INCH-POUND

MIL-DTL-32258

28 June 2007

SUPERSEDING

MIL-N-25027/1A

28 April 1995

DETAIL SPECIFICATION

NUT, SELF-LOCKING (RING TYPE NON-METALLIC INSERT), HEAVY HEX, CONTROLLED ROOT RADIUS, NICKEL-COPPER ALLOY

This specification is approved for use by all Departments and Agencies of the Department of Defense.

1. SCOPE

1.1 Scope. This specification covers ring-type, self-locking, heavy hex, nickel-copper alloy nuts, with screw threads with a controlled root radius for use in general shipboard applications. Coarse pitch series and eight pitch series of threads are covered by this specification. Nuts with a nominal diameter between ¼ and 2½ inches are covered in this specification.

1.2 Classification.

1.2.1 Thread series. Self-locking nuts have the following thread series:

a. C - Coarse unified threads (UNJC) with a controlled root radius.

b. 8 - Eight threads per inch unified threads (8-UNJ) with a controlled root radius.

1.2.2 Temperature rating. Self-locking nuts are of the following temperature ratings:

a. A – 250 °F

b. V – 450 °F

1.3 Part or identifying number (PIN). When specified (see 6.2), PINs to be used for ring-type, self-locking, heavy hex, nickel-copper alloy nuts acquired to this specification are created as follows: (see 1.3.1 through 1.3.4 for PIN Code designations)

M Prefix	Specification number	Hyphen	Lubrication	Temperature rating	Thread series	Nominal diameter
M	32258	-	U	V	C	04

The example above (M32258-UVC04) is for a 0.250-inch, 450 °F, coarse graded pitch series, unlubricated nut.

Comments, suggestions, or questions on this document should be addressed to: Commander, Naval Sea Systems Command, ATTN: SEA 05Q, 1333 Isaac Hull Avenue, SE, Stop 5160, Washington Navy Yard DC 20376-5160 or emailed to CommandStandards@navy.mil, with the subject line “Document Comment”. Since contact information can change, you may want to verify the currency of this address information using the ASSIST Online database at http://assist.daps.dla.mil.

1.3.1 Lubrication. Nut lubrications are as follows:

Lubrication	PIN Code
Lubricated	L
Unlubricated	U

1.3.2 Temperature rating. Nut temperature ratings are as follows:

Temperature rating	PIN Code
250 °F	A
450 °F	V

1.3.3 Thread series. Nut thread series are as follows:

Thread series	PIN Code
8 constant pitch series (UNCJ)	8
Coarse graded pitch series (8-UNJ)	C

1.3.4 Nominal diameter. Nut nominal diameters are as follows:

Nominal diameter (inches)	PIN Code	Nominal diameter (inches)	PIN Code
0.250	04	1.125	18
0.312	05	1.250	20
0.375	06	1.375	22
0.500	08	1.500	24
0.625	10	1.750	28
0.750	12	2.000	32
0.875	14	2.250	36
1.000	16	2.500	40

2. APPLICABLE DOCUMENTS

2.1 General. The documents listed in this section are specified in sections 3, 4, or 5 of this specification. This section does not include documents cited in other sections of this specification or recommended for additional information or as examples. While every effort has been made to ensure the completeness of this list, document users are cautioned that they must meet all specified requirements of documents cited in sections 3, 4, or 5 of this specification, whether or not they are listed.

2.2 Government documents.

2.2.1 Specifications, standards, and handbooks. The following specifications, standards, and handbooks form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those cited in the solicitation or contract.

DEPARTMENT OF DEFENSE STANDARDS

MIL-STD-792	-	Identification Marking Requirements for Special Purpose Components
MIL-STD-1916	-	DoD Preferred Methods for Acceptance of Product

(Copies of these documents are available online at http://assist.daps.dla.mil/quicksearch/ or http://assist.daps.dla.mil or from the Standardization Document Order Desk, 700 Robbins Avenue, Building 4D, Philadelphia, PA 19111-5094.)

2.3 Non-Government publications. The following documents form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those cited in the solicitation or contract.

ASME INTERNATIONAL

ASME B1.2	-	Gages and Gaging for Unified Inch Screw Threads (DoD adopted)
ASME B1.3M	-	Screw Thread Gaging Systems for Dimensional Acceptability - Inch and Metric Screw Threads (UN, UNR, UNJ, M and MJ) (DoD adopted)
ASME B1.15	-	Unified Inch Screw Threads, (UNJ Thread Form)
ASME B46.1	-	Surface Texture, Surface Roughness, Waviness and Lay (DoD adopted)

(Copies of these documents are available online at www.asme.org or from ASME International, 22 Law Drive, PO Box 2900, Fairfield, NJ 07007-2900.)

ASTM INTERNATIONAL

ASTM B880	-	Standard Specification for General Requirements for Chemical Check Analysis Limits for Nickel, Nickel Alloys, and Cobalt Alloys
ASTM D4066	-	Standard Classification System for Nylon Injection and Extrusion Materials (PA) (DoD adopted)
ASTM D6456	-	Standard Specification for Finished Parts Made from Polyimide Resin
ASTM E1473	-	Standard Test Methods for Chemical Analysis of Nickel, Cobalt, and High-Temperature Alloys
ASTM F812	-	Standard Specification for Surface Discontinuities of Nuts, Inch and Metric Series

(Copies of these documents are available online at www.astm.org or from ASTM International, 100 Barr Harbor Dr., PO Box C700, West Conshohocken, PA 19428-2959.)

NATIONAL AEROSPACE STANDARDS

NASM 1312-8	-	Fastener Test Methods - Method 8 Tensile Strength (DoD adopted)

(Copies of this document are available from http://www.aia-aerospace.org or from the Aerospace Industries Association of America, 1250 Eye Street, N.W., Suite 1200, Washington, DC, United States, 20005-3924.)

SAE INTERNATIONAL

SAE AS5272	-	Lubricant, Solid Film, Heat Cured, Corrosion Inhibiting Procurement Specification
SAE AS8879	-	Screw Threads - UNJ Profile, Inch Controlled Radius Root with Increased Minor Diameter (DoD adopted)

(Copies of these documents are available online at www.sae.org or from SAE World Headquarters, 400 Commonwealth Drive, Warrendale, PA 15096-0001.)

2.4 Order of precedence. In the event of a conflict between the text of this document and the references cited herein, the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

3. REQUIREMENTS

3.1 Design. The self-locking nut or nut element shall be a self-contained unit with an unreinforced polyamide or an unfilled polyimide locking ring. The threads shall conform to the UNJ thread profile. The locking device shall not operate by separate movement from the installation and shall not depend on pressure on the bearing surface for locking action.

3.2 Manufacturing process. Nuts may be produced by any manufacturing process using any bar, rod, or wire, that is capable of meeting the requirements of this specification. The bar, rod, or wire used to make a lot of nuts shall consist of material from one heat, form, size, that has been heat treated in the same furnace charge. Threads used for the locking feature may be displaced or deformed in any manner which produces self-locking nuts conforming to this specification.

3.3 Recycled, recovered, or environmentally preferable materials. Recycled, recovered, or environmentally preferable materials should be used to the maximum extent possible, provided that the material meets or exceeds the operational and maintenance requirements, and promotes economically advantageous life cycle costs.

3.4 Materials.

3.4.1 Nut. The nut material shall conform to the chemical requirements of Table I. Nuts machined from barstock may be made from free machining bar, rod, or wire (see Table I).

3.4.2 Ring material. The locking ring on nuts with temperature rating A shall be in accordance with ASTM D6456, Type 1 or ASTM D4066 Group 1, Class 1 or 2, Grade 1, 2, 3, 4, 5, or 6. The nut locking ring on nuts with temperature rating B shall be in accordance with ASTM D6456, Type 1.

TABLE I. Chemical composition.

Chemical	Percent	Chemical	Percent
Nickel + Cobalt	63 – 70	Sulfur	0.015[1/]
Iron	2.50 (max)	Copper	Remainder
Aluminum	0.5 (max)	Lead	0.006 (max)
Manganese	2.0 (max)	Tin	0.006 (max)
Cobalt	0.25 (max)	Zinc	0.02 (max)
Carbon	0.2[1/] (max)	Phosphorus	0.02 (max)
Silicon	0.5 (max)		

NOTE:
[1/] Free machining rod, bar, and wire shall have and a sulfur content of 0.025 to 0.060 percent and a maximum carbon content of 0.3 percent.

3.5 Dimensions before the incorporation of the locking feature.

3.5.1 Nut dimensions. The width across flats and the width across corners shall be in accordance with the dimensional requirements of Table II.

3.5.2 Bearing surface. The bearing surface shall be normal to the axis of the pitch diameter of the threads within the values shown in Table II (see 4.3.1.1.2).

3.5.3 Bearing surface roughness. The bearing surface roughness average shall be no greater than 125 microinches (see 4.3.1.1.3).

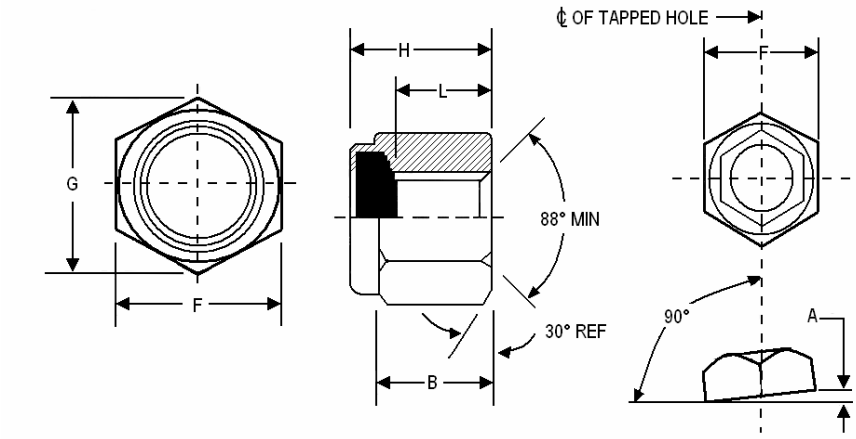
3.5.4 Threads. The threads shall meet the thread profile, dimensions, and tolerances of ASME B1.15, with Class 3B threads, or SAE AS8879, Category 1. The thread profile, dimensions, and tolerances in SAE AS8879 are identical to and interchangeable with the thread profile, dimensions, and tolerances for ASME B1.15, with Class 3B threads.

3.6 Dimensions after the incorporation of the locking feature.

3.6.1 Nut dimensions. The threaded length, overall nut height, and the wrenching flat height shall be in accordance with the dimensional requirements of Table II.

3.6.2 Threads. The nut, after incorporation of the locking feature and prior to lubrication, shall allow the GO gage to enter not less than half a turn.

TABLE II. Dimensional requirements of nuts.



Nominal diameter		(L) Threaded length[1/]	(H) Overall nut height		(F) Width across flats[2/]		(G) Width across corners[3/]	(B) Wrenching flat height[4/]	(A) Bearing surface squareness
Inches	Threads per inch	Inches	Inches		Inches		Inches	Inches	Inches
		min	max	min	max	min	min	min	max
0.250	20	0.230	0.390	0.360	0.504	0.492	0.552	0.290	0.005
0.312	18	0.260	0.453	0.423	0.566	0.553	0.622	0.335	0.006
0.375	16	0.354	0.562	0.532	0.692	0.679	0.766	0.392	0.006
0.500	13	0.482	0.718	0.688	0.880	0.865	0.978	0.544	0.007
0.625	11	0.593	0.874	0.844	1.068	1.052	1.191	0.677	0.008
0.750	10	0.761	1.015	0.985	1.257	1.239	1.403	0.790	0.009
0.875	9	0.872	1.140	1.110	1.446	1.427	1.615	0.883	0.010
1.000	8	0.920	1.312	1.250	1.634	1.614	1.826	1.000	0.012
1.125	7	1.038	1.469	1.407	1.822	1.801	2.038	1.096	0.013
1.250	7	1.190	1.672	1.610	2.011	1.973	2.232	1.250	0.014
1.375	6	1.328	1.828	1.766	2.200	2.159	2.444	1.376	0.015
1.500	6	1.376	1.953	1.891	2.388	2.344	2.622	1.413	0.016
1.750	5	1.707	2.376	2.250	2.766	2.715	3.075	1.630	0.018
2.000	4½	1.816	2.469	2.343	3.142	3.086	3.497	1.750	0.020
2.250	4½	2.073	2.876	2.780	3.518	3.457	3.918	2.063	0.020
2.500	4	2.381	3.204	3.078	4.020	3.875	4.393	2.475	0.020

NOTES:

1/ The tapped hole shall be countersunk on the bearing surface. The maximum countersink diameter shall be equal to the nominal diameter plus 0.030 for 0.375 nominal diameter nuts and smaller, and 1.08 times the nominal diameter for nuts larger than a 0.375 nominal diameter. No part of the threaded portion shall project beyond the bearing surface. The measurement of the dimension (L) shall include effective length of the thread engagement, and one countersunk height at the bearing surface. The dimension (L) shall not include the self-locking insert height.

TABLE II. Dimensional requirements of nuts. Continued.

NOTES:

2/ The minimum width across flats applies only to transverse sections through the nut between 25 percent and 75 percent of the height of the wrenching flat, measured from the bearing surface.

3/ A rounding or lack of fill at the junction of the hex corners with the bearing surface chamfer shall be permissible provided the width across the corners is within specified limits at and beyond a distance equal to 17.5 percent of the nominal diameter from the bearing surface.

4/ The diameter of the bearing surface chamfer circle shall be within the limits of the maximum width across the flats and 95 percent of the minimum width across the flats.

3.7 Axial tensile strength. The nuts shall have a minimum axial tensile strength as specified in Table III.

3.8 Locking torque. The torque required for installation and/or removal shall not be greater than the maximum locking torque values specified in Table III (see 4.4.3). The torque required to start the unseated nut in the removal direction shall not be less than the minimum breakaway torque values specified in Table III (see 4.4.3).

TABLE III. Mechanical property test requirements.

Nominal diameter	Minimum axial strength	Maximum locking torque	Minimum breakaway torque
Inches	Pounds	Foot–Pounds	Foot–Pounds
0.250	6,000	30	4.5
0.312	8,600	60	7.5
0.375	12,700	80	12.0
0.500	24,800	150	24.0
0.625	38,300	300	40.0
0.750	54,000	400	60.0
0.875	73,000	600	82.0
1.000	95,800	800	110.0
1.125	121,100	900	137.0
1.250	146,600	1,000	165.0
1.375	186,000	1,200	200.0
1.500	200,000	1,400	230.0
1.750	205,000	1,800	300.0
2.000	233,000	2,200	360.0
2.250	390,000	2,600	430.0
2.500	500,000	3,000	500.0

3.9 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 4.4.3.2. 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.

3.10 Discontinuities. Discontinuities shall not be greater than permitted in 4.4.5. Cracks, clean crystalline breaks passing through the grain or grain boundary without the inclusion of foreign elements, are not permitted.

3.11 Manufacturer's identification. Nuts shall be marked on the wrenching surface with the manufacturer's identification symbol, material symbol, and the lot number. Nuts with a temperature rating of 250 °F shall be marked with material symbol "NICU". Nuts with a temperature rating of 450 °F shall be marked with material symbol "NICUV". Markings shall be permanent in accordance with MIL-STD-792.

3.12 Coating. When specified (see 6.2), nuts shall be coated with graphite-free solid (dry) film lubricant in accordance with SAE AS5272, Type I. Nickel and copper plate as a pretreatment for the application of solid (dry) film are optional.

3.13 Workmanship. Fasteners shall be uniform in quality and condition, and shall be free from rust, scale, seams, bursts, voids, nicks, gouges, and burrs, to the extent required by the applicable inspection standards. Tool marks resulting from producing the self-locking feature shall blend smoothly without abrupt change. Sharp edges shall be broken and loose or hanging burrs and slivers which might become dislodged under usage shall be removed.

4. VERIFICATION

4.1 Conformance inspection. Conformance inspection shall include the examination of 4.5 and the tests of 4.6.

4.2 Sampling.

4.2.1 Lot definition.

4.2.1.1 Chemical analysis. A lot shall consist of material from one heat.

4.2.1.2 Testing and inspection lots. A lot shall consist of nuts which are of the same design and diameter, manufactured from one heat of nut material, and one lot of ring material, using the same process, and produced as one continuous run or part thereof.

4.2.2 Sampling for conformance inspection. Sampling shall be as shown in Table IV. Nuts selected for examination or testing shall be randomly selected from the lot as defined in 4.2.1 in the quantities identified in Table IV.

4.2.2.1 Classification of defects. The following are classifications of defects:

Critical defects:

1 Self-locking feature missing

Major defects:

101 Minor diameter

102 Functional diameter

103 Pitch diameter

104 Root radius

105 Surface finish of bearing surface

106 Bearing surface squareness

107 Overall nut height

Minor defects:

201 Width across flats

202 Width across corners

203 Thread length

204 Wrenching flat height

205 Rust

206 Burrs

4.2.2.2 Sampling plan for product characteristics. Sample sizes for inspection of product characteristics delineated in 4.2.2 shall be in accordance with MIL-STD-1916 as follows:

Critical: Attributes plan, Inspection Level VL-III

Major: Attributes plan, Inspection Level VL-II

Minor: Attributes plan, Inspection Level VL-I

4.2.3 Sampling plan for the axial strength test. The sampling for the axial strength test (see 4.4.2) shall be in accordance with variables plan, inspection level VL-II in accordance with MIL-STD-1916.

4.2.4 Sampling plan for the locking torque test. The sampling for the locking torque test (see 4.4.3) shall be in accordance with attributes plan, inspection level VL-II in accordance with MIL-STD-1916.

4.2.5 Sampling plan for the discontinuities test. The sampling for the discontinuities test (see 4.4.5) shall be in accordance with attributes plan, inspection level VL-II in accordance with MIL-STD-1916.

TABLE IV. Conformance inspection and tests.

Test	Requirement paragraph	Lot definition	Test method paragraph	Sample size
Examination of product	3.1	4.2.1.2	4.3.1	4.2.2
Chemical analysis	3.4.1	4.2.1.1	4.2.1.1	One test
Dimensional (without locking feature)	3.5	4.2.1.2	4.3.1.1	4.2.2.2
Dimensional (with locking feature)	3.6	4.2.1.2	4.3.1.2	4.2.2.2
Axial tensile strength	3.7	4.2.1.2	4.4.2	4.2.3
Locking torque	3.8	4.2.1.2	4.4.3	4.2.4
Permanent set	3.9	4.2.1.2	4.4.4	3
Discontinuities	3.10	4.2.1.2	4.4.5	4.2.5

4.3 Inspection methods.

4.3.1 Examination of product. The nuts shall be examined for conformance to this specification and applicable standards with respect to material, workmanship, dimensions, design and construction, and finish.

4.3.1.1 Dimensional inspection before incorporation of the locking feature. The minor diameter, functional diameter, pitch diameter, root radius, width across flats, and width across corners shall be dimensionally inspected after the nut is completed and before the locking feature is incorporated.

4.3.1.1.1 Screw threads. Examination of the minor diameter, functional diameter, pitch diameter, and root radius shall be determined based upon system 22, ASME B1.3M. Screw thread gages and gaging shall be in accordance with ASME B1.2. Either variable or fixed gaging may be used to examine screw thread dimensions.

4.3.1.1.2 Bearing surface. Prior to incorporation of the locking feature the nut shall be assembled on a Class 3A threaded member having a minimum thread length equal to the nut height. The bearing surface values shall be measured with a feeler gage after contact when the nut is turned finger tight on a table squareness gage having a seating surface diameter equal to “F” (see Table II).

4.3.1.1.3 Bearing surface roughness. The bearing surface roughness shall be measured in accordance with ASME B46.1.

4.3.1.2 Dimensional inspection after incorporation of the locking feature. The thread length, overall nut height, wrenching flat height, and the threads shall be dimensionally inspected after the nut is completed and the locking feature is incorporated.

4.3.1.2.1 Screw threads. The threads shall be dimensionally inspected with the appropriate GO working thread plug gage made in accordance with ASME B1.2. The nut, after incorporation of the locking feature and prior to lubrication, shall allow the gage to enter not less than half a turn.

4.4 Test methods.

4.4.1 Chemistry requirements. The sample selected in conformance with 4.2.1.1 shall be analyzed by the wet chemical, spectrochemical, and combustion–instrumental or combustion–infrared absorption methods, as applicable. In case of disagreement, the chemical composition shall be determined in accordance with ASTM E1473. If heat and lot identities have been maintained, a certified heat analysis, furnished by the material supplier of the lot of nuts, bar, rod, or wire used to make the final product shipped, may be used in lieu of a product analysis. When a nut, bar, rod, or wire is used to determine product analysis, the reported composition may vary by the amount permitted in ASTM B880.

4.4.2 Axial strength. The axial strength test shall be conducted in accordance with NASM 1312-8.

4.4.3 Locking torque.

4.4.3.1 Locking torque at ambient temperature. Assemble the nuts selected for the locking torque test on a test piece (fastener or mandrel) with matching Class 3A threads conforming to SAE AS8879 by finger tightening the nut up to the locking element. Use a calibrated torque-wrench to tighten the nut until one to two threads, excluding the end chamfer, protrude beyond the top of the locking feature and loosen the nut until the self-locking feature clears the test piece. Tighten and loosen the nut, on the same test piece, 15 times. Ensure that there is no axial load on the nut and that the temperature of the nut does not exceed 75 °F above ambient temperature. If the threads on the test piece do not remain in serviceable condition during the test, the test piece may be replaced one time. The maximum torque during installation and removal shall not exceed the applicable maximum locking torque value specified in 3.8. The minimum torque measured while removing the nut, while at least one thread extends beyond the locking device shall be greater than the applicable minimum breakaway torque value specified in 3.8.

4.4.3.2 Locking torque at specification temperature. Assemble the nuts selected for the locking torque test on a test piece (fastener or mandrel) with matching Class 3A threads conforming to SAE AS8879. If the temperature rating of the nut is 450 °F, bake the assemblies at 450 °F for six hours and allow them to cool to ambient temperature then install and remove the nut 14 more times. If the temperature rating of the nut is 250 °F, bake the assemblies at 250 °F for three hours and allow them to cool to ambient temperature. Assemble the nuts on new test piece and bake at the temperature rating for one hour. The maximum torque during installation and removal shall not exceed the applicable maximum locking torque value specified in 3.8. The minimum torque measured while removing the nut, while at least one thread extends beyond the locking device shall be greater than the applicable minimum breakaway torque value specified in 3.8.

4.4.4 Permanent set. Bake the nuts selected for permanent set testing, with a temperature rating of 450 °F, on an externally threaded fastener for six hours at 450 °F and allow them to cool to ambient temperature. Nuts selected for permanent set testing, with a temperature rating of 250 °F are not baked. Assemble the nuts selected for the permanent set test on a maximum material condition test piece (see 4.4.4.1) by tightening the nut up to the locking element. Use a calibrated torque wrench to tighten the nut until the nut is flush with the end of the bolt or stud. Remove the nut completely from the stud or nut. The same three nuts shall then be assembled on a minimum material condition test piece, (see 4.4.4.2) so that at least three threads protrude through the top of the nut and removed with a calibrated torque wrench. Ensure that there is no axial load on the nut and that the temperature of the nut does not exceed 75 °F above ambient temperature. The maximum prevailing torque while the nut is being tightened shall not exceed the applicable maximum locking torque value specified in 3.8. The torque required to start the nut removal shall be greater than the applicable minimum breakaway torque value specified in 3.8.

4.4.4.1 Maximum material condition test bolts. A maximum material condition test piece is a bolt or stud with matching Class 3A threads conforming to SAE AS8879 with a thread pitch diameter as modified in Table V. The thread pitch diameter of the test piece shall be inspected with a single element pitch diameter gage and the threads shall meet functional ring gage requirements of SAE AS8879.

4.4.4.2 Minimum material condition test bolts. A minimum material condition test piece is a bolt or stud with matching Class 3A threads conforming to SAE AS8879 with a thread pitch diameter as modified in Table V. The thread pitch diameter of the test piece shall be inspected with a single element pitch diameter gage and the threads shall meet functional ring gage requirements of SAE AS8879.

TABLE V. Pitch diameter dimensions for the permanent set test.

Nominal diameter of the nut	Minimum material condition		Maximum material condition	
	Minimum pitch diameter	Maximum pitch diameter	Minimum pitch diameter	Maximum pitch diameter
Inches	Inches	Inches	Inches	Inches
0.250	0.2147	0.2154	0.2164	0.2175
0.312	0.2734	0.2742	0.2752	0.2764
0.375	0.3311	0.3319	0.3331	0.3344
0.500	0.4463	0.4472	0.4485	0.4500
0.625	0.5619	0.5629	0.5644	0.5660
0.750	0.6806	0.6817	0.6832	0.6850
0.875	0.7981	0.7993	0.8009	0.8028
1.000	0.9137	0.9150	0.9168	0.9188
1.125	1.0268	1.0282	1.0300	1.0322
1.250	1.1517	1.1531	1.1550	1.1572
1.375	1.2607	1.2622	1.2643	1.2667
1.500	1.3856	1.3871	1.3893	1.3917
1.750	1.6134	1.6151	1.6174	1.6201
2.000	1.8486	1.8504	1.8529	1.8557
2.250	2.0984	2.1002	2.1028	2.1057
2.500	2.3298	2.3318	2.3345	2.3376

4.4.5 Discontinuities. Nuts selected for inspection for discontinuities shall be inspected in accordance with ASTM F812 as finished nuts subsequent to any processing operations which could adversely affect the nut and prior to any processing operations which would adversely affect the ability of the part to be inspected. Visual inspection shall be conducted at 10X magnification. The mechanical testing specified in ASTM F812 is not required. The nuts shall meet the acceptance criteria of ASTM F812 except the presence of quench, forging, or inclusion cracks in the nut (see 4.4.5.2) shall be cause for rejection.

4.4.5.1 Determination of defect depth. Defects in fasteners that require measurement to determine acceptability shall be measured by one of the following methods:

a. macroscopic examination at not less than 25X
b. micrometer measurement before and after defect removal
c. microscopic examination of sections cut through the defects

A minimum of 10 percent of the fasteners with defects that require measurement to determine acceptability shall be tested for depth determination.

4.4.5.2 Nuts with forging or inclusion cracks. Lots of nuts with forging or inclusion cracks may be accepted if a sample of nuts, including the nuts with the most serious defects, is selected in accordance with attributes plan, inspection level VL-I of MIL-STD-1916, pass the mechanical testing required by ASTM F812.

5. PACKAGING

5.1 Packaging. For acquisition purposes, the packaging requirements shall be as specified in the contract or order (see 6.2). When packaging of materiel is to be performed by DoD or in-house contractor personnel, these personnel need to contact the responsible packaging activity to ascertain packaging requirements. Packaging requirements are maintained by the Inventory Control Point's packaging activities within the Military Service or Defense Agency, or within the military service's system commands. Packaging data retrieval is available from the managing Military Department's or Defense Agency's automated packaging files, CD-ROM products, or by contacting the responsible packaging activity.

6. NOTES

(This section contains information of a general or explanatory nature that may be helpful, but is not mandatory.)

6.1 Intended use. The nuts conforming to this specification are intended for use in general shipboard applications including Level I piping systems and associated components. These nuts have been designed to resist fatigue cracking and loosening caused by vibration.

6.2 Acquisition requirements. Acquisition documents should specify the following:

a. Title, number, and date of this specification.

b. Part or identifying number (PIN) (see 1.3).

c. Coating requirements (see 3.12).

d. Packaging requirements (see 5.1).

6.3 Cross-reference of PIN numbers. The nut PIN numbers covered by this specification and the corresponding PIN numbers covered by MIL-N-25027/1 are listed in Table VI. The nuts covered by MIL-N-25027/1 are interchangeable with those covered by this specification.

TABLE VI. Cross-reference of PIN numbers.

Temperature rating	Nominal diameter (Inches)	MIL-DTL-32258	MIL-N-25027/1A
250 °F	0.250 Ø	M32258-UCA04	M25027/1-04C
250 °F	0.312 Ø	M32258-UCA05	M25027/1-05C
250 °F	0.375 Ø	M32258-UCA06	M25027/1-06C
250 °F	0.500 Ø	M32258-UCA08	M25027/1-08C
250 °F	0.625 Ø	M32258-UCA10	M25027/1-10C
250 °F	0.750 Ø	M32258-UCA12	M25027/1-12C
250 °F	0.875 Ø	M32258-UCA14	M25027/1-14C
250 °F	1.000 Ø	M32258-UCA16	M25027/1-16C
250 °F	1.125 Ø	M32258-UCA18	M25027/1-18C
250 °F	1.250 Ø	M32258-UCA20	M25027/1-20C
250 °F	1.375 Ø	M32258-UCA22	M25027/1-22C
250 °F	1.500 Ø	M32258-UCA24	M25027/1-24C
250 °F	1.750 Ø	M32258-UCA28	M25027/1-28C
250 °F	2.000 Ø	M32258-UCA32	M25027/1-32C
250 °F	2.250 Ø	M32258-UCA36	M25027/1-36C
250 °F	2.500 Ø	M32258-UCA40	M25027/1-40C
450 °F	0.250 Ø	M32258-UCV04	M25027/1V04C
450 °F	0.312 Ø	M32258-UCV05	M25027/1V05C
450 °F	0.375 Ø	M32258-UCV06	M25027/1V06C
450 °F	0.500 Ø	M32258-UCV08	M25027/1V08C
450 °F	0.625 Ø	M32258-UCV10	M25027/1V10C
450 °F	0.750 Ø	M32258-UCV12	M25027/1V12C
450 °F	0.875 Ø	M32258-UCV14	M25027/1V14C
450 °F	1.000 Ø	M32258-UCV16	M25027/1V16C
450 °F	1.125 Ø	M32258-UCV18	M25027/1V18C
450 °F	1.250 Ø	M32258-UCV20	M25027/1V20C
450 °F	1.375 Ø	M32258-UCV22	M25027/1V22C
450 °F	1.500 Ø	M32258-UCV24	M25027/1V24C
450 °F	1.750 Ø	M32258-UCV28	M25027/1V28C
450 °F	2.000 Ø	M32258-UCV32	M25027/1V32C
450 °F	2.250 Ø	M32258-UCV36	M25027/1V36C
450 °F	2.500 Ø	M32258-UCV40	M25027/1V40C

6.4 Subject term (key word) listing.

Locking collar
Locking ring
Wrenching surface

Custodians:
Army – MI
Navy – SH
Air Force – 99

Review Activities:
Navy – AS, NP
Air Force – 03, 11
DLA – IS

Civil Agency:
GSA – FSS

Preparing Activity:
Navy – SH
(Project 5310-2007-002)

NOTE: The activities listed above were interested in this document as of the date of this document. Since organizations and responsibilities can change, you should verify the currency of the information above using the ASSIST Online database at http://assist.daps.dla.mil.