

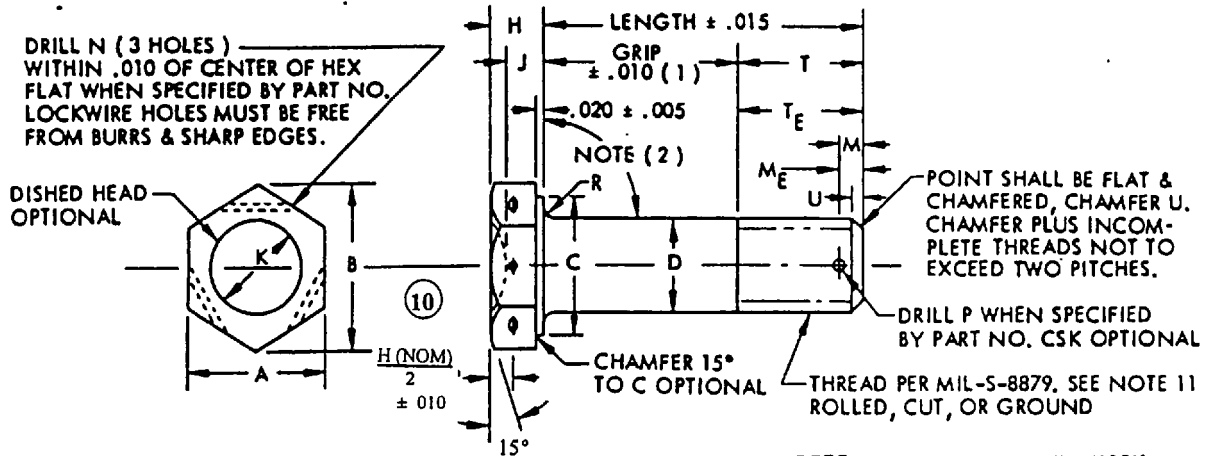
NATIONAL AEROSPACE STANDARD

AEROSPACE INDUSTRIES ASSOCIATION OF AMERICA, INC., 1725 DE SALES STREET, N. W. WASHINGTON, D. C. 20036

FED SUP CLASS

5306

HEAD MARKING: DOCUMENT NUMBER, APPLICABLE DASH NO. AND MANUFACTURER'S IDENTIFICATION RAISED OR DEPRESSED .010 MAX. LOCATION OPTIONAL. SEE NOTE 9.



THESE ARE OVERSIZE BOLTS FOR REPAIR WORK ONLY AND ARE NOT TO BE SPECIFIED IN DESIGN.

BASIC DOCUMENT NUMBER	THREAD UNF-3A EXCEPT AS NOTED	A		B (5) REF	C (3) MIN	D DIAMETER				H +.015 -.002
						~~BEFORE~~		~~AFTER~~ (10)		
		MAX	MIN			MAX	MIN	MAX	MIN	
NAS3003	.1000-32	.376	.367	.43	.335	.2174	.2168	.2182	.2172	.110
NAS3004	.2500-28	.439	.430	.51	.358	.2799	.2793	.2807	.2797	.125
NAS3005	.3125-24	.502	.492	.58	.460	.3424	.3418	.3432	.3422	.150
NAS3006	.3750-24	.564	.553	.65	.523	.4049	.4043	.4057	.4047	.188
NAS3007	.4375-20	.690	.679	.79	.648	.4674	.4668	.4682	.4672	.210
NAS3008	.5000-20	.752	.741	.87	.710	.5299	.5293	.5307	.5297	.250
NAS3009	.5625-18	.877	.865	1.01	.835	.5919	.5913	.5927	.5917	.281
NAS3010	.6250-18	.940	.928	1.09	.898	.6544	.6538	.6552	.6542	.312
NAS3012	.7500-16	1.064	1.052	1.23	1.023	.7794	.7788	.7802	.7792	.375
NAS3014	.8750-14	1.252	1.239	1.44	1.210	.9044	.9038	.9052	.9042	.438
NAS3016	1.0000-12	1.440	1.427	1.66	1.398	1.0294	1.0288	1.0302	1.0292	.500
NAS3016A	1.0000-14	1.440	1.427	1.66	1.398	1.0294	1.0288	1.0302	1.0292	.500
NAS3018	1.1250-12	1.627	1.614	1.88	1.585	1.1544	1.1538	1.1552	1.1537	.562
NAS3020	1.2500-12	1.815	1.801	2.10	1.772	1.2794	1.2788	1.2802	1.2787	.625

*NS-3A

LONG THREAD BOLTS - SEE SHEETS 4 & 5 FOR LENGTHS
SHORT THREAD BOLTS - SEE SHEETS 6 & 7 FOR LENGTHS

INACTIVE FOR DESIGN AFTER JULY 1, 1976
FOR NAS3003-() THRU NAS3020-() SEE NAS6603-() Y THRU NAS6620-()
FOR NAS3003E() THRU NAS3020E() SEE NAS6203-() Y THRU NAS6220-()

FOR DESCRIPTION OF STATUS NOTES SEE NAS380

LIST OF CURRENT SHEETS

NO.	REV.	NO.	REV.
1	10	5	3
2	8	6	3
3	10	7	4
4	5		

CUSTODIAN: NATIONAL AEROSPACE STANDARDS COMMITTEE

PROCUREMENT SPECIFICATION

NOTED

(10)

TITLE
BOLT, SHEAR, HEXAGON HEAD,
.0312 OVERSIZE SHANK, 95 KSI Ft_u

CLASSIFICATION
STANDARD PART

NAS 3003 THRU 3020
SHEET 1 OF 7

NATIONAL AEROSPACE STANDARD

AEROSPACE INDUSTRIES ASSOCIATION OF AMERICA, INC., 1725 DE SALES STREET, N. W., WASHINGTON, D. C. 20036

BASIC DOCUMENT NUMBER	J +.015 -.000	K DIA ±.010	M (12) ±.010	M _E (12) ±.010	N DIA +.010 -.000	P(4) DIA +.010 -.000	R RAD		T (5)(12) REF	T _E (5) (12) REF	U (5) REF
							MAX	MIN			
NAS3003	.073	.19	.165	.117	.046	.070	.020	.010	.338	.276	.016
NAS3004	.083	.25	.178	.116	.046	.076	.020	.010	.425	.316	.018
NAS3005	.104	.31	.181	.119	.070	.076	.020	.010	.469	.375	.021
NAS3006	.125	.38	.197	.120	.070	.106	.025	.015	.578	.391	.021
NAS3007	.146	.44	.201	.124	.070	.106	.025	.015	.594	.453	.025
NAS3008	.167	.50	.216	.123	.070	.106	.030	.020	.735	.453	.025
NAS3009	.188	.56	.218	.124	.070	.141	.035	.020	.840	.511	.028
NAS3010	.208	.62	.249	.124	.070	.141	.040	.025	.902	.543	.028
NAS3012	.250	.75	.252	.128	.070	.141	.045	.030	1.041	.572	.031
NAS3014	.292	.88	.257	.134	.070	.141	.050	.035	1.184	.652	.036
NAS3016	.333	1.00	.264	.139	.070	.141	.060	.045	1.309	.770	.042
NAS3016A	.333	1.00	.264	.139	.070	.141	.060	.045	1.291	.752	.042
NAS3018	.375	1.12	.357	.170	.070	.141	.070	.055	1.458	.864	.042
NAS3020	.417	1.25	.389	.170	.070	.141	.075	.060	1.646	.958	.042

NOM SIZE	INSPECTION DATA		
	(6) X	(6) Y	(7) Z
.1900	.005	.0045	.0040
.2500	.006	.0045	.0030
.3125	.008	.0045	.0030
.3750	.009	.006	.0025
.4375	.010	.006	.0025
.5000	.011	.006	.0020
.5625	.012	.006	.0020
.6250	.015	.006	.0020
.7500	.018	.009	.0020
.8750	.020	.009	.0020
1.0000	.022	.009	.0020
1.1250	.025	.009	.0020
1.2500	.028	.012	.0020

PROCUREMENT SPECIFICATION:

- NAS4002 EXCEPT AS NOTED: COLD WORKING OF THE HEAD TO
 ⑧ SHANK FILLET AND STRESS DURABILITY NOT APPLICABLE. EXCEPT
 FOR 1900-32, ALL BOLTS REQUIRE 100% MAGNETIC PARTICLE
 INSPECTION PER ASTM E1444.

INACTIVE FOR DESIGN AFTER JULY 1, 1976

FOR NAS3003-() THRU NAS3020-() SEE NAS6603-() Y THRU NAS6620-() Y
 FOR NAS3003E() THRU NAS3020E() SEE NAS6203-() Y THRU NAS6220-() Y

NAS 3003 THRU 3020
 Sheet 2

NATIONAL AEROSPACE STANDARD

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AIA AND ITS COMMITTEES WILL NOT INVESTIGATE THE APPLICABILITY OF PATENTS TO THE SUBJECT MATTER OF THIS STANDARD AND IN RESPECT THEREOF DO NOT ASSUME ANY LIABILITY TO PATENT OWNERS OR TO PROSPECTIVE USERS

THIS DRAWING SUPERSEDES ALL ANTECEDENT STANDARD DRAWINGS OF THE SAME TITLE AND SHALL BECOME EFFECTIVE NO LATER THAN SIX MONTHS FROM THE LAST DATE OF APPROVAL SHOWN HEREON

10 MATERIAL: Alloy Steel-4340(UNS G43400) per AMS6484, 4340(UNS G43406) per AMS6415 or 8740(UNS G87400) per AMS6322 or MIL-S-6049.

HEAT TREAT: Develop basic material properties as follows, with controls per MIL-H-6875:
160-180 KSI Ft_u per MIL-H-6875.

FINISH: CADMIUM PLATE PER QQ-P-416, TYPE II, CLASS 2. ~~TYPE I PLATING DESIGNATED BY "W", SEE CODE.~~

SURFACE TEXTURE: HEAD TO SHANK FILLET, THREAD SIDES, THREAD ROOT, AND RUN OUT ³² MAX; SHANK AND BEARING SURFACE OF HEAD ⁶³ MAX; OTHER AREAS ¹²⁵ MAX PER ASME B46.1

CODE: BASIC PART NUMBER = BOLT, UNDRILLED, TYPE II PLATING, LONG THREAD.

ADD "D" TO DASH NUMBER FOR DRILLED SHANK.

ADD "E" TO BASIC NUMBER FOR SHORT THREAD. SEE NOTE 12.

ADD "H" TO DASH NUMBER FOR DRILLED HEAD.

10 ~~ADD "W" TO DASH NUMBER FOR TYPE I PLATING.~~
IF MORE THAN ONE CODE LETTER IS USED AFTER DASH NUMBER, ARRANGE LETTERS ALPHABETICALLY.

EXAMPLES OF PART NUMBERS:

LONG THREAD SERIES:

NAS3008-10 = BOLT, .5000-20 THREAD, .625 GRIP, UNDRILLED, TYPE II PLATING.

NAS3008-10D = BOLT, .5000-20 THREAD, .625 GRIP, DRILLED SHANK, TYPE II PLATING.

NAS3008-10H = BOLT, .5000-20 THREAD, .625 GRIP, DRILLED HEAD, TYPE II PLATING.

10 ~~NAS3008-10W = BOLT, .5000-20 THREAD, .625 GRIP, UNDRILLED, TYPE I PLATING.~~

~~NAS3008-10DW = BOLT, .5000-20 THREAD, .625 GRIP, DRILLED SHANK, TYPE I PLATING.~~

SHORT THREAD SERIES: SAME AS ABOVE EXCEPT REPLACE "-" BY "E".

NAS3008E10 = BOLT, .5000-20 THREAD, .625 GRIP, UNDRILLED, TYPE II PLATING.
SHORT THREAD.

NOTES: 1. GRIP LENGTH: FROM UNDER SIDE OF HEAD TO END OF FULL CYLINDRICAL PORTION OF SHANK

2. BEARING SURFACE SQUARENESS: WITHIN .003 FIM WITH SHANK

3. WASHER FACE DIA: MAX NOT TO EXCEED ACTUAL WIDTH ACROSS FLATS;
MIN AS TABULATED ABOVE

4. COTTER PIN HOLE CENTERLINE: WITHIN .010 AND NORMAL WITHIN 2° OF BOLT CENTERLINE

5. REFERENCE DIMENSIONS ARE FOR DESIGN PURPOSES ONLY AND ARE NOT AN INSPECTION REQUIREMENT

6. CONCENTRICITY: "C" AND "D" DIAMETERS WITHIN "X" VALUES FIM. "D" AND THREAD PITCH DIA WITHIN "Y" VALUES FIM

7. SHANK STRAIGHTNESS: WITHIN "Z" VALUES FIM PER INCH OF LENGTH

8. DIMENSIONS IN INCHES: UNLESS OTHERWISE SPECIFIED, TOLERANCES:
ANGLES ±5°

10 9. CODE LETTERS "D", "H", AND ~~"W"~~ NOT REQUIRED IN HEAD MARKING

10. BOLTS SHALL BE FREE FROM BURRS AND SLIVERS

10 11. THREADS PER MIL-S-8879 EXCEPT 1.000-14 THREADS SHALL BE NS-3A PER FED STD H-28. SEE THREAD TABLE ON SHEET 7.

12. M&T APPLY TO LONG THREAD SERIES OF BOLTS. SEE SHEETS 4 & 5 FOR TABLE OF GRIP AND LENGTH DIMENSIONS.

M_E AND T_E APPLY TO SHORT THREAD SERIES OF BOLTS. SEE SHEETS 6 & 7 FOR TABLE OF GRIP AND LENGTH DIMENSIONS.

13. IF REQUIRED, TENSILE TESTING OF BOLTS REQUIRING CROSS-DRILLED THREADS SHALL BE PERFORMED PRIOR TO DRILLING AND THE APPLICATION OF PLATING AND/OR COATINGS. WHEN BOLTS HAVE BEEN DRILLED, STRENGTH MAY BE VERIFIED BY SHEAR TESTING, IN LIEU OF TENSILE TESTING, IN ACCORDANCE WITH MIL-STD-1312. USERS SHOULD BE AWARE THAT FASTENERS WITH CROSS-DRILLED THREADS MAY EXHIBIT A REDUCTION IN TENSILE STRENGTH.

INACTIVE FOR DESIGN AFTER JULY 1, 1976

FOR NAS3003-() THRU NAS3020-() SEE NAS6603-() Y THRU NAS6620-() Y

FOR NAS3003E() THRU NAS3020E() SEE NAS6203-() Y THRU NAS6220-() Y

NAS 3003 THRU 3020
Sheet 3

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