



User activities  
Army - MI  
Navy - MC, OS

Review activities  
Army - AT, AV, GL, ME  
Air Force - 11, 82  
NSA - NS  
DLA - IS

This military standard is approved for use by all Departments and Agencies of the Department of Defense in connection with all new engineering and design applications and for repetitive use shall be made from this document when applicable.

FED SUP CLASS  
5307

TABLE III - LONG LENGTH

DASH NO	A NUT END THREAD UNJF-3A	B STUD END THREAD			C	ØD	ØE	ØF	ØG	ØH	J	K <sup>2</sup>	M	ØN	T	V	ØP	S	ØU	LOCKWING MS51997 BASIC DASH NG
		SEE REQT 4	PITCH DIA	MINOR DIA																
-802	1900-32	3750-24	3512 3497	3271 3185	511	189 186	255	284	318	233	17	86° -1°	339	202	469	142	137	120	267	103P
-803	2500-28	4375-20	4084 4067	3795 3700	673	249 246	316	345	370	294	20	102°	465	205	594	155	190	160	267	104P
-804	3125-24	5000-20	4711 4694	4422 4325	868	312 309	380	407	432	357	24	102°	617	222	688	200	242	160	267	105P
-805	3750-24	6250-18	5927 5910	5606 5498	1 076	374 371	456	487	549	433	26	102°	828	324	750	200	305	170	096	106P
-806	4375-20	7500-16	7134 7114	6773 6656	1 155	437 433	567	601	665	535	26	111°	835	438	812	200	354	70	096	107P
-807	5000-20	8750-14	8328 8308	7916 7786	1 267	499 495	687	721	778	645	30	111°	928	470	875	255	416	190	096	108P
-808	6250-18	1 0000-12	9503 9478	9022 8878	1 656	624 620	783	820	887	741	30	111°	1 231	476	1 000	255	532	220	128	109P

# REQUIREMENTS

## 1 MATERIAL

### CODE LETTER

A - Steel, alloy, Grade 8740 (UNS G87400) conforming to MIL-S-6049 or AMS 6322  
B - Steel, alloy, Grade 8740 (UNS G87400) conforming to MIL-S-6049 or AMS 6322  
C - Steel, corrosion and heat resistant, Type A286 (UNS S66286) conforming to AMS 5731 or AMS 5734  
D - Nickel base alloy, corrosion and heat resistant, Type 718 (UNS N07718) conforming to AMS 5662  
E - Titanium alloy, 6Al-4V (UNS R56400) conforming to MIL-T-9047, 6Al-4V, condition A or AMS 4967

## 2 PROTECTIVE COATING OR TREATMENT

### MATERIAL CODE LETTER

A - Cadmium plated in accordance with QQ-P-416, Type II, class 3  
B - Cadmium plated in accordance with AMS 2401  
C & D - Cleaned, descaled and passivated in accordance with ASTM A380  
E - None

## 3 SURFACE ROUGHNESS

Unless otherwise specified, machined surfaces shall be 125 microinches in accordance with ANSI B46.1 except for serrated collar

## 4 THREADS

The stud end thread has a special pitch diameter and minor diameter which install's into a MIL-S-8879, Class 3B tapped hole. Threads shall be in accordance with procurement specification. Material code letters and corresponding hardness, tensile strengths and pertinent length dash numbers follow.

## 5 MECHANICAL PROPERTIES

Material Code Letters	Hardness Min	Min Tensile Strength KSI	Dash Numbers
A	35HRC	160	-642 thru -648 & -802 thru -808
B	39HRC	180	-502 thru -508
C	277HB	140	-502 thru -508, -642 thru -648 & -802 thru -808
D	39HRC	180	-502 thru -508
E	35HRC	160	-502 thru -508, -642 thru -648 & -802 thru -808

## 6 CONCENTRICITY

Shank of nut end shall be concentric with serrated collar within .006 FIM

## 7 FILLETS

Filletts shall be .030 radius maximum

## 8 EDGES

Edges broken .003-.015 unless otherwise specified

## 9 TOLERANCES

Linear dimensions ± .005, angular dimensions ± 2°

## 10 PART NUMBER

The MS part number consists of the MS number, plus the material code letter, plus the dash number, plus the second dash number for length (table IV). Add "D" in lieu of the "dash" for drilled hole in nut end. Add "R" as suffix for recess in stud end. EXAMPLE

- MS51497 A 803-24 Stud, Alloy Steel, 1 5 inch nut end length
- MS51497 B 503-24 Stud, Alloy Steel, 1 5 inch nut end length
- MS51497 C 643-24 Stud, Cres, 1 5 inch nut end length
- MS51497 D 503-24 Stud, Nickel Base Alloy, 1 5 inch nut end length
- MS51497 E 803-24 Stud, Titanium Alloy, 1 5 inch nut end length
- \* MS51497 A 803D24 Stud, Alloy Steel, drilled hole, 1 5 inch nut end length
- \* MS51497 A 803D24R Stud, Alloy Steel, drilled hole, recess in stud end, 1 5 inch nut end length
- \* The same condition(s) can exist for all of the above materials

# NOTES

- 1 DIMENSIONS Dimensions in inches, to be met after plating
- 2 In the event of a conflict between the text of this standard and the references cited herein, the text of this standard shall take precedence
- 3 Referenced Government (or non-government) documents of the issue listed in that issue of the Department of Defense Index of Specifications and Standards (DoDISS) specified in the solicitation form a part of this standard to the extent specified herein

P A	AR	INTERNATIONAL INTEREST	TITLE	MILITARY STANDARD
Other Cust	AS		STUD, LOCKED IN-RING LOCKED, SERRATED, HIGH STRENGTH, OVERSIZE REPLACER	MS51497
PROCUREMENT SPECIFICATION	SUPERSEDES:			PAGE 2 OF 3
MIL-S-45909				

FED SUP CLASS  
5307TABLE IV  
TABULATED LENGTHS (NUT END)

DASH NO	L ± 0.15 NUT END	GRIP LENGTH, REF (APPLICABLE TO TABLES I, II AND III)						
		UNJF SERIES 3A THREADS						
		1900	2500	3125	3750	4375	5000	6250
-8	500	*						
-9	562	093	*					
-10	625	156	*					
-11	688	219	*	*				
-12	750	281	156	*	*			
-13	812	343	219	124	*			
-14	875	406	281	187	125			
-15	938	469	344	250	188	*		
-16	1 000	531	406	312	250	188	*	
-17	1 062	593	468	374	312	250	187	
-18	1 125	656	531	437	375	313	250	*
-19	1 188	719	594	500	438	376	313	188
-20	1 250	781	656	562	500	438	375	250
-21	1 312	843	718	624	562	500	437	312
-22	1 375	906	781	687	625	563	500	375
-23	1 438	969	844	750	688	626	563	438
-24	1 500	1 031	906	812	750	688	625	500
-25	1 562	1 093	968	874	812	750	687	562
-26	1 625	1 156	1 031	937	875	813	750	625
-27	1 688	1 219	1 094	1 000	938	876	813	688
-28	1 750	1 281	1 156	1 062	1 000	938	875	750
-29	1 812	1 343	1 218	1 124	1 062	1 000	937	812
-30	1 875	1 406	1 281	1 187	1 125	1 063	1 000	875
-31	1 938	1 469	1 344	1 250	1 188	1 126	1 063	938
-32	2 000	1 531	1 406	1 312	1 250	1 188	1 125	1 000
-34	2 125	1 656	1 531	1 437	1 375	1 313	1 250	1 125
-36	2 250	1 781	1 656	1 562	1 500	1 438	1 375	1 250
-38	2 375	1 906	1 781	1 687	1 625	1 563	1 500	1 375
-40	2 500	2 031	1 906	1 812	1 750	1 688	1 625	1 500
-42	2 625	2 156	2 031	1 937	1 875	1 813	1 750	1 625
-44	2 750	2 281	2 156	2 062	2 000	1 938	1 875	1 750
-46	2 875	2 406	2 281	2 187	2 125	2 063	2 000	1 875
-48	3 000	2 531	2 406	2 312	2 250	2 188	2 125	2 000
-50	3 125	2 656	2 531	2 437	2 375	2 313	2 250	2 125
-52	3 250	2 781	2 656	2 562	2 500	2 438	2 375	2 250
-54	3 375	2 906	2 781	2 687	2 625	2 563	2 500	2 375
-56	3 500	3 031	2 906	2 812	2 750	2 688	2 625	2 500
-58	3 625	3 156	3 031	2 937	2 875	2 813	2 750	2 625
-60	3 750	3 281	3 156	3 062	3 000	2 938	2 875	2 750
-62	3 875	3 406	3 281	3 187	3 125	3 063	3 000	2 875
-64	4 000	3 531	3 406	3 312	3 250	3 188	3 125	3 000

\*HAS NO "D" SHANK AND "T" DIMENSION IS REDUCED "T" DIMENSION WILL TERMINATE WITHIN 3 PITCHES OF SERRATED COLLAR

NOTES CONTINUED

4 DASH NUMBER PARTS BELOW HEAVY LINE HAVE LENGTH OF SHANK EQUAL TO  $\frac{D(MAX)}{2}$

DASH NUMBER PARTS ABOVE HEAVY LINE HAVE LENGTH OF SHANK SHORTER THAN  $\frac{D(MAX)}{2}$

P A	AR	INTERNATIONAL INTEREST	TITLE	MILITARY STANDARD
Other Cust	AS		STUD, LOCKED IN-RING LOCKED, SERRATED, HIGH STRENGTH, OVERSIZE REPLACER	MS51497
	99			
PROCUREMENT SPECIFICATION M L-S-45909			SUPERSEDES:	PAGE 3 OF 3

DD FORM 672-1 COORDINATED

PREPARED BY THE FORM AND CDD OFF

5307-0339

User activities  
Army - M  
Navy - MC, OSReview activities  
Army - AT, AV, GL, ME  
Air Force - 11, 82  
NSA - NS  
DLA - IS

This military standard is approved in its use by all departments and agencies of the Department of Defense. It is to be used in all engineering and design applications and for repetitive use shall be used from this document when applicable.

REVISED  
APPROVED 11 MAR 85