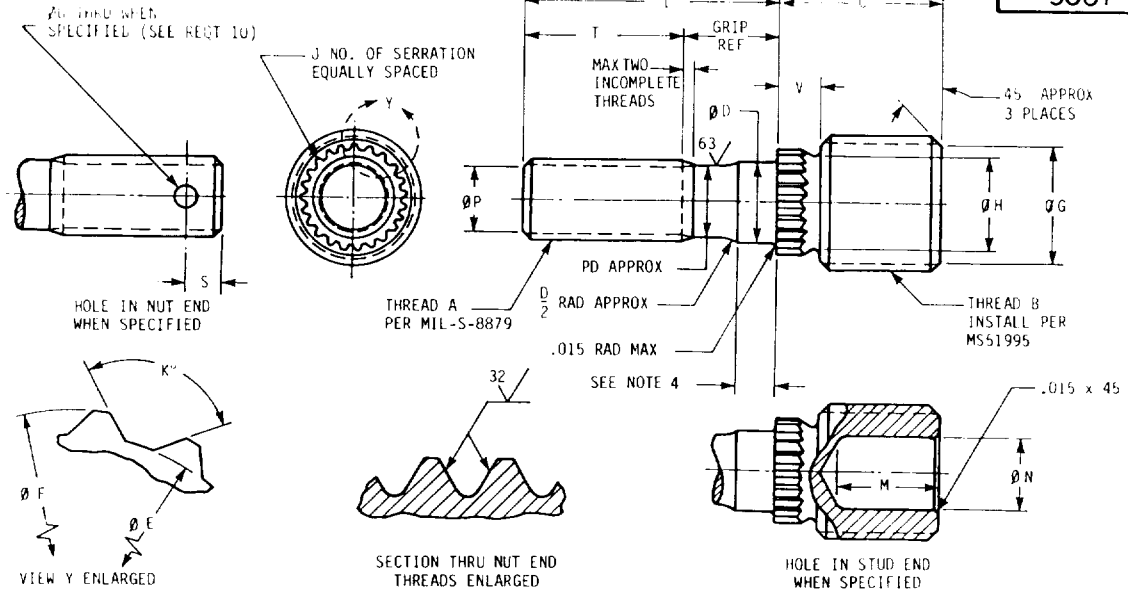


FED SUP CLASS
5307



User activities:
Army - MI
Navy - MC, OS

Review activities:
Army - AT, AV, GL, ME
Air Force - 11, 82
NSA - NS
DLA - 15

TABLE I - SHORT STUD END LENGTH

DASH NO.	A NUT END THREAD UNIT - SA	B STUD END THREAD			C	ØD	ØE	ØF	ØG	ØH	J	K	M	ØN	T	V	ØP	S	ØU	LOCKRING MS51997 BASIC DASH NO.
		SEE REQ 4	PITCH DIA	MINOR DIA																
-502	1.900-32	.3175-24	.2884 .2869	.2643 .2559	.386	.189 .186	.203	.230	.255	.175	13	102	.205	.174	.469	.128	.137	.120	.067	102P
-503	2.500-28	.3250-24	.3512 .3497	.3271 .3185	.456	.249 .246	.255	.284	.318	.233	17	86	.281	.202	.594	.142	.190	.160	.067	103P
-504	3.175-24	.4375-20	.4004 .4067	.3795 .3700	.627	.317 .309	.316	.345	.370	.294	20	102	.380	.205	.688	.176	.242	.160	.067	104P
-505	3.750-24	5.000-10	.4711 .4694	.4422 .4325	.762	.374 .371	.380	.407	.432	.357	24	102	.480	.222	.750	.230	.305	.170	.096	105P
-506	4.375-20	6.250-18	.5927 .5910	.5606 .5498	.808	.437 .433	.456	.487	.549	.433	26	102	.512	.324	.812	.200	.354	.170	.096	106P
-507	5.000-18	7.500-16	.7134 .7114	.6773 .6656	1.038	.499 .495	.567	.607	.665	.535	26	111	.563	.438	.875	.200	.416	.190	.096	107P
-508	6.250-18	8.750-14	.8328 .8308	.7916 .7786	1.153	.624 .620	.687	.721	.778	.645	30	111	.773	.470	1.000	.255	.532	.220	.128	108P

TABLE II - MEDIUM STUD END LENGTH

DASH NO.	A NUT END THREAD UNIT - SA	B STUD END THREAD			C	ØD	ØE	ØF	ØG	ØH	J	K	M	ØN	T	V	ØP	S	ØU	LOCKRING MS51995 BASIC DASH NO.
		SEE REQ 4	PITCH DIA	MINOR DIA																
-647	1.900-32	.3175-24	.2884 .2869	.2643 .2559	.433	.189 .186	.203	.230	.255	.175	13	102	.252	.174	.469	.128	.137	.120	.067	102P
-648	2.500-28	.3250-24	.3512 .3497	.3271 .3185	.558	.249 .246	.255	.284	.318	.233	17	86	.353	.202	.594	.142	.190	.160	.067	103P
-644	3.175-24	.4375-20	.4004 .4067	.3795 .3700	.725	.317 .309	.316	.345	.370	.294	20	102	.478	.205	.688	.176	.242	.160	.067	104P
-645	3.750-24	5.000-10	.4711 .4694	.4422 .4325	.891	.374 .371	.380	.407	.432	.357	24	102	.611	.222	.750	.230	.305	.170	.096	105P
-646	4.375-20	6.250-18	.5927 .5910	.5606 .5498	.942	.437 .433	.456	.487	.549	.433	26	102	.652	.324	.812	.200	.354	.170	.096	106P
-647	5.000-18	7.500-16	.7134 .7114	.6773 .6656	1.038	.499 .495	.567	.607	.665	.535	26	111	.718	.438	.875	.200	.416	.190	.096	107P
-648	6.250-18	8.750-14	.8328 .8308	.7916 .7786	1.364	.624 .620	.687	.721	.778	.645	30	111	.984	.470	1.000	.255	.532	.220	.128	108P

(B) ENTIRE STANDARD REVISED

P. A. Other Cust	02 AS 09	INTERNATIONAL INTEREST	TITLE STUD, LOCKED IN-RING LOCKED, SERRATED, HIGH STRENGTH	MILITARY STANDARD MS51992
PROCUREMENT SPECIFICATION MIL-S-85909	SUPERSEDES			PAGE 1 OF 3

DISTRIBUTION STATEMENT A. APPROVED FOR RELEASE BY NSA/CSS, INFORMATION SECURITY
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 Allocation for all new engineering and design applications and for repetitive use shall be made from this
 document, when applicable.

APPROVED 12 DEC 87
 REVISED (A) 7 APR 81 (B) 12 MAY 85

TABLE II - LOCKED IN-RING LENGTH

TABLE NO.	A NUT END THREAD OR RANGE	B OUTER END THREAD			C MINOR DIAMETER	D MINOR DIAMETER	E MINOR DIAMETER	F MINOR DIAMETER	G MINOR DIAMETER	H MINOR DIAMETER	I MINOR DIAMETER	J MINOR DIAMETER	K MINOR DIAMETER	L MINOR DIAMETER	M MINOR DIAMETER	N MINOR DIAMETER	O MINOR DIAMETER	P MINOR DIAMETER	Q MINOR DIAMETER	R MINOR DIAMETER	LOCKING MS 1992 PART DASHNO.
		SIZE RANGE	MINOR DIAMETER	MINOR DIAMETER																	
-642	1.000-32	1.015-11	1.000 1.015	1.000 1.015	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	642
-643	1.000-28	1.015-11	1.000 1.015	1.000 1.015	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	643
-644	1.015-24	1.030-14	1.015 1.030	1.015 1.030	1.015	1.015	1.015	1.015	1.015	1.015	1.015	1.015	1.015	1.015	1.015	1.015	1.015	1.015	1.015	1.015	644
-645	1.030-20	1.045-13	1.030 1.045	1.030 1.045	1.030	1.030	1.030	1.030	1.030	1.030	1.030	1.030	1.030	1.030	1.030	1.030	1.030	1.030	1.030	1.030	645
-646	1.045-18	1.060-11	1.045 1.060	1.045 1.060	1.045	1.045	1.045	1.045	1.045	1.045	1.045	1.045	1.045	1.045	1.045	1.045	1.045	1.045	1.045	1.045	646
-647	1.060-16	1.075-10	1.060 1.075	1.060 1.075	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	647
-648	1.075-14	1.090-9	1.075 1.090	1.075 1.090	1.075	1.075	1.075	1.075	1.075	1.075	1.075	1.075	1.075	1.075	1.075	1.075	1.075	1.075	1.075	1.075	648

REQUIREMENTS:

- MATERIAL:**
CODE LETTER
 A - Steel, alloy, Grade 8740 (UNS G87400) conforming to MIL-S-8049 or AMS 6321.
 B - Steel, alloy, Grade 8740 (UNS G87400) conforming to MIL-S-8049 or AMS 6322.
 C - Steel, corrosion and heat resistant, Type A386 (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, Ti-6Al-4V (UNS R56400) conforming to MIL-T-9047, Ti-6Al-4V, condition A or AMS 4967.
- 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.
- SURFACE ROUGHNESS:**
 Unless otherwise specified, machined surfaces shall be 125 microinches in accordance with ANSI B46.1 except for serrated collar.
- THREADS:**
 The stud end thread has a special pitch diameter and minor diameter which installs into a MIL-S-8879, Class 3B tapped hole. Threads shall be in accordance with procurement specification.
- MECHANICAL PROPERTIES:**
 Material code letters and corresponding hardness, tensile strength, and pertinent length dash numbers, follow:

Material Code Letters	Hardness Min	Tensile Strength Min	Dash Numbers
A	35HRC	180	-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

- CONCENTRICITY:**
Shank of nut end shall be concentric with serrated collar within .006 FIM.
- FILLETS:**
Fillet shall be .030 radius maximum.
- EDGES:**
Edges broken .003-.015 unless otherwise specified.
- TOLERANCES:**
Linear dimensions, .005; angular dimensions, 2'.
- 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:**
 MS51992 A 803-24 Stud, Alloy Steel, 1.5 inch nut end length.
 MS51992 B 503-24 Stud, Alloy Steel, 1.5 inch nut end length.
 MS51992 C 644-24 Stud, Cross, 1.5 inch nut end length.
 MS51992 D 503-24 Stud, Nickel Base Alloy, 1.5 inch nut end length.
 MS51992 E 803-24 Stud, Titanium Alloy, 1.5 inch nut end length.
 * MS51992 A 803D24 Stud, Alloy Steel, drilled hole, 1.5 inch nut end length.
 * MS51992 A 803R24R 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:
- DIMENSIONS:** Dimensions in inches, to be met after plating.
 - 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.
 - Discrepancies between 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	MS51992
	99			
PROCUREMENT SPECIFICATION MIL-S-8049			SUPERSEDES:	PAGE 2 OF 3

User activities:
 Army - AF
 Navy - MC, OS
 Review activities:
 Army - AT, AV, GL, ME
 Air Force - 11, B2
 NSA - NS
 DLA - IS
 This military standard is approved for use by all Departments and Agencies of the Department of Defense. Selection for all new engineering and design applications and for repetitive use shall be made from this document, when applicable.

APPROVED 12 DEC 67
 REVISED (B) FOR CHANGES, SEE PAGES 1, 2 AND 3

TABLE IV
TABULATED LENGTHS (NUT END)

DASH NO.	L ±.015 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	.218	.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 D EQUAL TO $\frac{D(MAX)}{2}$
 DASH NUMBER PARTS ABOVE HEAVY LINE HAVE LENGTH OF SHANK D SHORTER THAN $\frac{D(MAX)}{2}$

User activities:
Army - MI
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Review activities:
Army - AT, AV, GL, ME
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REVISED (B) FOR CHANGES. SEE PAGES 1, 2 AND 3
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P. A.	AR	INTERNATIONAL INTEREST	TITLE	MILITARY STANDARD
Other Cust	AS		STUD, LOCKED IN-RING LOCKED, SERRATED, HIGH STRENGTH	MS51992
	99			
PROCUREMENT SPECIFICATION MIL-S-45909		SUPERSEDES:		PAGE 3 OF 3