

INCH-POUND

MIL-DTL-25027H
AMENDMENT 1
22 DECEMBER 1998

DETAIL SPECIFICATION

NUT, SELF-LOCKING, 250° F, 450° F, AND 850° F

This amendment forms a part of Military Specification MIL-DTL-25027H, dated 15 August 1997, and is approved for use by all Departments and Agencies of the Department of Defense.

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3.2 Delete and substitute: "3.2 Qualification. The nut manufacturer shall be responsible for conducting qualification tests and furnishing part drawings, certified qualification test reports (if required by the purchaser) and test samples. The nuts furnished under this specification shall be produced using the same manufacturing methods as used to produce nuts that have passed qualification tests. The purchaser may apply any or all tests specified herein to any product represented as meeting this specification, at any time, to verify conformance."

3.2.1 Delete and substitute: "Retention of qualification: To maintain product qualification status, manufacturers shall maintain on file, a certified qualification test report (See 4.3.2) available for inspection by the procuring activity. The retention of a certified qualification test report by the manufacturer signifies that the manufacturer has demonstrated compliance to the qualification requirements of this specification. Products previously qualified through government-certified qualification tests and reports shall be considered qualified to this specification."

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3.7 Lubrication. Delete "The Qualified Products List (QPL-25027) shall identify the lubricant and shall classify it as either solid (dry) film or soluble film."
Substitute: "The qualification test report shall identify the lubricant and shall classify it as either solid (dry) film or soluble film."

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3.8.2.2.3 Delete and substitute: "Permanent set. The nuts shall meet the minimum breakaway torque requirements on minimum material condition bolts or studs, subsequent to installation on maximum material condition bolts or studs, when tested in accordance with 4.5.3.3.4. The nuts shall not exceed the maximum locking torque nor be below the minimum breakaway torque values specified in Table III when subjected to this test."

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4.3.1 Delete and substitute: "Sample. Test samples shall be of the same material and manufactured by the same method as production parts. The number of nuts to be subjected to qualification tests shall be as specified in table XIII. Complete identification (e.g. trade name) of the lubricant used on the nuts shall be included in the qualification test report."

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4.3.2 Delete and substitute: "4.3.2 Certified test report. The manufacturer shall maintain on file a certified test report showing that the manufacturer's product satisfactorily conforms to this specification. The test report shall include actual results of the tests specified herein. The manufacturer shall also maintain a dated drawing that completely describes the manufacturer's product. The drawing shall specify all dimensions. The test report shall include composition of material selected, coating or plating applied, forming process (machined, stamped, forged or drawn), and the Rockwell hardness and heat treatment. The drawing shall also specify the manufacturer's part number for each size."

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4.3.3 Delete and substitute: Retention of qualification. Regualification will be required in the event any change is made in the product design, construction, materials, method of manufacture, heat treatment, finish, lubricant or manufacturer's part-number or designation.

4.4 Delete and substitute: "4.4 Quality conformance inspections. Quality conformance inspections shall consist of the tests specified in tableXIV. The purchaser may apply any or all tests specified herein to any product represented as meeting this specification, at any time, to verify conformance."

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4.5.3.3.1 Delete and substitute: "Bolts, screws or studs for maximum locking torque, minimum breakaway torque, and permanent set tests. For the maximum locking torque, minimum breakaway torque, and permanent set tests, screws, bolts or studs with Class 3A fit threads conforming to MIL-S-7742 or MIL-S-8879, with the major thread diameters per NAS 9600 and NAS 9700 series, as defined in Table XV, shall be used on nuts with mating threads conforming to MIL-S-7742 or MIL-S-8879, as applicable. The pitch diameter after plating shall be class 3A. The nut shall be capable of being assembled with the fingers on the screws, bolts or studs up to the locking element. Cadmium-plated, noncorrosion-resistant steel screws, bolts or studs shall be used for testing noncorrosion-resistant steel nuts, copper-based alloy nuts, and aluminum alloy nuts. Corrosion resistant steel screws, bolts or studs shall be used for testing corrosion resistant steel and nickel-copper alloy nuts. (See Table XV for test bolts)."

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4.5.3.3.4 Delete and substitute: "Permanent set. Permanent set shall be evaluated by subjecting three of the nuts, at room ambient temperature, to installation on a maximum material condition bolt or stud, followed by removal from a minimum material condition bolt or stud as described herein and in 4.5.3.3.4.1 and 4.5.3.3.4.2. For all-metal aluminum nuts that specify one-cycle use, three nuts shall be tested on the maximum material condition bolt or stud, and three other nuts, representative of the same production lot, shall be tested on the minimum material condition bolt or stud.

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Page 12 (cont'd)

4.5.3.3.4.1 Delete and substitute: "Maximum material condition bolts and studs. Three nuts from the same lot shall be assembled on maximum material condition bolts or studs (as defined below) so that at least three threads protrude through the top of the nut. The maximum prevailing locking torque shall be measured and recorded during the third complete turn of the nut and after the top of the nut is flush with the end of the bolt or stud. The nut shall then be removed completely from the bolt or stud. The locking torque shall not exceed the maximum values specified in Table III. Thread pitch diameter size for the maximum material condition test bolts or studs shall be as specified in Table X, and shall be inspected with a single element pitch diameter gage. Test bolt or stud threads shall also meet functional ring gage requirements of MIL-S-8879."

ADD: "4.5.3.3.4.2 Minimum material condition bolts and studs. The same three nuts shall then be assembled on minimum material condition bolts or studs (as defined below) so that at least three threads protrude through the top of the nut. Breakaway torque required to start the nut in the removal direction shall be measured and recorded. The breakaway torque shall not be less than the minimum values specified in Table III. Thread pitch diameter size for the minimum material condition test bolts or studs shall be as specified in Table X, and shall be inspected with a single element pitch diameter gage. Test bolt or stud threads shall also meet functional ring gage requirements of MIL-S-8879."

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6.2.2 Delete and substitute: "Acquisition of Nuts Not Previously Qualified. Nuts which have not been previously qualified via Government-certified qualification tests and reports may be acquired, provided that certified qualification test reports for these nuts are retained on file by the manufacturer along with the quality conformance inspection data and they are made available to the buyer upon request."

6.3 Delete and substitute: "6.3 References to this Specification. Any use or reference to this specification is the responsibility of the design activity or procuring agency. When referencing this specification, or any portion herein, the design activity or procuring agency must indicate specific sections applicable and assume responsibility for performance of the product."

6.4 Delete and substitute: "6.4 Qualification. This paragraph intentionally blank."

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TABLE X. Delete and substitute:

TABLE X. Pitch Diameter dimensions for permanent set test

Thread Size	Pitch Dia Total Tol.	Min Material Condition			Max Material Condition	
		MIN PD	MAX PD		MIN PD	MAX PD
1	2	3	4		5	6
.086-56	0.0016	0.0728	0.0732		0.0736	0.0744
.112-40	0.0019	0.0939	0.0943		0.0949	0.0958
.138-32	0.0021	0.1156	0.1161		0.1167	0.1177
.164-32	0.0022	0.1415	0.1421		0.1427	0.1437
.190-24 *	0.0025	0.1604	0.1610		0.1619	0.1629
.190-32	0.0023	0.1674	0.1680		0.1687	0.1697
.250-20 *	0.0028	0.2147	0.2154		0.2164	0.2175
.250-28	0.0025	0.2243	0.2249		0.2257	0.2268
.312-18 *	0.0030	0.2734	0.2742		0.2752	0.2764
.312-24	0.0027	0.2827	0.2834		0.2843	0.2854
.375-16 *	0.0033	0.3311	0.3319		0.3331	0.3344
.375-24	0.0029	0.3450	0.3457		0.3467	0.3479
.437-14 *	0.0035	0.3876	0.3885		0.3897	0.3911
.437-20	0.0031	0.4019	0.4027		0.4038	0.4050
.500-13 *	0.0037	0.4463	0.4472		0.4485	0.4500
.500-20	0.0032	0.4643	0.4651		0.4662	0.4675
.562-12 *	0.0039	0.5045	0.5055		0.5068	0.5084
.562-18	0.0034	0.5230	0.5238		0.5250	0.5264
.625-11 *	0.0041	0.5619	0.5629		0.5644	0.5660
.625-18	0.0035	0.5854	0.5863		0.5875	0.5889
.750-10 *	0.0044	0.6806	0.6817		0.6832	0.6850
.750-16	0.0038	0.7056	0.7065		0.7079	0.7094
.875-9 *	0.0047	0.7981	0.7993		0.8009	0.8028
.875-14	0.0041	0.8245	0.8255		0.8270	0.8286
1.000-8 *	0.0051	0.9137	0.9150		0.9168	0.9188
1.000-12	0.0044	0.9415	0.9426		0.9441	0.9459
1.125-7 *	0.0054	1.0268	1.0282		1.0300	1.0322
1.125-12	0.0045	1.0664	1.0675		1.0691	1.0709
1.250-7 *	0.0055	1.1517	1.1531		1.1550	1.1572
1.250-12	0.0046	1.1913	1.1925		1.1940	1.1959
1.375-6 *	0.0060	1.2607	1.2622		1.2643	1.2667
1.375-12	0.0047	1.3162	1.3174		1.3190	1.3209
1.500-6 *	0.0061	1.3856	1.3871		1.3893	1.3917
1.500-12	0.0048	1.4411	1.4423		1.4440	1.4459
1.750-5 *	0.0067	1.6134	1.6151		1.6174	1.6201
2.000-4.5 *	0.0071	1.8486	1.8504		1.8529	1.8557
2.250-4.5 *	0.0073	2.0984	2.1002		2.1028	2.1057
2.500-4 *	0.0078	2.3298	2.3318		2.3345	2.3376

NOTES: Asterisk (*) indicates coarse threads, Inactive for design for military aircraft.
 Column 3 is the minimum pitch diameter per MIL-S-8879.
 Column 4 is the minimum PD plus one-quarter (0.25) of the total PD tolerance.
 Column 5 is the maximum pitch diameter (Col 6) minus 0.4 of the total PD tolerance.
 Column 6 is the maximum pitch diameter per MIL-S-8879.

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Figure 4. Delete in entirety.

Custodians:

Army - AR

Navy - AS

Air Force - 99

Preparing Activity:

DLA-IS

(Project 5310-2382)

Review Activities:

Army - MI, AV

Navy - SH, OS

Air Force - 82