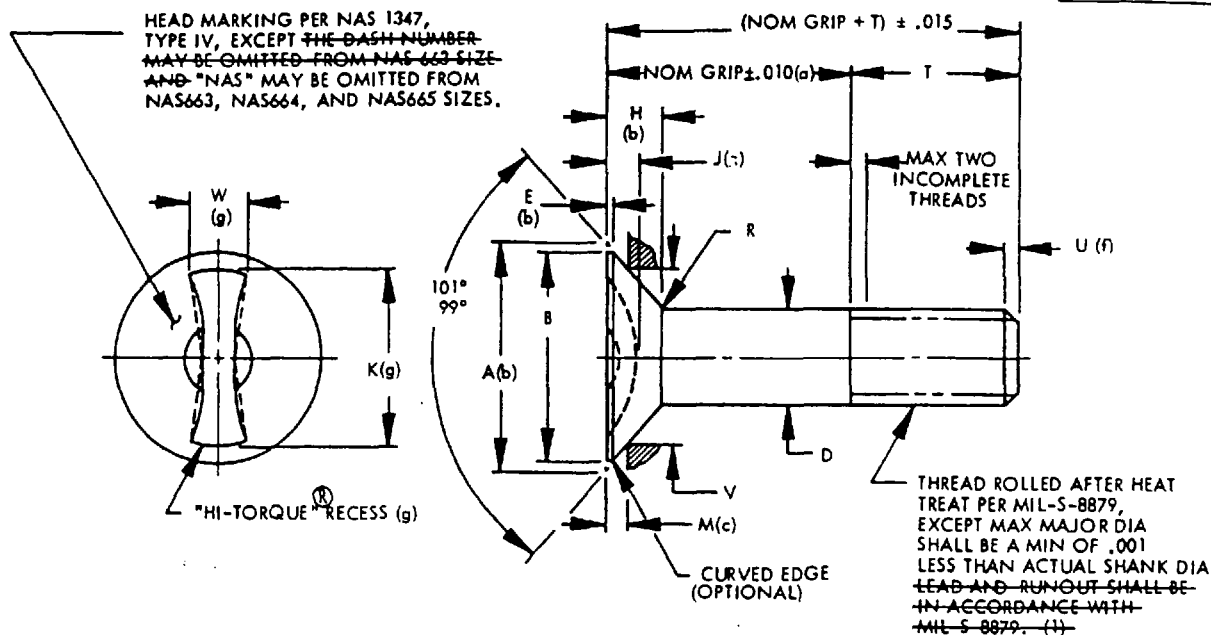


HEAD MARKING PER NAS 1347, TYPE IV, EXCEPT THE DASH NUMBER MAY BE OMITTED FROM NAS 663 SIZE AND "NAS" MAY BE OMITTED FROM NAS 663, NAS 664, AND NAS 665 SIZES.



THREAD ROLLED AFTER HEAT TREAT PER MIL-S-8879, EXCEPT MAX MAJOR DIA SHALL BE A MIN OF .001 LESS THAN ACTUAL SHANK DIA LEAD AND RUNOUT SHALL BE IN ACCORDANCE WITH MIL-S-8879. (1)

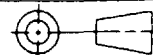
BASIC PART	THREAD UNJF-3A	A DIA MAX (b)	B DIA MIN	D DIA	E MAX (b)	H REF (b)	M GAGE PROT (c)	R RAD	T	U REF (f)	V GAGE DIA (d)	Y TIR (e)	Z TIR	"HI-TORQUE" RECESS (g)				Torque n. Lbs. Min
														RECESS NO.	J	K REF	W REF	
NAS663	.1900-32	.3813	.339	.1895 .1890	.015	.083	.0285 .0255	.035 .015	.338	.050	.3147 .3145	.005	.0040	3	.045 .042	.305	.110	50
NAS664	.2500-28	.5066	.464	.2495 .2490	.015	.111	.0338 .0309	.035 .015	.425	.050	.4245 .4243	.006	.0030	4	.054 .051	.422	.134	125
NAS665	.3125-24	.6335	.578	.3120 .3115	.015	.140	.0409 .0370	.045 .025	.469	.060	.5389 .5387	.007	.0030	5	.064 .061	.490	.160	250
NAS666	.3750-24	.7604	.717	.3745 .3740	.015	.167	.0459 .0422	.045 .025	.578	.060	.6532 .6530	.008	.0025	6	.088 .084	.639	.198	430
NAS667	.4375-20	.8884	.826	.4370 .4365	.022	.195	.0470 .0425	.055 .035	.594	.080	.7784 .7782	.009	.0025	7	.100 .096	.715	.224	925
NAS668	.5000-20	1.0139	.951	.4995 .4990	.022	.222	.0529 .0482	.055 .035	.735	.080	.8902 .8900	.010	.0020	8	.105 .101	.766	.256	1210

LIST OF CURRENT SHEETS

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3	1

INACTIVE FOR DESIGN AFTER DECEMBER 31, 1976. SEE NAS1790 FOR DESCRIPTION OF STATUS NOTE, SEE NAS 380

CUSTODIAN NATIONAL AEROSPACE STANDARDS COMMITTEE

THIRD
ANGLE
PROJECTIONPROCUREMENT
SPECIFICATION

⑨ NAS4004
NAS664

TITLE
BOLT, 100° FLUSH HEAD
"HI-TORQUE" RECESS
TITANIUM ALLOY
(LONG THREAD)

CLASSIFICATION
STANDARD PART

NAS 663 THRU 668

Documents

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- (a) GRIP LENGTH IS FROM TOP OF BOLT HEAD TO END OF FULL CYLINDRICAL PORTION OF SHANK.
- (b) A, E, AND H ARE INCLUDED FOR ENGINEERING REFERENCE PURPOSES ONLY AND ARE NOT TO BE USED FOR INSPECTION. VALUES A, E, AND H ARE CALCULATED LIMITS RESULTING FROM TOLERANCE ON B, D, M, V, AND HEAD ANGLE.
- (c) DIMENSIONS FOR M GAGE PROTRUSION SHALL BE INSPECTED PER NAS 527.
- (d) HEAD EDGE OUT OF ROUNDNESS SHALL NOT EXCEED "Y" TIR.
- (e) SHANK SHALL BE STRAIGHT WITHIN "Z" VALUES TIR PER INCH OF LENGTH.
- (f) POINT SHALL BE FLAT AND CHAMFERED. CHAMFER PLUS INCOMPLETE THREAD SHALL NOT EXCEED "U".
- (g) HI-TORQUE[®] RECESS PER MS 33750. BOLT RECESS SHALL BE TORQUE TESTED WITH APPLICABLE MS 33750 DRIVER WITH AXIAL END PRESSURE NOT EXCEEDING 15 POUNDS. BOLTS ARE REJECTABLE IF MINIMUM TORQUE VALUES LISTED ABOVE CAUSE FRACTURE OF BOLT OR DISTORTION WHICH RESULTS IN RAISE OF METAL AT EDGE OF SLOT EXCEEDING .005 ABOVE SURROUNDING AREA. SAMPLING SHALL BE PER MIL-STD-105, 4% AQL LEVEL S-1.
- ~~(h) BOLTS WITHOUT PLOT DEPRESSION IN RECESS MAY BE SUPPLIED UNTIL TWELVE (12) MONTHS AFTER LAST REVISION DATE SHOWN HEREON.~~
- ~~(i) FASTENER SUPPLIERS MAY SUPPLY FASTENERS WITH MIL-S-7742 THREADS UNTIL TWELVE (12) MONTHS AFTER REVISION DATE. FASTENERS WITH MIL-S-7742 THREADS MAY BE USED UNTIL STOCK IS DEPLETED.~~

MATERIAL: 6A1-4V TITANIUM ALLOY PER PROCUREMENT SPEC (SEE "CODE").

HEAT TREAT: 160,000 PSI MINIMUM TENSILE STRENGTH PER PROCUREMENT SPEC.

FINISH: NONE

LUBRICANT: CETYL ALCOHOL PER MIL-L-87132, TYPE 1, GRADE B (SEE "CODE").

CODE: DASH NUMBER INDICATES GRIP LENGTH IN .0625 INCH INCREMENTS (CONVERTED TO THREE DECIMAL PLACES PER USAS Y14-51). ~~INTERMEDIATE AND LONGER GRIP LENGTHS THAN THOSE LISTED ON PAGE 3 MAY BE ORDERED BY USE OF SIGNIFICANT DASH NUMBERS.~~

MATERIAL: CODE LETTER "V" FOLLOWING BASIC PART NUMBER INDICATES 6A1-4V MATERIAL.

RECESS: CODE LETTERS "HT" FOLLOWING DASH NUMBER INDICATE "HI-TORQUE" RECESS.

LUBRICANT: CODE LETTER "L" FOLLOWING RECESS CODE INDICATES CETYL ALCOHOL LUBRICANT.

EXAMPLE OF
PART NUMBER:

NAS 664V5HT = .2500-28 6A1-4V MATERIAL BOLT: .312 GRIP LENGTH, WITH "HI-TORQUE" RECESS.

NAS 664V5HTL = .2500-28 6A1-4V MATERIAL BOLT: .312 GRIP LENGTH, WITH "HI-TORQUE" RECESS AND CETYL ALCOHOL LUBRICANT.

NOTES:

1. CONCENTRICITY: CONICAL SURFACE OF HEAD TO "D" DIA WITHIN .003 TIR.
"D" DIA TO THREAD PITCH DIA WITHIN .0045 TIR FOR NAS 663
THRU NAS 665, AND WITHIN .006 TIR FOR NAS 666 AND LARGER.
2. SURFACE TEXTURE PER ANSI B46.1. CONICAL SURFACE OF HEAD, HEAD TO SHANK FILLET RADIUS, SHANK AND ALL THREAD ELEMENTS 32 RHR MAX. ALL OTHER SURFACES 125 RHR MAX.
3. BREAK ALL SHARP EDGES AND REMOVE ALL BURRS.
4. DIMENSIONS IN INCHES.
5. PARTS MANUFACTURED TO NAS621 PROCUREMENT SPECIFICATION PRIOR TO JANUARY 1, 2001 MAY BE SUPPLIED TO DEPLETION.

9

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

INACTIVE FOR DESIGN AFTER DECEMBER 31, 1976. SEE
NAS1790

NAS 663 THRU 668

Documents
Sheet 2

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