	49
50	3.141	3.125	3.517	3.497	3.563	3.543	3.623	3.603	3.684	3.664	3.728	3.708	3.791	3.771	3.931	3.911	50
51	3.203	3.188	3.580	3.560	3.626	3.606	3.685	3.665	3.746	3.726	3.790	3.770	3.853	3.833	3.994	3.974	51
52	3.266	3.250	3.642	3.622	3.688	3.668	3.748	3.728	3.809	3.789	3.853	3.833	3.916	3.896	4.056	4.036	52
53	3.328	3.312	3.705	3.685	3.751	3.731	3.810	3.790	3.871	3.851	3.915	3.895	3.978	3.958	4.119	4.099	53
54	3.391	3.375	3.767	3.747	3.813	3.793	3.873	3.853	3.934	3.914	3.978	3.958	4.041	4.021	4.181	4.161	54
55	3.454	3.438	3.830	3.810	3.876	3.856	3.935	3.915	3.996	3.976	4.040	4.020	4.103	4.083	4.244	4.224	55
56	3.516	3.500	3.892	3.872	3.938	3.918	3.998	3.978	4.059	4.039	4.103	4.083	4.166	4.146	4.306	4.286	56
57	3.578	3.562	3.954	3.934	4.001	3.981	4.060	4.040	4.121	4.101	4.165	4.145	4.228	4.208	4.369	4.349	57
58	3.641	3.625	4.017	3.997	4.063	4.043	4.123	4.103	4.184	4.164	4.228	4.208	4.291	4.271	4.431	4.411	58
59	3.704	3.688	4.080	4.060	4.126	4.106	4.185	4.165	4.246	4.226	4.290	4.270	4.353	4.333	4.494	4.474	59
60	3.766	3.750	4.142	4.122	4.188	4.168	4.248	4.228	4.309	4.289	4.353	4.333	4.416	4.396	4.556	4.536	60
61	3.828	3.812	4.205	4.185	4.251	4.231	4.310	4.290	4.371	4.351	4.415	4.395	4.478	4.458	4.619	4.599	61

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5306

USER SYMBOLS:

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TABLE III (CONTINUED)									
GRIP DASH NO.	NOMINAL SIZE		.6250 (5/8)		.7500 (3/4)		GRIP DASH NO.		
	THREAD DESIGNATION		18 UNF-3A		16 UNF-3A				
	G-GRIP LENGTH		L-LENGTH		L-LENGTH				
	MAX	MIN	MAX	MIN	MAX	MIN			
35	2.204	2.188	3.125	3.105	3.211	3.191	35		
36	2.266	2.250	3.187	3.167	3.273	3.253	36		
37	2.328	2.312	3.249	3.229	3.335	3.315	37		
38	2.390	2.375	3.312	3.292	3.398	3.378	38		
39	2.454	2.438	3.375	3.355	3.461	3.441	39		
40	2.516	2.500	3.437	3.417	3.523	3.503	40		
41	2.578	2.562			3.585	3.565	41		
42	2.641	2.625			3.648	3.628	42		
43	2.704	2.688			3.711	3.691	43		
44	2.766	2.750			3.773	3.753	44		
45	2.828	2.812			3.835	3.815	45		
46	2.891	2.875			3.898	3.878	46		
47	2.954	2.938			3.961	3.941	47		
48	3.016	3.000			4.023	4.003	48		
49	3.078	3.062							
50	3.141	3.125							
51	3.203	3.188							
52	3.266	3.250							
53	3.328	3.312							
54	3.391	3.375							
55	3.454	3.438							
56	3.516	3.500							
57	3.578	3.562							
58	3.641	3.625							
59	3.704	3.688							
60	3.766	3.750							
61	3.828	3.812							

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

TITLE

BOLTS, SELF-RETAINING, POSITIVE LOCKING CRES  
90 KSI F<sub>u</sub> 63 KSI F<sub>u</sub> HEXAGON SLOTTED HEAD, 450°F  
AND 650°F

MILITARY STANDARD

MS3369

PROCUREMENT SPECIFICATION  
MIL-B-23964

SUPERSEDES

MS3369 (AS)

SHEET 6 OF 8

APPROVED 7 APR 1969 REVISED (D) FOR CHANGES SEE SHEET 2

## REVIEWER SYMBOLS:

## USER SYMBOLS:

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P.A.  
 NAVY - AS  
 Other Civil

USAF - 11  
 ARMY - AV

## TITLE

BOLTS, SELF-RETAINING, POSITIVE LOCKING, CRES  
 90 KSI Fm, 63 KSI Fm, HEXAGON SLOTTED HEAD, 450° F  
 AND 650° F

## MILITARY STANDARD

MS 3369

PROCUREMENT SPECIFICATION  
 MIL-B-23964

## SUPERSEDES.

MS3369 (AS)

SHEET 7 OF 8

DD FORM 672-1 (Coordinated)

PREVIOUS EDITIONS OF THIS FORM ARE OBSOLETE.

PLATE NO 2396

TABLE IV

TABLE IV																	
GRIP DASH NO.	NOMINAL SIZE		.1900 (10)		.2500 (1/4)		.3125 (5/16)		.3750 (3/8)		.4375 (7/16)		.5000 (1/2)		.5625 (9/16)		GRIP DASH NO.
	THREAD DESIGNATION		32 UNJF-3A		28 UNJF-3A		24 UNJF-3A		24 UNJF-3A		20 UNJF-3A		20 UNJF-3A		18 UNJF-3A		
	G-GRIP LENGTH		L-LENGTH		L-LENGTH		L-LENGTH		L-LENGTH		L-LENGTH		L-LENGTH		L-LENGTH		
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	
62	3.891	3.875	4.287	4.247	4.313	4.293	4.373	4.353	4.434	4.414	4.478	4.458	4.541	4.521	4.581	4.561	62
63	3.953	3.937	4.330	4.310	4.376	4.356	4.435	4.415	4.496	4.476	4.540	4.520	4.603	4.583	4.744	4.724	63
64	4.016	4.000	4.392	4.372	4.438	4.418	4.498	4.478	4.559	4.539	4.603	4.583	4.666	4.646	4.806	4.786	64
65	4.078	4.062	4.455	4.435	4.501	4.481	4.560	4.540	4.621	4.601	4.665	4.645	4.728	4.708	4.869	4.849	65
66	4.141	4.125	4.517	4.497	4.563	4.543	4.623	4.603	4.684	4.664	4.728	4.708	4.791	4.771	4.931	4.911	66
67	4.203	4.188	4.580	4.560	4.626	4.606	4.685	4.665	4.746	4.726	4.790	4.770	4.853	4.833	4.994	4.974	67
68	4.266	4.250	4.642	4.622	4.688	4.668	4.748	4.728	4.809	4.789	4.853	4.833	4.916	4.896	5.056	5.036	68
69	4.328	4.312	4.705	4.685	4.751	4.731	4.810	4.790	4.871	4.851	4.915	4.895	4.978	4.958	5.118	5.098	69
70	4.391	4.375	4.767	4.747	4.813	4.793	4.873	4.853	4.934	4.914	4.978	4.958	5.041	5.021	5.181	5.161	70
71	4.454	4.438	4.830	4.810	4.878	4.858	4.935	4.915	4.996	4.976	5.040	5.020	5.103	5.083	5.244	5.224	71
72	4.516	4.500	4.892	4.872	4.938	4.918	4.998	4.978	5.059	5.039	5.103	5.083	5.166	5.146	5.306	5.286	72
73	4.578	4.562	4.954	4.934	5.001	4.981	5.060	5.040	5.121	5.101	5.165	5.145	5.228	5.208	5.369	5.349	73
74	4.641	4.625	5.017	4.997	5.083	5.063	5.123	5.103	5.184	5.164	5.228	5.208	5.291	5.271	5.431	5.411	74
75	4.704	4.688	5.080	5.060	5.126	5.106	5.185	5.165	5.246	5.226	5.290	5.270	5.353	5.333	5.494	5.474	75
76	4.766	4.750	5.142	5.122	5.188	5.168	5.248	5.228	5.309	5.289	5.353	5.333	5.416	5.396	5.556	5.536	76
77	4.828	4.812	5.205	5.185	5.251	5.231	5.310	5.290	5.371	5.351	5.415	5.395	5.478	5.458	5.619	5.599	77
78	4.891	4.875	5.267	5.247	5.313	5.293	5.373	5.353	5.434	5.414	5.478	5.458	5.541	5.521	5.681	5.661	78
79	4.953	4.937	5.330	5.310	5.376	5.356	5.435	5.415	5.496	5.476	5.540	5.520	5.603	5.583	5.744	5.724	79
80	5.016	5.000	5.392	5.372	5.438	5.418	5.498	5.478	5.559	5.539	5.603	5.583	5.666	5.646	5.806	5.786	80
81	5.078	5.062	5.455	5.435	5.501	5.481	5.560	5.540	5.621	5.601	5.665	5.645	5.728	5.708	5.869	5.849	81
82	5.141	5.125	5.517	5.497	5.563	5.543	5.623	5.603	5.684	5.664	5.728	5.708	5.791	5.771	5.931	5.911	82
83	5.203	5.188	5.580	5.560	5.626	5.606	5.685	5.665	5.746	5.726	5.790	5.770	5.853	5.833	5.994	5.974	83
84	5.266	5.250	5.642	5.622	5.688	5.668	5.748	5.728	5.809	5.789	5.853	5.833	5.916	5.896	6.056	6.036	84
85	5.328	5.312	5.705	5.685	5.751	5.731	5.810	5.790	5.871	5.851	5.915	5.895	5.978	5.958	6.119	6.099	85
86	5.390	5.375	5.767	5.747	5.813	5.793	5.873	5.853	5.934	5.914	5.978	5.958	6.041	6.021	6.181	6.161	86
87	5.454	5.438			5.876	5.856	5.935	5.915									
96	6.016	6.000			6.438	6.418											
97	6.078	6.062			6.501	6.481											
111	6.953	6.937			7.376	7.356											

FED. SUP CLASS  
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APPROVED 7 APR 1969 REVISED (D) FOR CHANGES SEE SHEET 2



REVIEW SYMBOLS:

REVIEW SYMBOLS:

NAVY - AS  
USAF - 99  
ARMY - AV  
DLA - IS

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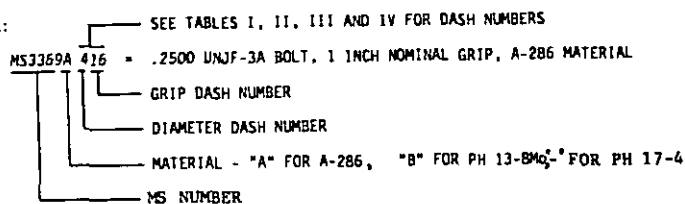
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B Agencies of the Department of Defense. Selection for all new  
engineering and design applications and for restrictive use that  
be made from this document.

TABLE V			
SIZE	SHANK DOUBLE SHEAR ULTIMATE STRENGTH LBS MIN	BOLT AND NUT ASSEMBLY ULTIMATE TENSILE STRENGTH LBS MIN SEE NOTE 13	RETAINING DEVICE ULTIMATE TENSILE LOAD LBS MIN
.1900	5,150	1,110	110
.2500	9,200	2,040	230
.3125	14,400	3,250	510
.3750	20,800	5,050	575
.4375	28,000	8,800	710
.5000	36,800	9,250	1,160
.5625	46,000	11,800	1,420
.6250	57,500	15,050	2,070
.7500	82,500	22,000	2,950

FED. SUP CLASS  
5306

## NOTES:

- MATERIALS: BOLT AND PLUNGER: CORROSION RESISTING STEEL PH 13-8 Mo CHEMISTRY OF AMS 5629  
BALLS OR ELEMENT: CORROSION RESISTING STEEL PER QQ-S-763 CLASS FSC 400C  
SPRING: CORROSION RESISTING STEEL WIRE, SPRING TEMPER PER AMS 5673, 17-7 PH OR  
QQ-W-423, CLASS F302, CONDITION B
- HEAT TREATMENT: BOLT AND PLUNGER: PER MIL-H-6875 TO CONDITION H1000  
BALLS: PER MIL-H-6875 TO ROCKWELL C50 TO C62
- MATERIALS, NONMAGNETIC: BOLT AND PLUNGER: CORROSION RESISTING STEEL A-286 CHEMISTRY OF AMS 5737  
BALLS OR ELEMENT: CORROSION RESISTING STEEL PER MIL-S-7720  
SPRING: NICKEL-CHROMIUM-IRON ALLOY PER QQ-W-390 CONDITION C OR  
NICKEL-ALLOY SPRING PER AMS 5699, SPRING TEMPER
- HEAT TREATMENT: BALLS: PER MIL-H-6875 TO ROCKWELL C25 MINIMUM
- PROTECTIVE TREATMENT: CRES MATERIAL PASSIVATED PER QQ-P-35
- SURFACE TEXTURE: UNTHREADED SHANK AND BEARING SURFACE UNDER HEAD SHALL BE 32 MICROINCHES, ALL OTHER SURFACES  
SHALL BE 125 MICROINCHES IN ACCORDANCE WITH ANSI B46.1
- BOLTS SHALL BE FREE FROM BURRS AND SLIVERS.
- EXAMPLE OF PART NUMBER:



- DESIGN USAGE: FOR DESIGN AND USAGE LIMITATIONS, SEE MS33602.
- MAGNETIC PERMEABILITY: FOR BOLT ASSEMBLY MADE FROM A-286 MATERIAL MAGNETIC PERMEABILITY SHALL BE LESS THAN 2.0 (AIR-1.0) FOR A FIELD STRENGTH = 200 ORSTEADS USING MAGNETIC PERMEABILITY INDICATOR PER MIL-I-17214 or EQUIVALENT.
- TEMPERATURE LIMITATION: 450°F MAX. FOR PH 13-8Mo AND 650°F MAX. FOR A-286 MATERIAL.
- INTERCHANGEABILITY RELATIONSHIP: BOLTS MADE FROM PH 17-4 (CODE "-") ARE INACTIVE FOR NEW DESIGN AND CANCELLED AFTER 15 MAY 1981.  
BOLTS MADE FROM CRES PH 13-8 Mo (CODE "B") MAY BE SUBSTITUTED FOR BOLTS MADE FROM PH 17-4 IN ALL APPLICATIONS.  
BOLTS MADE FROM PH 17-4 (CODE "-") SHALL NOT BE USED IN PLACE OF BOLTS MADE FROM CRES PH 13-8 Mo.  
BOLTS MADE FROM CRES PH 17-4 SHALL NOT BE USED AFTER 1 JAN 1982.
- TENSILE LOAD IS BASED ON THE AREA AT THREAD MINOR DIAMETER IN FED-STD-H28/2 AND 62.5 KSI Fcu.
- BOLT PLUNGER MANUFACTURED FROM PH 13-8Mo AND A-286 MATERIAL SHALL BE COATED WITH DRY FILM LUBRICANT PER MIL-L-8937 AND MIL-L-46010 RESPECTIVELY.
- REFERENCED DOCUMENTS SHALL BE OF THE ISSUE IN EFFECT ON DATE OF INVITATIONS FOR BIDS OR REQUEST FOR PROPOSAL, EXCEPT THAT REFERENCED ADOPTED INDUSTRY DOCUMENTS SHALL GIVE THE DATE OF THE ISSUE ADOPTED.
- FOR DESIGN FEATURE PURPOSES, THIS STANDARD TAKES PRECEDENCE OVER PROCUREMENT DOCUMENTS REFERENCED HEREIN.

P.A. NAVY - AS Other Cust  USAF - 11 ARMY - AV	TITLE  BOLTS, SELF-RETAINING, POSITIVE LOCKING, CRES 90 KSI Fcu, 63 KSI Fcu, HEXAGON SLOTTED HEAD, 450°F AND 650°F	MILITARY STANDARD	
		MS3369	
PROCUREMENT SPECIFICATION MIL-B-23964	SUPERSEDES MS3369(AS)	SHEET	8 OF 8