



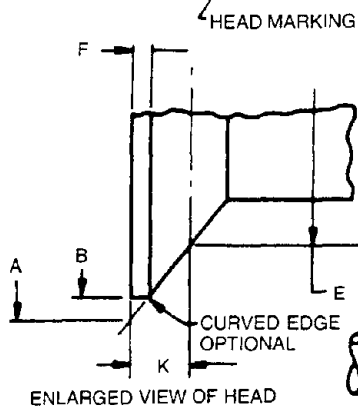
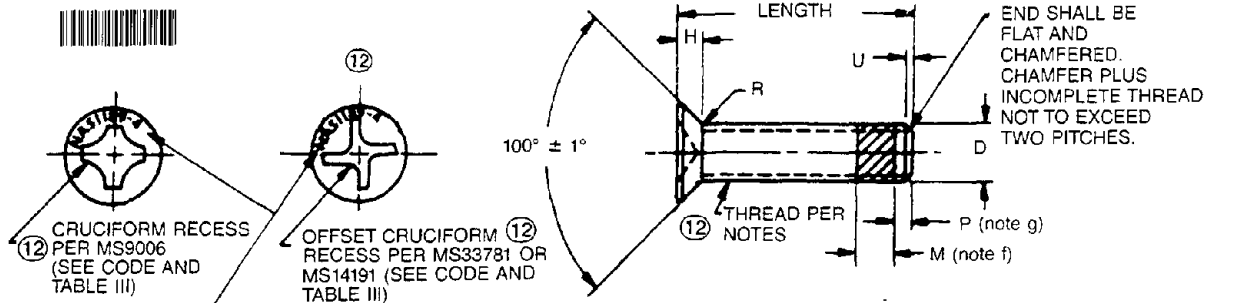
**Aerospace
Industries
Association**

NATIONAL AEROSPACE STANDARD

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FED. SUP CLASS
5305

NAS-1189



HEAD MARKING: FOR - 3 SIZES AND LARGER BASIC PART NO., APPLICABLE DIAMETER DASH NO., MANUFACTURER'S TRADE MARK, AND A CIRCLE OF SIX (MINIMUM) DOTS. RAISED OR DEPRESSED .010 MAX. LOCATION OPTIONAL. 04, 06, AND 08 SIZES SHALL BE MARKED WITH THE DIAMETER DASH NO. ONLY. MANUFACTURER'S TRADE MARK AND A CIRCLE OF SIX (MINIMUM) DOTS. NO MARKING REQUIRED ON SIZE 02. MARK "E" TO INDICATE CRES WHERE APPLICABLE. WHERE APPLICABLE, ADD "R" AFTER FIRST DASH NUMBER ON SIZES 06, 08, 3, 4 AND 5 TO INDICATE MS 14191 RECESS.

TABLE I (12)

PART NUMBER	THREAD SEE THD NOTE (12)	A DIA	B MIN	D DIA MAX	F	H REF	R RAD	U REF	T MAX	W MAX	K DIM	E DIM	RECESS GAGE PENETRATION (j)		MIN TENSILE STRENGTH, LBS	
													MAX	MIN	CRES 40 (KSI)	ALLOY STEEL, CRES, TI (K)
NAS1189-02	2-56 UNF-3A 0860-56 UNJC-3A	.176 .162	.126	.086	.015 .005	.036	.015 .005	.010	.043	.115			.0315	.0225	390	435
NAS1189-04	4-40 UNF-3A .1120-40 UNJC-3A	.225 .213	.177	.112	.015 .005	.045	.015 .005	.013	.055	.148			.0405	.0305	665	765
NAS1189-06	6-32 UNF-3A .1380-32 UNJC-3A	.279 .267	.231	.138	.015 .005	.057	.020 .010	.016	.066	.182			.0500	.0395	990	1,200
NAS1189-08	8-32 UNF-3A .1640-32 UNJC-3A	.332 .319	.270	.164	.020 .010	.068	.020 .010	.016	.078	.215	.0268 .0240	.2671 .2667	.0599	.0480	1,330	1,950
NAS1189-3	10-32 UNF-3A .1900-32 UNJF-3A	.385 .371	.322	.190	.020 .010	.080	.020 .010	.016	.090	.248	.0290 .0263	.3147 .3143	.0685	.0560	2,180	2,860
NAS1189-4	1/4-20 UNF-3A .2500-20 UNJF-3A	.507 .491	.442	.250	.020 .010	.106	.020 .010	.018	.118	.325	.0342 .0316	.4245 .4241	.0890	.0750	3,980	5,520
NAS1189-5	5/16-24 UNF-3A .3125-24 UNJF-3A	.635 .617	.568	.312	.020 .010	.133	.020 .010	.021	.122	.357	.0395 .0370	.5389 .5385	.0860	.0700	6,330	9,200
NAS1189-6	3/8-24 UNF-3A .3750-24 UNJF-3A	.762 .742	.694	.375	.020 .010	.160	.020 .010	.021	.145	.427	.0450 .0426	.6532 .6528	.1030	.0850	9,580	14,000

MATERIAL: Alloy steel per NAS498. ~~Corr res. per AMS5735 (A286) except for heat treatment, designated by "C" per code.~~
Corr res. steel A286 (UNS S66286) per AMS5737, except for heat treatment, designated by "E" code.
Titanium alloy 6AL-4V (UNS R56400) per AMS4928 or AMS4967

LOCKING ELEMENT: Nylon or equivalent, color per MIL-F-18240, 250 degree F max. Polytrifluorochloroethylene unplasticized (Kel-F) per AMS 3650, color optional, 390 degree F max. Polyethylene Terephthalate (Polyester) per AMS3612, color optional, 400 degrees F max.

HEAT TREATMENT: Alloy steel—160,000-180,000 PSI UTS per MIL-H-6875.
~~Corr res steel—140,000 PSI UTS min. at room temperature.~~
Corr res steel—160,000 PSI UTS min. at room temperature.
(12) Titanium - 160,000 PSI UTS min. per MIL-H-81200

LIST OF CURRENT SHEETS

NO.	REV
1	12
2	11
3	NEW

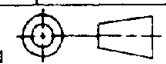
CUSTODIAN: NATIONAL AEROSPACE STANDARDS COMMITTEE

PROCUREMENT SPECIFICATION

NOTED

TITLE
SCREW, SELF-LOCKING-FLAT 100 DEG
HEAD, FULL THREAD

THIRD
ANGLE
PROJECTION



CLASSIFICATION
STANDARD PART

NAS 1189

SHEET 1 OF 3

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1250 EYE STREET, N.W.
WASHINGTON, D.C. 20005

APPROVAL DATE NOV. 1958 REVISION 7 31 MAY 1974 8 30 JUNE 1981 9 28 MAY 1982 10 15 AUGUST 1985 11 9 OCTOBER 1991 12 18 Sept. 1992



TABLE II
(11)

LENGTH CHART					
TOLERANCE +.000 -.031		TOLERANCE +.000 -.062		TOLERANCE +.000 -.094	
DASH NO.	LENGTH	DASH NO.	LENGTH	DASH NO.	LENGTH
3	.188	18	1.125	34 to 96	2.125 to 6.000
4	.250	20	1.250		
5	.312	22	1.375		
6	.375	24	1.500		
7	.438	26	1.625		
8	.500	28	1.750		
10	.625	30	1.875		
12	.750	32	2.000		
14	.875				
16	1.000				

FINISH:

Alloy steel - Cadmium plate per QQ-P-416, Type II, Class 2. Type 1 plating designated by "W". See code.
Corr res. steel-Clean and passivate in accordance with QQ-P-35.
Corr res. steel-Optional cadmium plate per QQ-P-416, TYPE II, Class 2, designated by "H" per code.

CODE:

- PARTS WITH CLASS 3 PLATING MAY BE SUPPLIED UNTIL 31 MAY 1976**
- Titanium - No Code-None Titanium "A" Code - Aluminum coat per NAS 4006
First dash number designates diameter and thread. Use "P" for cruciform recess per MS9006 or "T" for offset cruciform recess per MS37781 or "R" for offset cruciform recess per MS14191 between first and second dash numbers; "R" code, applies to sizes 06 thru 5 inclusive only. Second dash number indicates length in .0625 increments (converted to three decimal places per ANSI Y14.5). Intermediate or longer lengths may be specified by use of whole dash number only. Use of .25 inch increments is recommended for screws over 3 inches long.
- (11) "C" in lieu of first dash designates corr res. steel (140 KSI).
"E" in lieu of first dash designates corr res. steel (160 KSI).
"H" after second dash number designates Type II plating.
"W" following second dash number designates Type I plating.
Specify type of locking element by "L" following last dash number for nylon strip type element, by "N" for nylon pellet type, by "B" for nylon patch type. Omit if type of element for nylon is optional.
Specify "LK" for Kel-F strip type element, by "NK" for Kel-F pellet type, by K for Kel-F with optional element (Kel-F patch type is not available). Note that Kel-F locking performance applicable for one torque cycle.
Specify "J" for Polyethylene Terephthalate (Polyester) available only as patch type element.
Locking torque applicable for 15 torque cycles.
"V" in lieu of dash designated titanium alloy.

EXAMPLE:

NAS1189-3T8L = .1900-32 screw, .500 length, alloy steel, Type II plating, strip type nylon locking element, offset cruciform recess per MS33781.
NAS1189C5P30N = .3125-24 screw, .625 length, corr res. steel (140 KSI), pellet type nylon element Phillips recess.
NAS 1189-5T10W = .3125-24 screw, .625 length, alloy steel Type I plating, optional type nylon locking element, offset cruciform recess per MS33781.
NAS1189E5T10LK = .3125-24 screw, .625 length corr. res steel (160 KSI), Type II plating, KEL-F strip type locking element, offset cruciform recess per MS33781.
NAS1189V3T8B = .1900-32 screw, .500 length, titanium, patch type locking element, offset cruciform recess per MS33781.
NAS1189V3R8A = .1900-32 screw, .500 length, titanium, offset cruciform recess per MS 14191, aluminum coated.
NAS1189E3T8J = .1900-32 screw, .500 length, corr. res steel (160 KSI), patch type, Polyethylene Terephthalate (polyester) locking element, offset cruciform recess per MS33781.

NOTES:

- (a) Diameter of unthreaded portion of screws shall not be less than minimum pitch diameter nor more than maximum major diameter of thread.
(b) For screws 2 inches long or shorter, complete threads shall extend to within 2 threads of the bearing surface of the head. Screws of longer length shall have a minimum complete thread length of 1.75.
(c) Screws shall be free from burrs and sharp edges.
(d) Concentricity: Conical surface of head and pitch dia. of screw within .005 TIR.
(e) For corr res. steel, magnetic permeability shall be less than 2.0 (Air = 1.0) for a field strength H = 200 Oersteds. (Magnetic permeability indicator per MIL-I-17214.)
(f) "M" min. (5 thread pitches) - Region of minimum engagement with full female thread required to meet MIL-F-18240 requirements.
Locking element within "M" region must develop required torque when tested per MIL-F-18240. Length or diameter of locking element may be more or less than "M" providing all other requirements are met.
(g) "P" = one complete thread plus unthreaded portion of end. For ease in starting, locking element shall not be effective within this area.
(h) Protrusion of locking element shall be controlled so that it will pass freely or with finger pressure through a ring gage with diameter equal to maximum major thread dia.
(i) Recess gaging in accordance with MS33781 or MS14191 (offset cruciform), MS9006 (cruciform); drivers per MS33781 or MS14191 (offset cruciform), MS9006 (cruciform). Refer to NAS 518 and NAS 519 for flushness gaging details.
(11) (k) Tensile stress areas used for calculation of ultimate tensile strength values are based on FED-STD-H28 Sizes .2500 and below are derated from full strength.
(l) "C" code material inactive for design after 1 June 1971. Use "E" code. ("E" parts may be double identified "CE")
(m) Threads in accordance with MIL-S-8879. Threads in accordance with MIL-S-7742 are acceptable until 31 Dec 1969.
(n) Dimensions in inches.
(p) For description of status notes, see NAS380.
(r) Surface Roughness: "D" diameter, underside of head, and sides and root of threads - 32 microinches, other surfaces - 125 microinches, per ANSI/ASME B46.1.
(s) MS14191 recess is applicable to sizes 06 thru 5 inclusive: MS33781 and MS9006 recesses are applicable to all sizes.

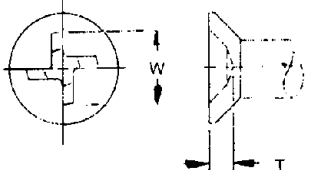
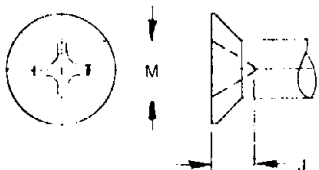
PROCUREMENT SPECIFICATION: NAS498 for alloy steel; AMS7478 for corrosion resistant steel except that stress rupture requirements are not applicable; MIL-F-18240 for self-locking requirements, where applicable. Optional corrosion resistant steel per AMS7479 except stress rupture and heat treatment are not applicable. Tensile load values are tabulated herein.
NAS4004 for titanium alloy except for recess wrenching torques.

NAS 1189

SHEET 2



TABLE III

OFFSET CRUCIFORM RECESS					CRUCIFORM RECESS				
									
FIRST DASH NO.	T MAX	W MAX	RECESS GAGE PENETRATION (i)		FIRST DASH NO.	J MAX	M MAX	RECESS GAGE PENETRATION (i)	
			MAX	MIN				MAX	MIN
02	.043	.115	.0315	.0225	02	.056	.095	.049	.033
04	.055	.148	.0405	.0305	04	.078	.116	.071	.055
06	.066	.182	.0500	.0395	06	.086	.154	.075	.052
08	.078	.215	.0595	.0480	08	.101	.169	.090	.067
3	.090	.248	.0685	.0560	3	.116	.184	.105	.082
4	.118	.325	.0890	.0750	4	.135	.247	.118	.095
5	.122	.357	.0860	.0700	5	.168	.317	.148	.126
6	.145	.427	.1030	.0850	6	.193	.342	.173	.151

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SHEET 3