



**MacLean - ESNA
Precision Fasteners Catalog**

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This is



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THE ESNA® STORY

The ESNA® story began in 1927, when a young engineer named Carl Arthur Swanstrom came to this country from Sweden. He brought with him a license to manufacture and sell a unique new self-locking fastener. The inventor called the new fastener an "Elastic Stop® nut" because the nut remained "stopped" anywhere along the bolt threads. A non-damaging insert, fitted into the top of the nut, gripped the bolt threads firmly, holding the nut in position without seating against the work or using secondary locking devices.

The only problem with the new nut was the inability to mass-produce them. The next few years were spent perfecting an automatic assembly machine to insert the locking device into the top of the nut. Swanstrom perfected the machine in the early 1930s and only four years later the Elastic Stop® Nut Corporation of America was founded.



A threaded fastener, able to positively resist the loosening effect of vibration, had long been sought by manufacturers of every type of equipment.

The Elastic Stop® nut proved to be the answer — totally reliable, able to reduce maintenance costs and prevent equipment failure.



The outstanding performance of the Elastic Stop® nut was further substantiated in 1943 when the Air Force tested and issued the first approval letter to use ESNA® fasteners on military aircraft, both fuselage and engines. During WWII billions of Elastic Stop® nuts were produced for every branch of the armed services. A staggering number of applications followed on ground support and electronic equipment.



In the years that followed, the ESNA® line of standard products expanded to over 25,000 parts. New types of self-locking fasteners were introduced to the product line; The Eslok®, self-locking hex nuts for low cost commercial grade applications, and the Collar-lok®, a hex nut with a 360° bonded nylon collar for high-speed automatic assembly techniques. All metal locknuts were developed for applications with high heat or weight reduction requirements.

This diversified line of reliable fastener products has provided Elastic Stop® nut with a solid foundation for long-term stability and future growth.

The ESNA® product line may be found in farm, automotive, mining, aerospace, marine and electrical assemblies of all types.

In 1995, Elastic Stop® nut became a part of MacLean-Fogg and MacLean-ESNA was created. The following pages describe many of the products produced in a 120,000 square foot facility in Pochontas, Arkansas. MacLean-Fogg / MacLean-ESNA represent a company with capabilities unparalleled in the fastener industry.



ELASTIC STOP® NUT LOCKING DEVICES

MacLean-ESNA® is committed to the Design, Development and Production of the world's most reliable Standard and Special Self-Locking fasteners.

ESNA® Engineering, Test Laboratories, Manufacturing, and Sales Groups are located in Pocahontas, Arkansas specializing in the manufacture of the famous ESNA® red nylon insert self-locking fasteners for use on commercial-industrial applications. This plant offers the manufacturing community the most complete and reliable line of self-locking fasteners available today.

As the pioneer manufacturer of self-locking fasteners, ESNA® offers the benefits of more than 70 years' experience in the design and manufacture of vibration and impact proof fasteners. The extensive ESNA® line includes standard and high tensile, extra thin, MIL approved parts, designed for the most difficult fastening applications.

ESNA® has also created full lines of miniaturized self-locking parts, such as hex and clinch nuts, for the electronics industry. When specifying for your project, please contact our engineering specialist for an immediate reply and solution to your fastening problem.

The complex requirements of industry has created multiple lines of self-locking Elastic Stop® nuts to meet the rigid engineering demands. Characteristics such as shape, material, finish, strength, weight, and temperature limits, all within strict dimensional limits can be provided in the wide range of ESNA® available parts. If the part needed is not shown, contact our Technical Sales Department for assistance. Additional hundreds of special and standard designs (not shown) are readily available for review. Because of our manufacturing capabilities, ESNA® has the ability to provide precision screw machine products to your specifications.

ESNA® OFFERS TWO SUPERIOR LOCKING DEVICES



ESNA® RED NYLON LOCKING INSERT

APPLICATIONS TO 250° F

The controlled inside diameter of the red nylon insert and the nylon material itself is the key to the self-locking effectiveness of the fastener. The ESNA® self-locking nut is free spinning until the bolt enters the locking insert. The bolt threads then impress (not cut) mating threads in the nylon. The resulting compression grip forces metal-to-metal contact between the nut and bolt threads. This friction grip plus the nylon compression assures that the nut will stay "put" anywhere on the bolt and maintain the pre-set torque tension relationship. Elastic Stop nuts may be reused through more than 50 on-off application cycles.



ESNA® ALL-METAL ELLIPTICALLY OFFSET CROWN

APPLICATIONS TO 1400° F

A reduced height, thin walled, lightweight series of Elastic Stop nuts incorporates an elliptically deformed locking device in the upper portion of the nut body. The carefully controlled degree of deflection in the top of the nut provides the reliable locking grip on the bolt. Assembly and removal are smooth and non-galling after use at elevate temperatures. Depending on the configuration, material, and finish the lightweight parts can be used at temperatures of up to 1400° F.

FOR COMPLETE COVERAGE OF YOUR FASTENER DESIGN REQUIREMENTS EACH OF THESE ESNA® LOCKING DEVICES FULLY MEET THE VIBRATION AND REUSE REQUIREMENTS OF SPECIFICATION NASM25027

CONTENTS

THE ESNA® STORY	1
ELASTIC STOP® NUT LOCKING DEVICES	2
CONTENTS	3
ENGINEERING REPORTS	3
PRODUCT RELIABILITY	4
VIBRATION PERFORMANCE	4
WHAT SHAPE IS A QUALITY FASTENER?	4
CONSIDER EXTRA-THIN TYPES OF ELASTIC STOP® NUTS FOR BEARING RETAINING APPLICATIONS	5
AN / MS / NAS / ESNA® CONVERSION TABLES	6
ESNA® FASTENER SOLUTIONS	18
ENGINEERING STANDARDS	19
SECTION 1 – INDUSTRIAL FASTENERS / WRENCHABLE NUTS	19
NUT – HEX, MINIATURE	20
NUT – HEX, MINIATURE, ALL METAL, 450 F° & 800° F	21
NUT – REDUCED HEX, CONSOLIDATED DRAWING	22
NUT - REDUCED HEX, THIN, LIGHTWEIGHT, 450°F & 800°F	23
NUT – HEX, LIGHT	24
NUT – HEX, LIGHT	27
NUT – HEX, HEAVY	30
NUT – HEX, HEAVY, THIN	32
NUT – HEX, MONEL	33
NUT – HEX, MONEL, 350° F & 450° F	34
NUT – HEX, THICK	35
NUT – HEX, HIGH TENSILE	36
NUT – HEX, SELF-LOCKING, ALL METAL	37
NUT – HEX, SELF-LOCKING, ALL METAL	39
NUT – HEX, SELF-LOCKING, 350° F	41
NUT – HEX, SELF-LOCKING, 350° F	43
NUT – HEX, NYLON CAP	45
NUT – HEX, METAL CAP	46
NUT – SELF-LOCKING, HEX, REGULAR HEIGHT, 125 KSI FTU	47
NUT – DOUBLE HEX, HIGH TENSILE, 180,000 PSI, 350° F	48
SECTION 2 – ELECTRONIC FASTENERS / SELF-RETAINING NUTS	51
NUT - CLINCH, FLUSH MOUNTING, MINIATURE, NYLON INSERT, 350°F	52
NUT - CLINCH, FLUSH MOUNTING, MINIATURE, NYLON CAP, 350°F	54
NUT - CLINCH	56
NUT - SPLINE	58
SUGGESTED METHODS FOR HAND OR SEMI-AUTOMATIC INSTALLATION	60
HOW TO INSTALL ESNA® SELF-LOCKING CLINCH NUTS	62
SECTION 3 – ENGINEERING DATA	64
NYLON LOCKING INSERTS	65
ANGULARITY OF THREAD AXIS	67
TORQUE-TENSION MANUAL NO. 8804	70
MAINTAINING TIGHTNESS OF THREADED FASTENERS MANUAL NO. 8805	70
AVOID FASTENER FAILURES	70
MACLEAN-FOGG	71

ENGINEERING REPORTS

As a result of fifty years of hands-on experience in solving special fastening problems and developing unique self-locking nut designs, ESNA® engineers have compiled numerous Engineering Reports pertinent to the application, installation, and performance of Elastic Stop nuts. Two of the most useful ER reports are available upon request: [Loosening of Fasteners by Vibration](#) and [Nylon Locknut Performance Report](#).

PRODUCT RELIABILITY

VIBRATION PERFORMANCE

The pursuit of improved standards of reliability and performance are dynamic and continuing assignments of ESNA®. It is a fact that the fiber insert Elastic Stop® nut was the first prevailing torque locknut in the 1930s. ESNA® also manufactured the first fastener to be approved to specification AN-N-5. For twenty years it was the standard of locknut performance until ESNA® again pioneered the development of Red Nylon as a locking insert — advancing locknut vibration and reuse capabilities a quantum leap.

ESNA® Engineers have devised a readily reproduced vibration test procedure, which has gained widespread recognition as a standard in the industry, for evaluating locknut vibration performance. Test equipment and test fixtures are available for customers who wish to test their fasteners vs. Elastic Stop® nuts. Figure A pictured below is the Sonntag Universal Fatigue machine on which vibration tests are conducted.

Figures B and C below show a “loose connection” test fixture for use on the Sonntag Universal Fatigue Machine. Tests may be conducted with sample locknuts “tight” against the unit, or “loose” and free to impact within the arbor slots. The “loose” assembly is the most severe test and a truer measure of locking effectiveness of the nut device, as there is no metal-to-metal seating torque to overcome.

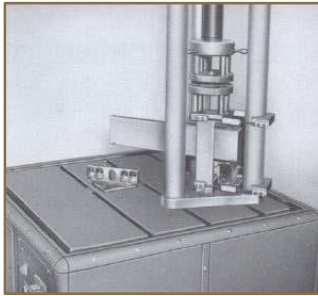


Figure A: Sonntag Universal Fatigue Machine

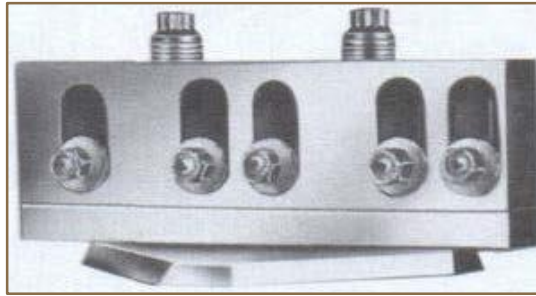


Figure B: Fasteners are tightened on spool-like arbors and their high-frequency vibration is excited by blows against the arbors

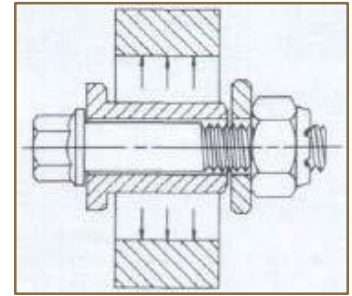


Figure C: “Loose Connection” test fixture for use on the Sonntag Fatigue Machine

WHAT SHAPE IS A QUALITY FASTENER?



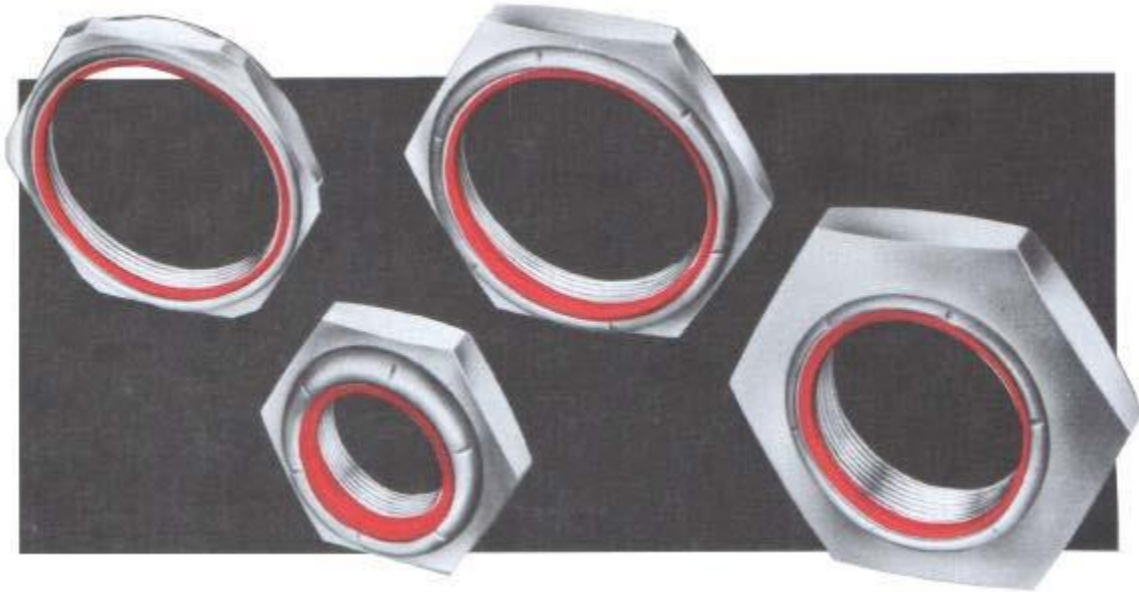
Here are a handful of ELASTIC STOP® nuts. Each has ESNA®'s familiar red locking collar...is self-locking and vibration-proof. Each is a readily assembled, one-piece unit. Each provides positive protection against thread corrosion...prevents liquid seepage along bolts. Each is made from the finest of raw materials. Each is exactly controlled as to finished dimensions, class of thread fit and finish. Each is now in use on critical applications, with a record for uniform high quality that is unmatched.

Most of them are standard parts. Some originated as the result of a specific request for ESNA®'s help with an important fastening problem.

ISN'T IT LOGICAL TO CALL ON US WITH YOUR NEXT FASTENING PROBLEM?

CONSIDER EXTRA-THIN TYPES OF ELASTIC STOP® NUTS FOR BEARING RETAINING APPLICATIONS

THESE ARE THE BENEFITS AND ECONOMIES ACHIEVED BY USING REGULAR ELASTIC STOP NUTS FOR BEARING RETAINING APPLICATIONS



Lower total manufacturing costs result from tooling and machining standard SAE threads on shaft in place of special extra-fine bearing locknut threads.

Lower manufacturing costs result from elimination of cross-drilling of shaft for cotter pin holes or milling a slot in shaft for a tab washer.

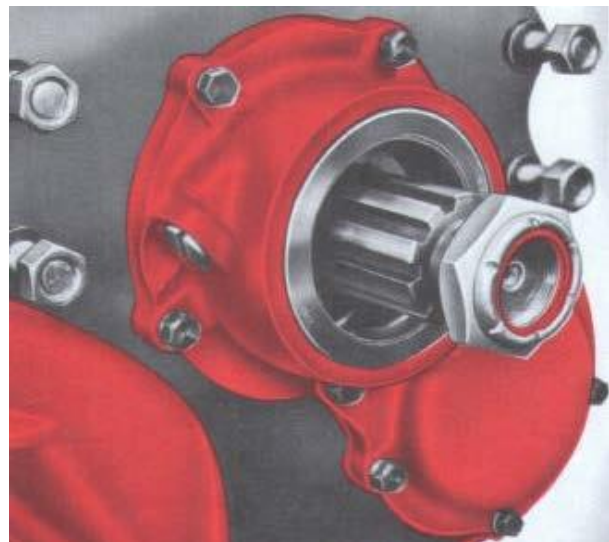
Easier assembly; a stop nut can be clamped-up as tightly as you specify, in a single operation. Self-locking nut does not require re-adjustment to permit cotter pin location.

Nylon insert's non-destructive locking grip does not gall or in any way distort costly shaft threads.

Removal and reuse is a simple matter of wrenching off on.

There is no safety device for the workman or maintenance worker to forget. The ESNA® "safety" device is built in.

The unavoidable "play" in a cotter-pinned adjustment accelerates wearing of the gears, bearings or other fastened member. Service life is extended and bearing wear is minimized as a result of the constant clamping action maintained by the nylon insert.



An ESNA® bearing-type nut applied to the output shaft on a heavy-duty truck transmission. It replaced a castle nut and cotter pin fastening.

AN / MS / NAS / ESNA® CONVERSION TABLES

The following AN – MS – NAS Standard Part Listing is provided in numerical sequence for ESNA® customers who wish to determine the equivalent ESNA® part number.

AN/MS/NAS STD. PARTS	ESNA® NOMENCLATURE	AN/MS/NAS STD. PARTS	ESNA® NOMENCLATURE	AN/MS/NAS STD. PARTS	ESNA® NOMENCLATURE	AN/MS/NAS STD. PARTS	ESNA® NOMENCLATURE
AN PART NO.		AN364B624	99NTE-064	AN365-1032	F22NM-02	AN365D832A	68NM-82
AN256-6	68NA7-68-62	AN364B624A	99NTE-064	AN365-1032A	F22NM-02	AN365D1032	68NM-02
AN256-8	68NA7-68-82	AN364B720	99NTE-070	AN365-428	F42NE-048	AN365D1032A	68NM-02
AN256-10	68NA7-68-02	AN364B720A	99NTE-070	AN365-428A	F42NE-048	AN365D428	68NE-048
AN256F6	F22NA7-68-62	AN364B820	99NTE-080	AN365-524	F42NE-054	AN365D428A	68NE-048
AN256F8	F22NA7-68-82	AN364B820A	99NTE-080	AN365-524A	F42NE-054	AN365D524	68NE-054
AN256F10	F22NA7-68-02	AN364B918	99NTE-098	AN365-624	F42NE-064	AN365D524A	68NE-054
		AN364B918A	99NTE-098	AN365-624A	F52NE-064	AN365D624	68NE-064
AN362C524	70ZA1W-054	AN364B1216	99NTE-126	AN365-720	F52NE-070	AN365D624A	68NE-064
AN362C624	70ZA1-064	AN364B1216A	99NTE-126	AN365-720A	F52NE-070	AN365D720	68NE-070
		AN364B1414	99NTE-144	AN365-820	F52NE-080	AN365D720A	68NE-070
AN363-624	F1801-064	AN364B1414A	99NTE-144	AN365-820A	F52NE-080	AN365D820	68NE-080
AN363-720	F1801-070	AN364B1614	99NTE-164	AN365-918	F52NE-098	AN365D820A	68NE-080
AN363-820	F1801-080	AN364B1614A	99NTE-164	AN365-918A	F52NE-098	AN365D918	68NE-098
AN363-918	F1801-098	AN364B1812	99NTE-182	AN365-1018	F52NE-108	AN365D918A	68NE-098
AN363-1018	F1801-108	AN364B1812A	99NTE-182	AN365-1018A	F52NE-108	AN365D1018	68NE-108
AN363-1216	F1801-126	AN364B2012	99NTE-202	AN365-1216	F52NE-126	AN365D1018A	68NE-108
		AN364B2012A	99NTE-202	AN365-1216A	F52NE-126	AN365D1216	68NE-126
AN363C632	1803-62			AN365-1414	F52NE-144	AN365D1216A	68NE-126
AN363C832	1803-82	AN364D632	68NTM-62	AN365-1414A	F52NE-144	AN365D1414	68NE-144
AN363C1032	1803-02	AN364D632A	68NTM-62	AN365-1614	F52NE-164	AN365D1414A	68NE-144
AN363C428	1803-048	AN364D832	68NTM-82	AN365-1614A	F52NE-164		
AN363C524	1803-054	AN364D832A	68NTM-82	AN365-1812	F52NE-182	AN366-832	22A8-82
AN363C624	1803-064	AN364D1032	68NTM-02	AN365-1812A	F52NE-182	AN366-1032	22A8-02
AN363C720	1803-070	AN364D1032A	68NTM-02	AN365-2012	F52NE-202	AN366-428	52A8-048
AN363C820	1803-080	AN364D428	68NTE-048	AN365-2012A	F52NE-202	AN366-524	52A8-054
AN363C918	1803-098	AN364D428A	68NTE-048			AN366-624	52A8-064
AN363C1018	1803-108	AN364D524	68NTE-054	AN365B440	99NM-40		
		AN364D524A	68NTE-054	AN365B440A	99NM-40	AN366DF632	68NA1-62
AN364-632	F22NTM-62	AN364D624	68NTE-064	AN365B632	99NM-62	AN366DF632A	68NA1-62
AN364-632A	F22NTM-62	AN364D624A	68NTE-064	AN365B632A	99NM-62	AN366DF832	68NA1-82
AN364-832	F22NTM-82	AN364D720	68NTE-070	AN365B832	99NM-82	AN366DF1032	68NA1-02
AN364-832A	F22NTM-82	AN364D720A	68NTE-070	AN365B832A	99NM-82	AN366DF1032A	68NA1-02
AN364-1032	F22NTM-02	AN364D820	68NTE-080	AN365B1032	99NM-02	AN366DF428	68NA1-048
AN364-1032A	F22NTM-02	AN364D820A	68NTE-080	AN365B1032A	99NM-02	AN366DF428A	68NA1-048
AN364-428	F52NTE-048	AN364D918	68NTE-098	AN365B428	99NE-048	AN366DF524	68NA1-054
AN364-428A	F52NTE-048	AN364D918A	68NTE-098	AN365B428A	99NE-048	AN366DF524A	68NA1-054
AN364-524	F52NTE-054	AN364D1018	68NTE-108	AN365B524	99NE-054	AN366DF624	68NA1-064
AN364-524A	F52NTE-054	AN364D1018A	68NTE-108	AN365B524A	99NE-054	AN366DF624A	68NA1-064
AN364-624	F52NTE-064	AN364D1216	68NTE-126	AN365B624	99NE-064		
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AN364-720	F52NTE-070	AN364D1414	68NTE-144	AN365B720	99NE-070	AN366D1032	68A8-02
AN364-720A	F52NTE-070	AN364D1414A	68NTE-144	AN365B720A	99NE-070	AN366D428	68A8-048
AN364-820	F52NTE-080	AN364D1614	68NTE-164	AN365B820	99NE-080	AN366D524	68A8-054
AN364-820A	F52NTE-080	AN364D1614A	68NTE-164	AN365B820A	99NE-080	AN366D624	68A8-064
AN364-918	F52NTE-098	AN364D1812	68NTE-182	AN365B918	99NE-098		
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AN364-1216	F52NTE-126			AN365B1216	99NE-126	AN366F1032A	F22NA1-02
AN364-1216A	F52NTE-126	AN365-624C	F1801-064	AN365B1216A	99NE-126	AN366F428	F22NA1-048
AN364-1414	F52NTE-144	AN365-720C	F1801-070	AN365B1414	99NE-144	AN366F428A	F22NA1-048
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AN364-2012	F52NTE-202	AN365-1414C	F1801-144	AN365B1812A	99NE-182	AN373DF832A	F22NA38-82
AN364-2012A	F52NTE-202	AN365-1614C	F1801-164	AN365B2012	99NE-202	AN373DF1032	F22NA38-02
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AN364B1032	99NTM-02	AN365-440	F22NM-40	AN365D440	68NM-40	AN373DF428	F22NA38-048
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AN364B428	99NTE-048	AN365-632	F22NM-62	AN365D632	68NM-62	AN373DF524	F22NA38-054
AN364B428A	99NTE-048	AN365-632A	F22NM-62	AN365D632A	68NM-62	AN373DF524B	F22NA38-054
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AN364B524A	99NTE-054	AN365-832A	F22NM-82	AN365D832	68NM-82	M250271/1-4C	NUI3841-040

AN/MS/NAS STD. PARTS	ESNA® NOMENCLATURE	AN/MS/NAS STD. PARTS	ESNA® NOMENCLATURE	AN/MS/NAS STD. PARTS	ESNA® NOMENCLATURE	AN/MS/NAS STD. PARTS	ESNA® NOMENCLATURE
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M45913/3-08CS3	79NM141316-82	M45913/3-8FG5C	F42NE141316-080	M45913/3-22CG5Z	44NE141316-226	M45913/3-06FAA	68NM141316-60
M45913/3-08FS3	79NM141316-86	M45913/3-9CG5C	F42NE141316-092	M45913/3-22FG5Z	44NE141316-222	M45913/3-08CAA	68NM141316-82
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		M45913/3-12FG5C	F42NE141316-126	M45913/3-01CBB	99NM141316-14	M45913/3-012FAA	68NM141316-128
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M45913/3-6CS3	79NE141316-066	M45913/3-18FG5C	F42NE141316-182	M45913/3-04CBB	99NM141316-40	M45913/3-6CAA	68NE141316-066
M45913/3-6FS3	79NE141316-064	M45913/3-20CG5C	F42NE141316-207	M45913/3-04FBB	99NM141316-48	M45913/3-6FAA	68NE141316-064
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M45913/3-8CS3	79NE141316-083	M45913/3-22FG5C	F42NE141316-222	M45913/3-06CBB	99NM141316-62	M45913/3-8CAA	68NE141316-083
M45913/3-8FS3	79NE141316-080	M45913/3-22CG5C	F42NE141316-226	M45913/3-06FBB	99NM141316-60	M45913/3-8FAA	68NE141316-080
M45913/3-9CS3	79NE141316-092	M45913/3-22FG5C	F42NE141316-222	M45913/3-08CBB	99NM141316-82	M45913/3-9CAA	68NE141316-092
M45913/3-9FS3	79NE141316-098	M45913/3-24CG5C	F42NE141316-246	M45913/3-08FBB	99NM141316-86	M45913/3-9FAA	68NE141316-098
M45913/3-10CS3	79NE141316-101	M45913/3-24FG5C	F42NE141316-242	M45913/3-010CBB	99NM141316-04	M45913/3-10CAA	68NE141316-101
M45913/3-10FS3	79NE141316-108			M45913/3-010FBB	99NM141316-02	M45913/3-10FAA	68NE141316-108
M45913/3-12CS3	79NE141316-120	M45913/3-00FG5Z	44NM141316-00	M45913/3-012CBB	99NM141316-124	M45913/3-12CAA	68NE141316-120
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M45913/3-14CS3	79NE141316-149	M45913/3-01FG5Z	44NM141316-12			M45913/3-14CAA	68NE141316-149
M45913/3-14FS3	79NE141316-144	M45913/3-02CG5Z	44NM141316-26	M45913/3-4CBB	99NE141316-040	M45913/3-14FAA	68NE141316-144
M45913/3-16CS3	79NE141316-168	M45913/3-02FG5Z	44NM141316-24	M45913/3-4FBB	99NE141316-048	M45913/3-16CAA	68NE141316-168
M45913/3-16FS3	79NE141316-162	M45913/3-03CG5Z	44NM141316-38	M45913/3-5CBB	99NE141316-058	M45913/3-16FAA	68NE141316-162
M45913/3-18CS3	79NE141316-187	M45913/3-03FG5Z	44NM141316-36	M45913/3-5FBB	99NE141316-054	M45913/3-18CAA	68NE141316-187
M45913/3-18FS3	79NE141316-182	M45913/3-04CG5Z	44NM141316-40	M45913/3-6CBB	99NE141316-066	M45913/3-18FAA	68NE141316-182
M45913/3-20CS3	79NE141316-207	M45913/3-04FG5Z	44NM141316-48	M45913/3-6FBB	99NE141316-064	M45913/3-20CAA	68NE141316-207
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M45913/3-22CS3	79NE141316-226	M45913/3-05FG5Z	44NM141316-54	M45913/3-7FBB	99NE141316-070	M45913/3-22CAA	68NE141316-226
M45913/3-22FS3	79NE141316-222	M45913/3-06CG5Z	44NM141316-62	M45913/3-8CBB	99NE141316-083	M45913/3-22FAA	68NE141316-222
M45913/3-24CS3	79NE141316-246	M45913/3-06FG5Z	44NM141316-60	M45913/3-8FBB	99NE141316-080	M45913/3-24CAA	68NE141316-246
M45913/3-24FS3	79NE141316-242	M45913/3-08CG5Z	44NM141316-82	M45913/3-9CBB	99NE141316-092	M45913/3-24FAA	68NE141316-242
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M45913/3-01FG5C	F42NM141316-12	M45913/3-012CG5Z	44NM141316-124	M45913/3-12CBB	99NE141316-120	M45913/3-01FS6	79NM141253-12
M45913/3-02CG5C	F42NM141316-26	M45913/3-012FG5Z	44NM141316-128	M45913/3-12FBB	99NE141316-126	M45913/3-02CS6	79NM141253-26
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M45913/3-03FG5C	F42NM141316-36	M45913/3-4FG5Z	44NE141316-048	M45913/3-16CBB	99NE141316-168	M45913/3-03FS6	79NM141253-36
M45913/3-04CG5C	F42NM141316-40	M45913/3-5CG5Z	44NE141316-058	M45913/3-16FBB	99NE141316-162	M45913/3-04CS6	79NM141253-40
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M45913/3-010FG5C	F42NM141316-02	M45913/3-9FG5Z	44NE141316-098			M45913/3-010FS6	79NM141253-02
M45913/3-012CG5C	F42NM141316-124	M45913/3-10CG5Z	44NE141316-101	M45913/3-00FAA	68NM141316-00	M45913/3-012CS6	79NM141253-124
M45913/3-012FG5C	F42NM141316-128	M45913/3-10FG5Z	44NE141316-108	M45913/3-01CAA	68NM141316-14	M45913/3-012FS6	79NM141253-128
		M45913/3-12CG5Z	44NE141316-120	M45913/3-01FAA	68NM141316-12		
M45913/3-4CG5C	F42NE141316-040	M45913/3-12FG5Z	44NE141316-126	M45913/3-02CAA	68NM141316-26	M45913/3-4CS6	79NE141253-040
M45913/3-4FG5C	F42NE141316-048	M45913/3-14CG5Z	44NE141316-149	M45913/3-02FAA	68NM141316-24	M45913/3-4FS6	79NE141253-048
M45913/3-5CG5C	F42NE141316-058	M45913/3-14FG5Z	44NE141316-144	M45913/3-03CAA	68NM141316-38	M45913/3-5CS6	79NE141253-058
M45913/3-5FG5C	F42NE141316-054	M45913/3-16CG5Z	44NE141316-168	M45913/3-03FAA	68NM141316-36	M45913/3-5FS6	79NE141253-054
M45913/3-6CG5C	F42NE141316-066	M45913/3-16FG5Z	44NE141316-162	M45913/3-04CAA	68NM141316-40	M45913/3-6CS6	79NE141253-066
M45913/3-6FG5C	F42NE141316-064	M45913/3-18CG5Z	44NE141316-187	M45913/3-04FAA	68NM141316-48	M45913/3-6FS6	79NE141253-064
M45913/3-7CG5C	F42NE141316-074	M45913/3-18FG5Z	44NE141316-182	M45913/3-05CAA	68NM141316-50	M45913/3-7CS6	79NE141253-074
M45913/3-7FG5C	F42NE141316-070	M45913/3-20CG5Z	44NE141316-207	M45913/3-05FAA	68NM141316-54	M45913/3-7FS6	79NE141253-070
M45913/3-8CG5C	F42NE141316-083	M45913/3-20FG5Z	44NE141316-202	M45913/3-06CAA	68NM141316-62	M45913/3-8CS6	79NE141253-083

AN/MS/NAS STD. PARTS	ESNA® NOMENCLATURE	AN/MS/NAS STD. PARTS	ESNA® NOMENCLATURE	AN/MS/NAS STD. PARTS	ESNA® NOMENCLATURE	AN/MS/NAS STD. PARTS	ESNA® NOMENCLATURE
	MS PART NO.						
MS17828-5F	09NE-054(MONEL)	MS17829-32C	F52NU1610-324	MS20364B524	99NTE-054	MS20365-820	F52NE-080
MS17828-6C	09NE-066(MONEL)	MS17829-32N08	F52NU1610-3208	MS20364B524A	99NTE-054	MS20365-820A	F52NE-080
MS17828-6F	09NE-064(MONEL)	MS17829-36C	F52NU1610-364	MS20364B624	99NTE-064	MS20365-820C	F1801-080
MS17828-7C	09NE-074U(MONEL)	MS17829-36N08	F52NU1610-3608	MS20364B624A	99NTE-064	MS20365-918	F52NE-098
MS17828-7F	09NE-070U(MONEL)	MS17829-40C	F52NU1610-404	MS20364B720	99NTE-070	MS20365-918A	F52NE-098
MS17828-8C	09NE-083(MONEL)	MS17829-40N08	F52NU1610-4008	MS20364B720A	99NTE-070	MS20365-918C	F1801-098
MS17828-8F	09NE-080(MONEL)			MS20364B820	99NTE-080	MS20365-1018	F52NE-108
MS17828-9C	09NE-092(MONEL)	MS17830-04C	79NM-40	MS20364B820A	99NTE-080	MS20365-1018A	F52NE-108
MS17828-9F	09NE-098(MONEL)	MS17830-06C	79NM-62	MS20364B918	99NTE-098	MS20365-1018C	F1801-108
MS17828-10C	09NE-101(MONEL)	MS17830-08C	79NM-82	MS20364B918A	99NTE-098	MS20365-1216	F52NE-126
MS17828-10F	09NE-108(MONEL)	MS17830-3C	79NM-04	MS20364B1018	99NTE-108	MS20365-1216A	F52NE-126
MS17828-12C	09NE-120(MONEL)	MS17830-4C	79NE-040	MS20364B1018A	99NTE-108	MS20365-1216C	F1801-126
MS17828-12F	09NE-126(MONEL)	MS17830-5C	79NE-058	MS20364B1216	99NTE-126	MS20365-1414	F52NE-144
MS17828-14C	09NE-149(MONEL)	MS17830-6C	79NE-066	MS20364B1216A	99NTE-126	MS20365-1414A	F52NE-144
MS17828-14F	09NE-144(MONEL)	MS17830-7C	79NE-074U	MS20364B1414	99NTE-144	MS20365-1414C	F1801-144
MS17828-16C	09NE-168(MONEL)	MS17830-8C	79NE-083	MS20364B1414A	99NTE-144	MS20365-1614	F52NE-164
MS17828-16F	09NE-162(MONEL)	MS17830-9C	79NE-092	MS20364B1614	99NTE-164	MS20365-1614A	F52NE-164
MS17828-18C	09NE-187(MONEL)	MS17830-10C	79NE-101	MS20364B1614A	99NTE-164	MS20365-1812	F52NE-182
MS17828-18F	09NE-182(MONEL)	MS17830-12C	79NE-120			MS20365-1812A	F52NE-182
MS17828-20C	09NE-207(MONEL)	MS17830-14C	79NE-149	MS20364D632	68NTM-62	MS20365-2012	F52NE-202
MS17828-20F	09NE-202(MONEL)	MS17830-16C	79NE-168	MS20364D632A	68NTM-62	MS20365-2012A	F52NE-202
MS17828-22C	09NE-226(MONEL)	MS17830-18C	79NE-187	MS20364D832	68NTM-82		
MS17828-22F	09NE-222(MONEL)	MS17830-20C	79NE-207	MS20364D832A	68NTM-82	MS20365B440	99NM-40
MS17828-24C	09NE-246(MONEL)	MS17830-22C	79NE-226	MS20364D1032	68NTM-02	MS20365B440A	99NM-40
MS17828-24F	09NE-242(MONEL)	MS17830-22F	79NE-222	MS20364D428	68NTE-048	MS20365B632	99NM-62
MS17828-28C	09NU-285(MONEL)	MS17830-24C	79NE-246	MS20364D428A	68NTE-048	MS20365B632A	99NM-62
MS17828-32C	09NU-324(MONEL)	MS17830-24F	79NE-242	MS20364D524	68NTE-054	MS20365B832	99NM-82
MS17828-36C	09NU-364(MONEL)	MS17830-28C	79NU-285	MS20364D524A	68NTE-054	MS20365B832A	99NM-82
MS17828-40C	09NU-404(MONEL)	MS17830-32C	79NU-324	MS20364D624	68NTE-064	MS20365B1032	99NM-02
		MS17830-36C	79NU-364	MS20364D624A	68NTE-064	MS20365B1032A	99NM-02
		MS17830-40C	79NU-404	MS20364D720	68NTE-070	MS20365B428	99NE-048
MS17829-3C	F52N1610-04			MS20364D720A	68NTE-070	MS20365B428A	99NE-048
MS17829-4C	F52N1610-040	MS20364-632	F22NTM-62	MS20364D820	68NTE-080	MS20365B524	99NE-054
MS17829-4F	F52N1610-048	MS20364-632A	F22NTM-62	MS20364D820A	68NTE-080	MS20365B524A	99NE-054
MS17829-5C	F52N1610-058	MS20364-832	F22NTM-82	MS20364D918	68NTE-098	MS20365B624	99NE-064
MS17829-5F	F52N1610-054	MS20364-832A	F22NTM-82	MS20364D918A	68NTE-098	MS20365B624A	99NE-064
MS17829-6C	F52N1610-066	MS20364-1032	F22NTM-02	MS20364D1018	68NTE-108	MS20365B720	99NE-070
MS17829-6F	F52N1610-064	MS20364-1032A	F22NTM-02	MS20364D1018A	68NTE-108	MS20365B720A	99NE-070
MS17829-7C	F52N1610-074U	MS20364-428	F52NTE-048	MS20364D1216	68NTE-126	MS20365B820	99NE-080
MS17829-7F	F52N1610-070U	MS20364-428A	F52NTE-048	MS20364D1216A	68NTE-126	MS20365B820A	99NE-080
MS17829-8C	F52N1610-083	MS20364-524A	F52NTE-054	MS20364D1414	68NTE-144	MS20365B918	99NE-098
MS17829-8F	F52N1610-080	MS20364-624	F52NTE-064	MS20364D1414A	68NTE-144	MS20365B918A	99NE-098
MS17829-9C	F52N1610-092	MS20364-624A	F52NTE-064	MS20364D1614	68NTE-164	MS20365B1018	99NE-108
MS17829-9F	F52N1610-098	MS20364-720	F52NTE-070	MS20364D1614A	68NTE-164	MS20365B1018A	99NE-108
MS17829-10C	F52N1610-101	MS20364-720A	F52NTE-070	MS20364D1812	68NTE-182	MS20365B1216	99NE-126
MS17829-10F	F52N1610-108	MS20364-820	F52NTE-080	MS20364D1812A	68NTE-182	MS20365B1216A	99NE-126
MS17829-12C	F52N1610-120	MS20364-820A	F52NTE-080			MS20365B1414	99NE-144
MS17829-12F	F52N1610-126	MS20364-918	F52NTE-098	MS20365-440	F22NM-40	MS20365B1414A	99NE-144
MS17829-14C	F52N1610-149	MS20364-918A	F52NTE-098	MS20365-440A	F22NM-40	MS20365B1614	99NE-164
MS17829-14F	F52N1610-144	MS20364-1018	F52NTE-108	MS20365-632	F22NM-62	MS20365B1614A	99NE-164
MS17829-16C	F52N1610-168	MS20364-1018A	F52NTE-108	MS20365-632A	F22NM-62	MS20365B1812	99NE-182
MS17829-16F	F52N1610-162	MS20364-1216	F52NTE-126	MS20365-832	F22NM-82	MS20365B1812A	99NE-182
MS17829-18C	F52N1610-187	MS20364-1216A	F52NTE-126	MS20365-832A	F22NM-82	MS20365B2012	99NE-202
MS17829-18F	F52N1610-182	MS20364-1414	F52NTE-144	MS20365-1032	F22NM-02	MS20365B2012A	99NE-202
MS17829-18N08	F52N1610-1808	MS20364-1414A	F52NTE-144	MS20365-1032A	F22NM-02		
MS17829-20C	F52N1610-207	MS20364-1614	F52NTE-164			MS20365D440	68NM-40
MS17829-20F	F52N1610-202	MS20364-1614A	F52NTE-164	MS20365-428	F42NE-048	MS20365D440A	68NM-40
MS17829-20N08	F52N1610-2008	MS20364-1812	F52NTE-182	MS20365-428A	F42NE-048	MS20365D632	68NM-62
MS17829-22C	F52N1610-226	MS20364-1812A	F52NTE-182	MS20365-524	F42NE-054	MS20365D632A	68NM-62
MS17829-22F	F52N1610-222	MS20364-2012	F52NTE-202	MS20365-524A	F42NE-054	MS20365D832	68NM-82
MS17829-22N08	F52N1610-2208	MS20364-2012A	F52NTE-202	MS20365-624	F52NE-064	MS20365D832A	68NM-82
MS17829-24C	F52N1610-246			MS20365-624A	F52NE-064	MS20365D1032	68NM-02
MS17829-24F	F52N1610-242	MS20364B1032	99NTM-02	MS20365-624C	F1801-064	MS20365D1032A	68NM-02
MS17829-24N08	F52N1610-2408	MS20364B1032A	99NTM-02	MS20365-720	F52NE-070	MS20365D428	68NE-048
MS17829-28C	F52NU1610-285	MS20364B428	99NTE-048	MS20365-720A	F52NE-070	MS20365D428A	68NE-048
MS17829-28N08	F52NU1610-2808	MS20364B428A	99NTE-048	MS20365-720C	F1801-070	MS20365D524	68NE-054

AN/MS/NAS STD. PARTS	ESNA® NOMENCLATURE	AN/MS/NAS STD. PARTS	ESNA® NOMENCLATURE	AN/MS/NAS STD. PARTS	ESNA® NOMENCLATURE	AN/MS/NAS STD. PARTS	ESNA® NOMENCLATURE
	MS PART NO.						
MS20365D524A	68NE-054	MS21044C04	79NM-40	MS21045C8	7LLE141355-080	MS21083C08	79NTM-82
MS20365D624	68NE-064	MS21044C06	79NM-62	MS21045C9	7LLE141355-098	MS21083C3	79NTM-02
MS20365D624A	68NE-064	MS21044C08	79NM-82	MS21045C10	7LLE141355-108	MS21083C4	79NTE-048
MS20365D720	68NE-070	MS21044C3	79NM-02			MS21083C5	79NTE-054
MS20365D720A	68NE-070	MS21044C4	79NE-048	MS21045L04	M52LE141355-040	MS21083C6	79NTE-064
MS20365D820	68NE-080	MS21044C5	79NE-054	MS21045L06	M52LE141355-062	MS21083C7	79NTE-070U
MS20365D820A	68NE-080	MS21044C6	79NE-064	MS21045L08	M52LE141355-082	MS21083C8	79NTE-080
MS20365D918	68NE-098	MS21044C7	79NE-070U	MS21045L3	M52LE141355-02	MS21083C9	79NTE-098
MS20365D918A	68NE-098	MS21044C8	79NE-080	MS21045L4	M52LE141355-048	MS21083C10	79NTE-108
MS20365D1018	68NE-108	MS21044C9	79NE-098	MS21045L5	M52LE141355-054	MS21083C12	79NTE-126
MS20365D1018A	68NE-108	MS21044C10	79NE-108	MS21045L6	M52LE141355-064	MS21083C14	79NTE-144
MS20365D1216	68NE-126	MS21044C12	79NE-126	MS21045L7	M52LE141355-070	MS21083C16	79NTE-162
MS20365D1216A	68NE-126	MS21044C14	79NE-144	MS21045L8	M52LE141355-080	MS21083C18	79NTE-182
MS20365D1414	68NE-144	MS21044C16	79NE-162	MS21045L9	M52LE141355-098	MS21083C20	79NTE-202
MS20365D1414A	68NE-144	MS21044C18	79NE-182	MS21045L10	M52LE141355-108	MS21083C22	79NTE-222
MS20365D1614	68NE-164	MS21044C20	79NE-202	MS21045L12	M52LE141355-126	MS21083C24	79NTE-242
MS20365D1614A	68NE-164			MS21045L14	M52LE141355-144		
MS20365D1812	68NE-182	MS21044D04	NMJ-40			MS21083D04	NTMJ-40
MS20365D1812A	68NE-182	MS21044D06	NMJ-62	MS21045-04	F12LE141355-040	MS21083D06	NTMJ-62
MS20365D2012	68NE-202	MS21044D08	NMJ-82	MS21045-06	F12LE141355-062	MS21083D08	NTMJ-82
MS20365D2012A	68NE-202	MS21044D3	NMJ-02	MS21045-08	F12LE141355-082	MS21083D3	NTMJ-02
		MS21044D4	NMJ-048	MS21045-3	F12LE141355-02	MS21083D4	68NTE-048
		MS21044D5	68NE-054	MS21045-4	F12LE141355-048	MS21083D5	68NTE-054
MS20500-1032	ASLE141355-02	MS21044D6	68NE-064	MS21045-5	F12LE141355-054	MS21083D6	68NTE-064
MS20500-428	ASLE141355-048	MS21044D7	68NE-070U	MS21045-6	F12LE141355-064	MS21083D7	68NTE-070U
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MS20500-720	ASLE141355-070	MS21044D10	68NE-108	MS21045-9	F12LE141355-098	MS21083D10	68NTE-108
MS20500-720A	ASLE141355-070	MS21044D12	68NE-126	MS21045-10	F12LE141355-108	MS21083D12	68NTE-126
MS20500-820	ASLE141355-080	MS21044D14	68NE-144	MS21045-12	F12LE141355-126	MS21083D14	68NTE-144
MS20500-918	ASLE141355-098	MS21044D16	68NE-162	MS21045-14	F12LE141355-144	MS21083D16	68NTE-162
MS20500-1018	ASLE141355-108	MS21044D20	68NE-202			MS21083D18	68NTE-182
MS20500-1216	ASLE141355-126			MS21046C04	ASLE141355-040	MS21083D20	68NTE-202
		MS21044E08	1804-82	MS21046C06	ASLE141355-062	MS21083D22	68NTE-222
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MS21042-4	LF3324-4	MS21044E7	1804-070U	MS21046C6	ASLE141355-064	MS21083N08	F22NTM-82
MS21042-5	LF3324-5	MS21044E8	1804-080	MS21046C7	ASLE141355-070	MS21083N3	F22NTM-02
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		MS21044N04	F22NM-40	MS21046C9	ASLE141355-098	MS21083N5	F52NTE-054
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MS21043-06	LF3858-62	MS21044N08	F22NM-82	MS21046C12	ASLE141355-126	MS21083N7	F52NTE-070U
MS21043-08	LF3858-82	MS21044N3	F22NM-02	MS21046C14	ASLE141355-144	MS21083N8	F52NTE-080
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MS21043-5	LF3858-5	MS21044N6	F52NE-064	MS21083B06	Y92NTM-62	MS21083N12	F52NTE-126
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MS21044B06	Y92NM-62	MS21044N10	F52NE-108	MS21083B5	Y92NTE-054	MS21083N22	F52NTE-222
MS21044B08	Y92NM-82	MS21044N12	F52NE-126	MS21083B7	Y92NTE-070U	MS21083N20	F52NTE-202
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MS21044B4	Y92NE-048	MS21044N16	F52NE-162	MS21083B8	Y92NTE-080		
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MS21044B9	Y92NE-098	MS21045C06	7LLE141355-062	MS21083B16	Y92NTE-162	MS51866-3B	99ND12-82
MS21044B10	Y92NE-108	MS21045C08	7LLE141355-082	MS21083B18	Y92NTE-182	MS51866-3C	79ND12-82
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MS21044B14	Y92NE-144	MS21045C4	7LLE141355-048	MS21083B22	Y92NTE-222	MS51866-8B	99ND8-02
MS21044B16	Y92NE-162	MS21045C5	7LLE141355-054	MS21083B24	Y92NTE-242	MS51866-8C	79ND8-02
MS21044B18	Y92NE-182	MS21045C6	7LLE141355-064	MS21083C04	79NTM-40	MS51866-10	F22ND12-02
MS21044B20	Y92NE-202	MS21045C7	7LLE141355-070	MS21083C06	79NTM-62	MS51866-10B	99ND12-02

AN/MS/NAS STD. PARTS	ESNA® NOMENCLATURE	AN/MS/NAS STD. PARTS	ESNA® NOMENCLATURE	AN/MS/NAS STD. PARTS	ESNA® NOMENCLATURE	AN/MS/NAS STD. PARTS	ESNA® NOMENCLATURE
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MS51866-14B	99ND20-02	MS51922-32	99NE-070U	NAS1022AX20	LH7644-202	NAS1291-8	M52LF3324-8
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MS51866-18B	99ND12-048	MS51922-37	10329	NAS1022B06	Y92NTM-62	NAS1291X04	F52LF3324-40
MS51866-18C	79ND12-048	MS51922-38	79NE-080	NAS1022B08	Y92NTM-82	NAS1291X06	F52LF3324-62
MS51866-20	F42ND16-048	MS51922-39	99NE-080	NAS1022B3	Y92NTM-02	NAS1291X08	F52LF3324-82
MS51866-20B	99ND16-048	MS51922-40	68NE-080	NAS1022B4	Y92NTE-048	NAS1291X3	F52LF3324-02
MS51866-20C	79ND16-048	MS51922-41	10330	NAS1022B5	Y92NTE-054	NAS1291X4	F52LF3324-4
MS51866-23	F42ND24-048	MS51922-45	10331	NAS1022B6	Y92NTE-064	NAS1291X5	F52LF3324-5
MS51866-23B	99ND24-048	MS51922-46	79NE-098	NAS1022B7	Y92NTE-070U	NAS1291X6	F52LF3324-6
MS51866-23C	79ND24-048	MS51922-47	99NE-098	NAS1022B8	Y92NTE-080	NAS1291X7	F52LF3324-7
		MS51922-48	68NE-098	NAS1022B9	Y92NTE-098	NAS1291X8	F52LF3324-8
		MS51922-49	10332	NAS1022B10	Y92NTE-108		
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MS51866-27B	99ND12-054	MS51922-53	10333	NAS1022B14	Y92NTE-144	NAS1291C04M	MA9LF3858-40
MS51866-27C	79ND12-054	MS51922-54	79NE-108	NAS1022B16	Y92NTE-162	NAS1291C06M	MA9LF3858-62
MS51866-29	F42ND16-054	MS51922-55	99NE-108	NAS1022B17	Y92NTE-164	NAS1291C08M	MA9LF3858-82
MS51866-29B	99ND16-054	MS51922-56	68NE-108	NAS1022B18	Y92NTE-182	NAS1291C3M	MA9LF3858-02
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MS51866-32B	99ND24-054	NAS1021B06	Y92NM-62	NAS1022D06	NTMJ-62	NAS1291C6M	MA9LF3858-6
MS51866-32C	79ND24-054	NAS1021B08	Y92NM-82	NAS1022D08	NTMJ-82	NAS1291C7M	MA9LF3858-7
MS51866-35	F42ND12-064	NAS1021B3	Y92NM-02	NAS1022D3	NTMJ-02	NAS1291C8M	MA9LF3858-8
MS51866-35B	99ND12-064	NAS1021B4	Y92NE-048	NAS1022D4	68NTE-048		
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MS51866-37	F42ND16-064	NAS1021B6	Y92NE-064	NAS1022D6	68NTE-064	NAS1291C04	LF3858-40
MS51866-37B	99ND16-064	NAS1021B7	Y92NE-070U	NAS1022D7	68NTE-070U	NAS1291C06	LF3858-62
MS51866-37C	79ND16-064	NAS1021B8	Y92NE-080	NAS1022D8	68NTE-080	NAS1291C08	LF3858-82
MS51866-39	F42ND24-064	NAS1021B9	Y92NE-098	NAS1022D9	68NTE-098	NAS1291C3	LF3858-02
MS51866-39B	99ND24-064	NAS1021B10	Y92NE-108	NAS1022D10	68NTE-108	NAS1291C4	LF3858-4
MS51866-39C	79ND24-064	NAS1021B12	Y92NE-126	NAS1022D12	68NTE-126	NAS1291C5	LF3858-5
				NAS1022D14	68NTE-144	NAS1291C6	LF3858-6
				NAS1022D16	68NTE-162	NAS1291C7	LF3858-7
MS51866-43	F42ND22-070	NAS1021D04	NMJ-40	NAS1022D18	68NTE-182	NAS1291C8	LF3858-8
MS51866-43B	99ND22-070	NAS1021D06	NMJ-62	NAS1022D17	68NTE-164		
MS51866-43C	79ND22-070	NAS1021D08	NMJ-82	NAS1022D18	68NTE-182		
MS51866-44	F42ND28-070	NAS1021D3	NMJ-02	NAS1022N06	F22NTM-62	NAS1791A3-1	F14421-1-3
MS51866-44B	99ND28-070	NAS1021D5	68NE-054	NAS1022N08	F22NTM-82	NAS1791A3-2	F14421-2-3
MS51866-44C	79ND28-070	NAS1021D6	68NE-064	NAS1022D20	68NTE-202	NAS1791A3-3	F14421-3-3
MS51866-47B	99ND24-080	NAS1021D4	NMJ-048			NAS1791A3-4	F14421-4-3
MS51866-47C	79ND24-080	NAS1021D7	68NE-070U	NAS1022N3	F22NTM-02	NAS1791A3-5	F14421-5-3
MS51866-47	F42ND24-080	NAS1021D8	68NE-080	NAS1022N4	F52NTE-048	NAS1791A3-6	F14421-6-3
MS51866-48	F42ND28-080	NAS1021D9	68NE-098	NAS1022N5	F52NTE-054		
MS51866-48B	99ND28-080	NAS1021D10	68NE-108	NAS1022N6	F52NTE-064	NAS1791A4-1	F14421-1-4
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MS51922-2	79NE-040	NAS1021D18	68NE-182	NAS1022N12	F52NTE-126	NAS1791A4-6	F14421-6-4
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MS51922-21	10325	NAS1021N12	F52NE-126	NAS1291-04	M52LF3324-40	NAS1791C3-5	F18421L-5-3
MS51922-22	79NE-064	NAS1021N14	F52NE-144	NAS1291-06	M52LF3324-62	NAS1791C3-6	F18421L-6-3
MS51922-23	99NE-064	NAS1021N16	F52NE-162	NAS1291-08	M52LF3324-82		
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AN/MS/NAS STD. PARTS	ESNA® NOMENCLATURE	AN/MS/NAS STD. PARTS	ESNA® NOMENCLATURE	AN/MS/NAS STD. PARTS	ESNA® NOMENCLATURE	AN/MS/NAS STD. PARTS	ESNA® NOMENCLATURE
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NAS1791C4-6	F18421L-6-4	NAS1805-12P	LH141362-12				
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NAS1805-5P	LH141362-5						
NAS1805-6P	LH141362-6						

ESNA® FASTENER SOLUTIONS

ESNA® FASTENER SOLUTIONS FOR ELECTRONIC ASSEMBLIES



ESNA® FASTENER SOLUTIONS FOR MECHANICAL EQUIPMENT



For more than 70 years ESNA® has pioneered the design and manufacture of vibration-proof, self-locking fasteners. Parts range from reduced size, weight-saving designs for the electronic and aerospace industry to large high strength hex nuts for machinery and off-highway vehicles. Whether standard or special ESNA®'s approved fastener line can save you time and money. Select from hundreds of types, sizes, materials and finishes available.























ENGINEERING STANDARDS

SECTION 1 - INDUSTRIAL FASTENERS / WRENCHABLE NUTS

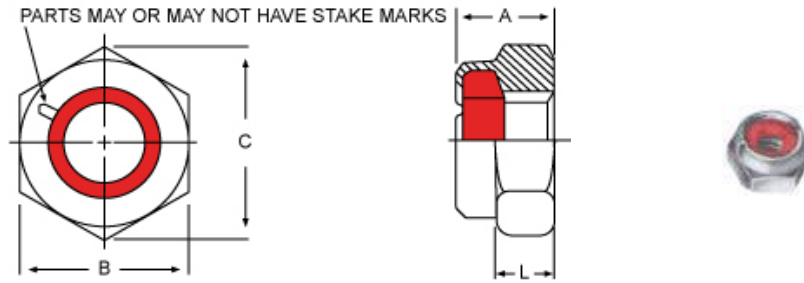
SELECTING THE CORRECT WRENCHABLE SELF-LOCKING NUTS FOR YOUR APPLICATION

Each Elastic Stop® nut illustrated differs in some significant characteristic such as dimensions, material, finish, strength, weight and temperature limits. Each is a standard part in the ESNA® self-locking fastener line. This wide range of available parts gives the design engineer the advantage of being able to select the exact features most important to his individual requirements. ESNA® also has hundreds of additional standard and special self-locking fasteners including metric designs which are available through our Technical Service and Product Design Departments in Pocahontas, Arkansas. Please submit our fastening problems for prompt analysis and reply.

VISUAL INDEX

<p>1660</p> 	<p>NUT - HEX, MINIATURE 0-80 THRU 4-48 TO 350° F</p> <p>PAGE 20</p>	<p>LH1660</p> 	<p>NUT - HEX, MINIATURE, ALL METAL, 450° F & 800° F 2 - 56 THRU 6 - 40 TO 450° F AND 800° F</p> <p>PAGE 21</p>
<p>M2297, NM107, NM408, NM2234, TEE2032</p> 	<p>NUT - REDUCED HEX, CONSOLIDATED DRAWING 6-32 THRU 1/4-28 TO 350° F</p> <p>PAGE 22</p>	<p>LF3324, LF3858</p> 	<p>NUT - REDUCED HEX, THIN, LIGHTWEIGHT, 450°F & 800°F 4-40 THRU 1/4-28 TO 350° F</p> <p>PAGE 23</p>
<p>NE, NM</p> 	<p>NUT - HEX, LIGHT 1-72 THRU 1 1/2-12 TO 350° F <i>AN365 / MS20365 / MS51922 / NAS1021 / NASM17830 / NASM21044</i></p> <p>PAGE 24</p>	<p>NTM - NTE</p> 	<p>NUT - HEX, LIGHT 2-56 THRU 1 1/2-12 TO 350° F <i>AN364 / MS20364 / NAS1022 / NASM17830</i></p> <p>PAGE 27</p>
<p>NU</p> 	<p>NUT - HEX, HEAVY 1/4-20 THRU 2 1/2-12 TO 350° F</p> <p>PAGE 30</p>	<p>NTU</p> 	<p>NUT - HEX, HEAVY, THIN 1/4-20 THRU 2 1/2-12 TO 350° F <i>NASM16228</i></p> <p>PAGE 32</p>
<p>NM-NE-NU MONEL</p> 	<p>NUT - HEX, MONEL, 350° F & 450° F 4 - 40 THRU 1 1/2 - 12 TO 350° F <i>NASM17828</i></p> <p>PAGE 33</p>	<p>NU13841, VU13841</p> 	<p>NUT - HEX, MONEL, 350° F & 450° F 1/4-20 THRU 2 1/2-4 1/2 TO 350° F AND 450° F <i>MIL-N-25027/1</i></p> <p>PAGE 34</p>
<p>N1260</p> 	<p>NUT - HEX, THICK 3/8 - 24 THRU 1 1/4 - 12 TO 350° F</p> <p>PAGE 35</p>	<p>N1610, NU1610</p> 	<p>NUT - HEX, HIGH TENSILE 10-32 THRU 2 1/2-4 1/2 TO 350° F <i>NASM17829</i></p> <p>PAGE 36</p>
<p>LM/LE141309, LM/LE141334</p> 	<p>NUT - HEX, SELF-LOCKING, ALL METAL 0-80 THRU 1 1/2-12 TO 350° F <i>MIL-DTL-45913/4</i></p> <p>PAGE 37</p>	<p>LM/LE141332, LM/LE141333</p> 	<p>NUT - HEX, SELF-LOCKING, ALL METAL 0 - 80 THRU 1 1/2 - 12 TO 350° F <i>MIL-DTL-45913/2</i></p> <p>PAGE 39</p>
<p>NM/NE141252, NM/NE141310</p> 	<p>NUT - HEX, SELF-LOCKING, 350° F 0 - 80 THRU 1 1/2 - 12 TO 350° F <i>MIL-DTL-45913/3</i></p> <p>PAGE 41</p>	<p>NM/NE141253, NM/NE141316</p> 	<p>NUT - HEX, SELF-LOCKING, 350° F 0-80 THRU 1 1/2-12 TO 350° F <i>MIL-DTL-45913/3</i></p> <p>PAGE 43</p>
<p>NKE-NKTE, NKM-NKTM</p> 	<p>NUT - HEX, NYLON CAP 6-32 THRU 3/8-24 TO 350° F</p> <p>PAGE 45</p>	<p>K1, K2, K3</p> 	<p>NUT - HEX, METAL CAP 1/4-28 THRU 7/16-20 TO 350° F</p> <p>PAGE 46</p>
<p>LE141355</p> 	<p>NUT, SELF-LOCKING, HEX, REGULAR HEIGHT, 125 KSI FTU 4 - 40 THRU 3/4 - 16 TO 450° F AND 800° F <i>AN363, MS20365, MS21045, MS21046, NAS1021</i></p> <p>PAGE 47</p>	<p>NH</p> 	<p>NUT - DOUBLE HEX, HIGH TENSILE (180,000 PSI), 350° F 1/4 - 28 THRU 3/8 - 24 TO 350° F</p> <p>PAGE 48</p>
<p>LH141362</p> 	<p>NUT - DOUBLE HEX, 180 KSI, 450°F AND 800°F 10-32 THRU 3/8 - 24 TO 800° F <i>NAS1805</i></p> <p>PAGE 49</p>	<p>LH141385</p> 	<p>NUT - DOUBLE HEX, 180 KSI, 450°F 10-32 THRU 3/8 - 24 TO 450° F <i>NAS17828</i></p> <p>PAGE 50</p>

NUT - HEX, MINIATURE 1660



ESNA® PART NUMBERS					THREAD	A	B	C	L
STAINLESS STEEL	APPROX. WEIGHT (LB./100)	ALUMINUM ALLOY	APPROX. WEIGHT (LB./100)	BRASS	APPROX. WEIGHT (LB./100)	± .015	MAX - MIN	REF	REF
*				92-1660-00	0.013	0.065	0.110-0.104	0.119	0.045
*		68-1660-12	0.006	92-1660-12	0.017	0.080	0.126-0.119	0.136	0.060
79-1660-26	0.036	68-1660-26	0.012	92-1660-26	0.036	0.095	0.157-0.150	0.171	0.060
*		68-1660-24		92-1660-24	0.036	0.095	0.157-0.150	0.171	0.060
*			0.021	92-1660-38	0.062	0.110	0.189-0.181	0.207	0.070
*				92-1660-36	0.062	0.110	0.189-0.181	0.207	0.070
79-1660-40	0.060	68-1660-40	0.020	92-1660-40	0.060	0.110	0.189-0.181	0.207	0.070
*		68-1660-48			0.060	0.110	0.189-0.181	0.207	0.070

* CONTACT ESNA® FOR AVAILABILITY OF STAINLESS STEEL PARTS IN THESE SIZES

MATERIAL:

ALUMINUM ALLOY - 2011-T3 OR EQUIVALENT
BRASS - COMMERCIAL HALF HARD OR EQUIVALENT
STAINLESS STEEL - AISI TYPE 303 OR EQUIVALENT

FINISH:

ALUMINUM ALLOY - ALODINE, MIL-C-5541
BRASS - CADMIUM PLATE, SAE-AMS-QQ-P416 TYPE I, CLASS 3
STAINLESS STEEL - UNPLATED

LOCKING INSERT:

RED NYLON (350°F MAX PERFORMANCE)

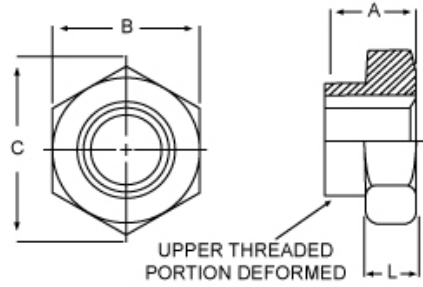
THREADS:

MIL-S-7742 OR AS8879

APPLICATION:

TYPE 1660 IS DESIGNED FOR USE ON MANY TYPES OF INSTRUMENTS, ELECTRONIC EQUIPMENT, MISSILES, AND RELATED PRODUCTS WHERE DESIGN FACTORS SUCH AS LIMITED INSTALLATION CLEARANCE, WEIGHT REDUCTION, OR SUB-MINIATURIZATION EFFORTS REQUIRE A SMALL SELF-LOCKING FASTENER.

NUT - HEX, MINIATURE,
ALL METAL, 450 F° &
800° F
LH1660



ESNA® PART NUMBERS			THREAD	A ± .025	B	C REF	L REF
STEEL, 450°F CADMIUM	CRES, 800°F SILVER	CRES, 800°F UNPLATED					
		79LH1660-26	0.0860-56UNJC-3B	0.095	0.157-0.150	0.171	0.051
		79LH1660-40	0.1120-40UNJC-3B	0.110	0.189-0.181	0.207	0.045
F22LH1660-50			0.1250-40UNJC-3B	0.120	0.189-0.181	0.207	0.045
	70LH1660-60		0.1380-40UNJC-3B	0.140	0.220-0.212	0.233	0.088

MATERIAL:

STEEL
CRES, AISI 303 OR EQUIV.

FINISH:

F22LH1660-XX - CADMIUM PLATE, SAE AMS-QQ-P-416, TYPE II CLASS 2
70LH1660-XX - SILVER PLATE
79LH1660-XX - UNPLATED, PASSIVATED

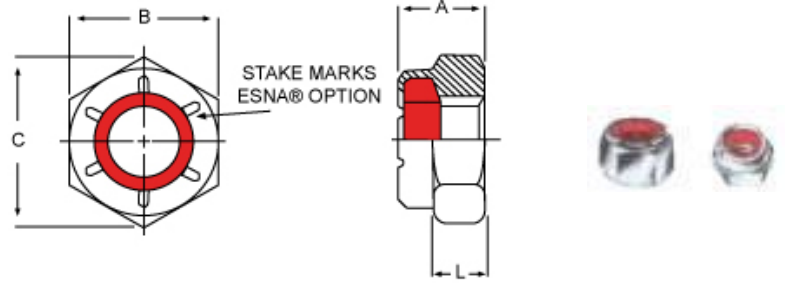
THREADS:

AS8879

APPLICATION:

TYPE LH1660 NUTS ARE DESIGNED FOR USE ON MANY TYPES OF INSTRUMENTS, ELECTRONIC EQUIPMENT, MISSILES AND RELATED PRODUCTS, WHERE APPLICATION CONDITIONS SUCH AS LIMITED INSTALLATION CLEARANCE, WEIGHT REDUCTION, OR SUB-MINIATURIZATION EFFORTS ON ASSEMBLY DESIGNS, MAKE USE OF AN ALL-METAL SELF-LOCKING NUT DESIRABLE.

**NUT - REDUCED HEX,
CONSOLIDATED DRAWING
M2297, NM107, NM408,
NM2234, TEE2032**



ESNA® PART NUMBERS	THREAD	A ± .010	B	C REF	L REF	ULTIMATE TENSILE STRENGTH (LB. MIN)	APPROX. WEIGHT (LB./100)	
22NM107-62	0.1380-32UNJC-3B	0.143	0.251-0.243	0.268	0.081	500	0.14	
97NM107-62		0.133			0.071	350		
79NM408-62					0.071	560		
22NM408-82	0.1640-32UNJC-3B	0.180	0.313-0.305	0.339	0.103	1,200	0.26	
79NM408-82		0.180			0.103	860		
79NM408-02	0.1900-32UNJF-3B	0.180	0.313-0.305	0.339	0.103	1,230	0.23	
22NM2234-02		0.190			0.148	1,500		
52M2297-02							0.148	1,500
59M2297-02								
79NM408-048	0.2500-28UNJF-3B	0.239	0.376-0.367	0.410	0.190	2,290	0.40	
52TEE2032-048					0.200	5,379		

MATERIAL:

"2" STEEL, UNTREATED
 "5" STEEL, HEAT TREATED TO ROCKWELL C 29-35
 "7" STAINLESS STEEL, AISI 303 OR EQUIV.
 "9" BRASS, COMMERCIAL HALF HARD

FINISH:

"2" CADMIUM PLATE, SAE AMS-QQ-P-416, TYPE I, CLASS 3
 "7" BRIGHT NICKEL PLATE
 "9" UNPLATED

LOCKING INSERT:

RED NYLON (350° MAX PERFORMANCE)

THREADS:

AS8879

PERFORMANCE:

NASM25027 AS APPLICABLE

APPLICATION:

THIS DRAWING LISTS HEXAGONS THAT ARE UNDERSIZED WITH RESPECT TO CONVENTIONAL NUT STANDARDS. THEY ARE OFFERED FOR POSSIBLE USE FOR APPLICATIONS WHERE WRENCH CLEARANCES ARE LIMITED. IN ADDITION, TYPE TEE2032-048 HAS BEEN MODIFIED TO PROVIDE AN INCREASED HEX HEIGHT AND IS HEAT TREATED RESULTING IN A PART OF REDUCED ENVELOPE, IMPROVED WRENCHING CHARACTERISTICS AND SUPERIOR TENSILE PERFORMANCE. IT IS ESPECIALLY SUITED FOR USE ON APPLICATIONS LIKE CONNECTING ROD CAP BOLTS.

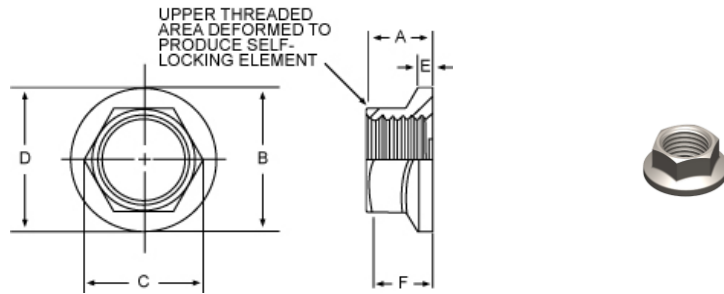
PART CODING:

F 2 2 NM107 - 62

1 2 3 4 5

1. FOR POST PLATE TREATMENT (PER SAE AMS-QQ-P-416, TYPE II) ON CADMIUM PLATED PARTS, PREFIX COMPLETE PART NUMBER WITH LETTER "F".
2. MATERIAL
3. FINISH
4. NUT TYPE
5. THREAD SIZE

NUT - REDUCED HEX, THIN,
LIGHTWEIGHT, 450°F & 800°F
LF3324, LF3858



ESNA® PART NUMBERS				THREAD	A MAX	B MIN	C MAX	D MIN	E REF	G*	APPROX. WEIGHT (LB./100)	ULTIMATE TENSILE STRENGTH		
STEEL, 450°F CAD W/DFL	STEEL, 450°F CAD	CRES, 450°F DFL	CRES, 450°F SILVER									STEEL	CRES	
M52LF3324-40	F52LF3324-40	MA9LF3858-40	LF3858-40	.1120-40 UNJC-3B	.125	.158 - .150	.171	.206	.010	.086	.003	.02	660	465
M52LF3324-62	F52LF3324-62	MA9LF3858-62	LF3858-62	.1380-32 UNJC-3B	.141	.190 - .181	.207	.244	.010	.101	.003	.06	1110	760
M52LF3324-82	F52LF3324-82	MA9LF3858-82	LF3858-82	.1640-32UNJC-3B	.188	.221 - .213	.244	.290	.015	.148	.003	.13	1670	1130
M52LF3324-02	F52LF3324-02	MA9LF3858-02	LF3858-02	.1900-32UNJF-3B	.188	.252 - .243	.277	.330	.015	.146	.003	.14	2490	1720
M52LF3324-4	F52LF3324-4	MA9LF3858-4	LF3858-4	.2500-28UNJF-3B	.219	.316 - .304	.347	.420	.019	.179	.003	.29	3470	2460
M52LF3324-5	F52LF3324-5	MA9LF3858-5	LF3858-5	.3125-24UNJF-3B	.266	.378 - .367	.419	.520	.023	.223	.004	.54	6200	4580
M52LF3324-6	F52LF3324-6	MA9LF3858-6	LF3858-6	.3750-24UNJF-3B	.282	.440 - .430	.491	.620	.030	.237	.004	.73	9820	7390
M52LF3324-7	F52LF3324-7	MA9LF3858-7	LF3858-7	.4375-20UNJF-3B	.328	.504 - .494	.562	.708	.035	.279	.005	1.20	15200	11450

MATERIAL:

STEEL, HEAT TREATED
CRES, A286

FINISH:

M52LF3324-XX - CADMIUM PLATE PLUS DRY FILM LUBRICANT. MEETS SALT SPRAY REQUIREMENTS OF SAE QQ-P-416 TYPE II.
F52LF3324-XX - CADMIUM PLATE, SAE QQ-P-416 TYPE II, CLASS 2
54LF3324-XX - Fe/Zn 8 PER ASTM B633 TYPE II
MA9LF3858-XX - DRY FILM LUBRICANT IN LIEU OF SILVER PLATE
LF3858-XX - SILVER PLATE PER AMS2410

THREADS:

AS8879 PRIOR TO THE ADDITION OF DRY FILM LUBRICANT

THREAD SQUARENESS*:

BEARING SURFACE PERPENDICULAR TO PITCH DIAMETER WITHIN "G" WHEN MEASURED IN ACCORDANCE WITH NASM25027

PERFORMANCE:

NASM25027 (800°F FOR CRES PARTS), EXCEPT WRENCH TORQUE MUST BE APPLIED WITH STANDARD SOCKET

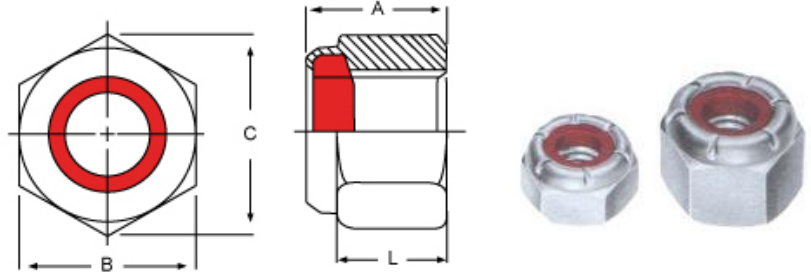
APPLICATION:

TYPES LF3324 AND LF3858 FEATURE REDUCED ENVELOPE, HIGH TEMPERATURE NUT DESIGNS IDEALLY SUITED FOR APPLICATIONS HAVING VERY LIMITED MOUNTING AND/OR WRENCHING AREAS. EACH SERIES ALSO PROVIDES ADDED 160,000psi PERFORMANCE WHILE THE LF3858 IS IDEALLY SUITED FOR USE IN APPLICATIONS REQUIRING A NON-MAGNETIC OR CORROSION RESISTANT FASTENER.

NOTES:

MAGNETIC PERMEABILITY OF ESNA TYPE LF3858 NUTS IS LESS THAN 2.0 (AIR 1.0) FOR A FIELD STRENGTH H=200 OERSTEDS USING A MAGNETIC PERMEABILITY INDICATOR PER ASTM A342 TEST METHOD 3. AT HEIGHT "F" OR LOWER, ACROSS POINTS DIMENSION SHALL BE "C" MIN. CRES PARTS MARKED WITH LETTER "C" ON SIZE -4 AND LARGER

NUT - HEX, LIGHT
NE, NM



THREAD SIZE	ESNA PART NUMBERS	MATERIAL & FINISH	ULTIMATE TENSILE STRENGTH (LB. MIN)	APPROX. WEIGHT (LB./100)	THREAD	A	B	C	L
								REF	REF
#1	22NM-12	STEEL-CADMIUM		0.14	.0730-72UNF3B	0.153-0.133	0.251-0.243	0.268	0.081
#2	22NM-26	STEEL-CADMIUM	440	0.14	.0860-56UNJC3B	0.153-0.133	0.251-0.243	0.268	0.081
	68NM-26	ALUMINUM-ANODIZED		0.15					
	79NM-26	STAINLESS-UNPLATED	440	0.14					
#3	22NM-36	STEEL-CADMIUM		0.14	.0990-48UNJC3B	0.153-0.133	0.251-0.243	0.268	0.081
	68NM-38	ALUMINUM-ANODIZED		0.05	.0990-48UNJC3B				
	79NM-38	STAINLESS-UNPLATED		0.14					
#4	22NM-40	STEEL-CADMIUM	750	0.14	.1120-40UNJC3B	0.153-0.133	0.251-0.243	0.268	0.081
	29NM-40	STEEL-UNPLATED	750	0.14	.1120-40UNC2B				
	68NM-40	ALUMINUM-ANODIZED	350	0.05	.1120-40UNJC3B				
	79NM-40	STAINLESS-UNPLATED	750	0.14					
	92NM-40	BRASS-CADMIUM		0.15					
	97NM-40	BRASS-BRIGHT NICKEL		0.15					
		99NM-40	BRASS-UNPLATED		0.15				
	22NM-48	STEEL-CADMIUM	820	0.14	.1120-48UNJF3B				
#5	22NM-50	STEEL-CADMIUM	900	0.14	.1250-40UNJC3B	0.153-0.133	0.251-0.243	0.268	0.081
	68NM-50	ALUMINUM-ANODIZED	450	0.05					
	79NM-50	STAINLESS-UNPLATED	900	0.14					
#6	22NM-60	STEEL-CADMIUM	1,250	0.26	.1380-40UNJF3B	0.188-0.168	0.313-0.305	0.339	0.103
	29NM-60	STEEL-UNPLATED			.1380-40UNF2B				
	22NM-62	STEEL-CADMIUM	1,130	0.26	.1380-32UNJC3B				
	29NM-62	STEEL-UNPLATED			.1380-32UNC2B				
	68NM-62	ALUMINUM-ANODIZED	325	0.09	.1380-32UNJC3B				
	79NM-62	STEEL-UNPLATED	1,130	0.26					
	97NM-62	BRASS-BRIGHT NICKEL		0.28					
99NM-62	BRASS-UNPLATED								
#8	22NM-82	STEEL-CADMIUM	1,720	0.42	.1640-32UNJC3B	0.239-0.219	0.345-0.336	0.374	0.140
	29NM-82	STEEL-UNPLATED			.1640-32UNC2B				
	68NM-82	ALUMINUM-ANODIZED	850	0.15	.1640-32UNJC3B				
	79NM-82	STAINLESS-UNPLATED	1,720	0.42					
	92NM-82	BRASS-CADMIUM		0.46					
	99NM-82	BRASS-UNPLATED							
	22NM-86	STEEL-CADMIUM	1,850	0.42	.1640-32UNJF3B				
#10	22NM-02	STEEL-CADMIUM	2,460	0.50	.1900-32UNJF3B	0.249-0.229	0.376-0.367	0.410	0.140
	29NM-02	STEEL-UNPLATED			.1900-32UNF2B				
	68NM-02	ALUMINUM-ANODIZED	1,220	0.18	.1900-32UNJF3B				
	79NM-02	STAINLESS-UNPLATED	2,460	0.50					
	92NM-02	BRASS-CADMIUM		0.55					
	97NM-02	BRASS-BRIGHT NICKEL							
	99NM-02	BRASS-UNPLATED							
	22NM-04	STEEL-CADMIUM	2,100	0.50	.1900-24UNJC3B				
	29NM-04	STEEL-UNPLATED			.1900-24UNC2B				
	68NM-04	ALUMINUM-ANODIZED	1,000	0.18	.1900-24UNJC3B				
79NM-04	STAINLESS-UNPLATED	2,010	0.50						
92NM-04	BRASS-UNPLATED		0.55						
99NM-04	BRASS-UNPLATED								
#12	22NM-124	STEEL-CADMIUM	2,900	0.92	.2160-24UNJC3B	0.328-0.298	0.439-0.430	0.482	0.225
	79NM-124	STAINLESS-UNPLATED							
	22NM-128	STEEL-CADMIUM	3,100		.2160-24UNJF3B				

THREAD SIZE	ESNA PART NUMBERS	MATERIAL & FINISH	ULTIMATE TENSILE STRENGTH (LB. MIN)	APPROX. WEIGHT (LB./100)	THREAD	A	B	C REF	L REF
1/4	21NE-040	STEEL-ZINC			.2500-20UNJC-3B	0.328-0.298	0.439-0.430	0.482	0.225
	29NE-040	STEEL-UNPLATED		0.90	.2500-20UNC-2B				
	42NE-040	STEEL-CADMIUM	3,760						
	68NE-040	ALUMINUM-ANODIZED	1,860	0.32					
	79NE-040	STAINLESS-UNPLATED	3,760	0.90	.2500-20UNJC-3B				
	92NE-040	BRASS-CADMIUM							
	99NE-040	BRASS-UNPLATED		0.98					
	21NE-048	STEEL-ZINC			.2500-28UNJF-3B				
	29NE-048	STEEL-UNPLATED		0.90	.2500-28UNF-2B				
	42NE-048	STEEL-CADMIUM	4,580						
	68NE-048	ALUMINUM-ANODIZED	2,270	0.32					
	79NE-048	STAINLESS-UNPLATED	4,580	0.90	.2500-28UNJF-3B				
99NE-048	BRASS-UNPLATED		0.98						
5/16	21NE-054	STEEL-ZINC			.3125-24UNJF-3B	0.359-0.329	0.502-0.492	0.552	0.250
	29NE-054	STEEL-UNPLATED		1.20	.3125-24UNF-2B				
	42NE-054	STEEL-CADMIUM							
	79NE-054	STAINLESS-UNPLATED	7,390		.3125-24UNJF-3B				
	99NE-054	BRASS-UNPLATED		1.30					
	21NE-058	STEEL-ZINC			.3125-18UNJC-3B				
	29NE-058	STEEL-UNPLATED		1.20	.3125-18UNC-2B				
	42NE-058	STEEL-CADMIUM	6,360						
	68NE-058	ALUMINUM-ANODIZED	3,150	0.43	.3125-18UNJC-3B				
79NE-058	STAINLESS-UNPLATED	6,360	1.20						
99NE-058	BRASS-UNPLATED		1.30						
3/8	21NE-064	STEEL-ZINC			.3750-24UNJF-3B	0.468-0.438	0.564-0.553	0.622	0.335
	29NE-064	STEEL-UNPLATED		1.80	.3750-24UNF-2B				
	52NE-064	STEEL-CADMIUM	11,450						
	68NE-064	ALUMINUM-ANODIZED	5,680	0.65	.3750-24UNJF-3B				
	79NE-064	STAINLESS-UNPLATED	11,450	1.80					
	99NE-064	BRASS-UNPLATED		2.00					
	21NE-066	STEEL-ZINC			.3750-16UNJC-3B				
	29NE-066	STEEL-UNPLATED		1.80	.3750-16UNC-2B				
	52NE-066	STEEL-CADMIUM	9,540						
	68NE-066	ALUMINUM-ANODIZED	4,730	0.65	.3750-16UNJC-3B				
	79NE-066	STAINLESS-UNPLATED	9,540	1.80					
	99NE-066	BRASS-UNPLATED		2.00					
7/16	21NE-070	STEEL-ZINC		2.30	.4375-20UNJF-3B	0.468-0.438	0.627-0.616	0.698	0.324
	29NE-070	STEEL-UNPLATED			.4375-20UNF-2B				
	52NE-070	STEEL-CADMIUM	15,450						
	79NE-070	STAINLESS-UNPLATED			.4375-20UNJF-3B				
	52NE-070U	STEEL-CADMIUM	15,450	3.10					
	68NE-070U	ALUMINUM-ANODIZED	7,660	1.10					
	21NE-074	STEEL-ZINC		2.30	.4375-14UNJC-3B		0.627-0.616	0.698	
	29NE-074	STEEL-UNPLATED			.4375-14UNC-2B				
	52NE-074	STEEL-CADMIUM	13,140						
	79NE-074	STAINLESS-UNPLATED			.4375-14UNJC-3B				
	52NE-074U	STEEL-CADMIUM		3.10					
	79NE-074U	STEEL-UNPLATED	13,140						
1/2	21NE-080	STEEL-ZINC		4.30	.5000-20UNJF-3B	0.609-0.579	0.752-0.741	0.837	0.464
	29NE-080	STEEL-UNPLATED			.5000-20UNF-2B				
	52NE-080	STEEL-CADMIUM	21,110						
	79NE-080	STAINLESS-UNPLATED			.5000-20UNJF-3B				
	99NE-080	BRASS-UNPLATED		4.70					
	21NE-083	STEEL-ZINC		4.30	.5000-13UNJC-3B				
	29NE-083	STEEL-UNPLATED			.5000-13UNC-3B				
	52NE-083	STEEL-CADMIUM	17,730						
	79NE-083	STAINLESS-UNPLATED			.5000-13UNJC-3B				
99NE-083	BRASS-UNPLATED		4.70						
9/16	21NE-098	STEEL-ZINC			.5625-18UNJF-3B	0.656-0.626	0.877-0.865	0.978	0.469
	29NE-098	STEEL-UNPLATED			.5625-18UNF-2B				
	52NE-098	STEEL-CADMIUM		7.10					
	79NE-098	STAINLESS-UNPLATED	26,810		.5625-18UNJF-3B				
	21NE-092	STEEL-ZINC			.5625-12UNJC-3B				

THREAD SIZE	ESNA PART NUMBERS	MATERIAL & FINISH	ULTIMATE TENSILE STRENGTH (LB. MIN)	APPROX. WEIGHT (LB./100)	THREAD	A	B	C REF	L REF	
5/8	21NE-101	STEEL-ZINC		8.30	.6250-11UNJC-3B	0.765-0.735	0.940-0.928	1.051	0.593	
	29NE-101	STEEL-UNPLATED			.6250-11UNC-2B					
	52NE-101	STEEL-CADMIUM	28,530							
	79NE-101	STAINLESS-UNPLATED		9.00	.6250-11UNJC-3B					
	99NE-101	BRASS-UNPLATED								
	21NE-108	STEEL-ZINC			8.30					.6250-18UNJF-3B
	29NE-108	STEEL-UNPLATED								.6250-18UNF-2B
52NE-108	STEEL-CADMIUM	34,130								
79NE-108	STAINLESS-UNPLATED									
3/4	41NE-120	STEEL-ZINC		12.00	.7500-10UNJC-3B	0.890-0.860	1.064-1.052	1.191	0.742	
	49NE-120	STEEL-UNPLATED			.7500-10UNC-2B					
	79NE-120	STAINLESS-UNPLATED								
	99NE-120	BRASS-UNPLATED		13.00	.7500-10UNJC-3B					
	41NE-126	STEEL-ZINC		12.00	.7500-16UNJF-3B					
	49NE-126	STEEL-UNPLATED			.7500-16UNF-2B					
59NE-126	STEEL-UNPLATED	50,020								
7/8	41NE-144	STEEL-ZINC		19.00	.8750-14UNJF-3B	0.999-0.969	1.252-1.239	1.403	0.790	
	49NE-144	STEEL-UNPLATED			.8750-14UNF-2B					
	52NE-144	STEEL-CADMIUM	68,440							.8750-14UNJF-3B
	41NE-149	STEEL-ZINC								.8750-9UNJC-3B
	49NE-149	STEEL-UNPLATED								.8750-9UNC-2B
1	41NE-164	STEEL-ZINC		27.00	1.0000-14UNJS-3B	1.078-1.016	1.440-1.427	1.615	0.825	
	49NE-164	STEEL-UNPLATED			1.0000-14UNS-2B					
	52NE-164	STEEL-CADMIUM	92,180							1.0000-14UNJS-3B
	41NE-168	STEEL-ZINC								1.0000-8UNJC-3B
	49NE-168	STEEL-UNPLATED								1.0000-8UNC-2B
	52NE-168	STEEL-CADMIUM	79,1280							1.0000-8UNJC-3B
1 1/8	41NE-182	STEEL-ZINC		41.00	1.1250-12UNJF-3B	1.203-1.141	1.627-1.614	1.826	0.930	
	49NE-182	STEEL - UNPLATED			1.1250-12UNF-2B					
	52NE-182	STEEL - CADMIUM	116,700							1.1250-12UNJF-3B
1 1/4	41NE-202	STEEL-ZINC		58.00	1.2500-12UNJF-3B	1.422-1.360	1.815-1.801	2.038	1.125	
	49NE-202	STEEL - UNPLATED			1.2500-12UNF-2B					
	52NE-202	STEEL - CADMIUM	147,940							1.2500-12UNJF-3B
1 3/8	49NE-222	STEEL - UNPLATED		77.00	1.3750-12UNF-2B	1.609-1.547	2.008-1.973	2.232	1.282	
	49NE-226	STEEL - UNPLATED			1.3750-6UNC-2B					
1 1/2	41NE-242	STEEL-ZINC		100.00	1.5000-12UNJF-3B	1.640-1.578	2.197-2.159	2.444	1.313	
	49NE-242	STEEL - UNPLATED			1.5000-12UNF-2B					
	52NE-242	STEEL - CADMIUM			1.5000-12UNJF-3B					
	59NE-242	STEEL - UNPLATED			1.5000-12UNF-2B					

MATERIAL:

- "2" STEEL
 "4" STEEL
 "5"
 "6" ALUMINUM ALLOY - 2017-T4 OR EQUIV.
 "7" STAINLESS STEEL - AISI 303 OR EQUIV.
 "9" BRASS - COMMERCIAL HALF HARD OR EQUIV.

FINISH:

- "1" ZINC PLATE, ASTM B633 FE/ZN 8 SC2
 "2" CADMIUM PLATE, SAE-AMS-QQ- P-416 TYPE I, CLASS 3
 (SEE PART CODING NOTE)
 "7" BRIGHT NICKEL PLATE
 "8" ANODIZED, MIL-A-8625
 "9" UNPLATED

LOCKING INSERT:

RED NYLON (350°F MAX PERFORMANCE)

THREADS:

AS8879 OR MIL-S-7742

THREAD SQUARENESS:

ESNA@ SPEC 405, GROUP I

PERFORMANCE/APPROVAL STATUS:

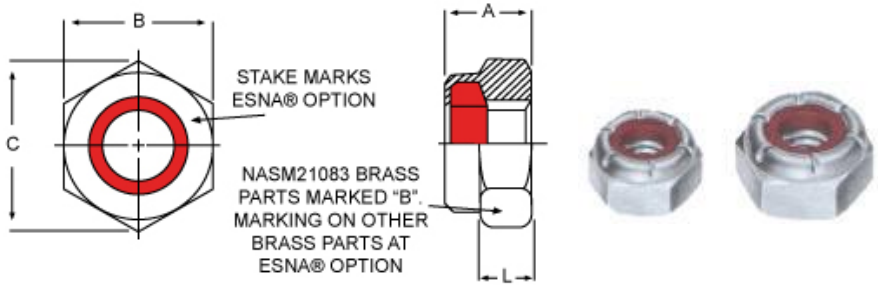
NASM25027 AS APPLICABLE

PART CODING:**F 5 2 NE - 070**

1 2 3 4 5

1. POST PLATE TREATMENT - CHROMATE FORTIFICATION ON CADMIUM PLATED PARTS ONLY. ON CADMIUM PLATED BRASS PARTS, THE LETTER "Y" IS USED TO DESIGNATE "TYPE II" PLATING IN LIEU OF THE LETTER "F". AN EXAMPLE WOULD BE: Y92NM-02.
2. MATERIAL
3. FINISH
4. NUT TYPE
5. THREAD SIZE

NUT - HEX, LIGHT
NTM - NTE



THREAD SIZE	ESNA® PART NUMBERS	MATERIAL & FINISH	ULTIMATE TENSILE STRENGTH (LB. MIN)	APPROX. WEIGHT (LB./100)	THREAD	A	B	C REF	L REF						
#2	22NTM-26	STEEL-CADMIUM		.10	.0860-56UNJC-3B	.094-.124	.251-.243	.268	.075						
#3	99NTM-38	BRASS-UNPLATED		.11	.0990-48UNJC-3B	.094-.124	.251-.243	.268	.075						
#4	22NTM-40	STEEL-CADMIUM	370	.10	.1120-40UNJC-3B	.094-.124	.251-.243	.268	.075						
	68NTM-40	ALUMINUM-ANODIZED		.04											
	79NTM-40	STAINLESS-UNPLATED	370	.10											
	92NTM-40	BRASS-CADMIUM		.11											
	97NTM-40	BRASS-BRIGHT NICKEL													
	99NTM-40	BRASS-UNPLATED													
	22NTM-48	STEEL-CADMIUM		.10	.1120-48UNJF-3B										
#5	22NTM-50	STEEL-CADMIUM		.10	.1250-40UNJC-3B	.094-.124	.251-.243	.268	.075						
	68NTM-50	ALUMINUM-ANODIZED		.04											
#6	22NTM-62	STEEL-CADMIUM	560	.19	.1380-32UNJC-3B	.110-.140	.313-.305	.339	.090						
	68NTM-62	ALUMINUM-ANODIZED		.07											
	79NTM-62	STAINLESS-UNPLATED	560	.19											
	92NTM-62	BRASS-CADMIUM		.21											
	97NTM-62	BRASS-BRIGHT NICKEL													
	99NTM-62	BRASS-UNPLATED													
		22NTM-60	STEEL-CADMIUM							.19	.1380-40UNJF-3B				
		79NTM-60	STAINLESS-UNPLATED												
	99NTM-60	BRASS-UNPLATED													
#8	22NTM-82	STEEL-CADMIUM	860	.30	.1640-32UNJC-3B	.157-.187	.345-.336	.374	.110						
	68NTM-82	ALUMINUM-ANODIZED	425	.12											
	79NTM-82	STAINLESS-UNPLATED		.30											
	92NTM-82	BRASS-CADMIUM		.33											
	97NTM-82	BRASS-BRIGHT NICKEL													
	99NTM-82	BRASS-UNPLATED													
		22NTM-86	STEEL-CADMIUM	920						.30	.1640-36UNJF-3B				
		79NTM-86	STAINLESS-UNPLATED												
#10	22NTM-04	STEEL-CADMIUM		.35	.1900-24UNJC-3B	.157-.187	.376-.367	.410	.110						
	68NTM-04	ALUMINUM-ANODIZED		.14											
	79NTM-04	STAINLESS-UNPLATED		.35											
	97NTM-04	BRASS-BRIGHT NICKEL		.38											
		22NTM-02	STEEL-CADMIUM		.35					.1900-32UNJF-3B					
		27NTM-02	STEEL-BRIGHT NICKEL	1,230											
		68NTM-02	ALUMINUM-ANODIZED	610										.14	
		79NTM-02	STAINLESS-UNPLATED	1,230										.35	
		92NTM-02	BRASS-CADMIUM											.38	
		97NTM-02	BRASS-BRIGHT NICKEL												
	99NTM-02	BRASS-UNPLATED													
#12	22NTM-124	STEEL-CADMIUM		.54	.2160-24UNJC-3B	.188-.218	.439-.430	.482	.125						
1/4	21NTE-040	STEEL-ZINC		.50	.2500-20UNJC-3B	.188-.218	.439-.430	.482	.125						
	29NTE-040	STEEL - UNPLATED			.2500-20UNC-2B										
	79NTE-040	STAINLESS-UNPLATED			.2500-20UNJC-3B										
	21NTE-048	STEEL-ZINC			.2500-28UNJF-3B										
	29NTE-048	STEEL - UNPLATED			.2500-28UNF-2B										
		52NTE-048	STEEL-CADMIUM		2,290					.2500-28UNJF-3B					
		68NTE-048	ALUMINUM-ANODIZED		1,140										.18
		79NTE-048	STAINLESS-UNPLATED												.50
	99NTE-048	BRASS-UNPLATED		.59											

THREAD SIZE	ESNA® PART NUMBERS	MATERIAL & FINISH	ULTIMATE TENSILE STRENGTH (LB. MIN)	APPROX. WEIGHT (LB./100)	THREAD	A	B	C REF	L REF
5/16	21NTE-058	STEEL-ZINC		.80	.3125-18UNJC-3B	.235-.265	502	.552	.158
	29NTE-058	STEEL - UNPLATED			.3125-18UNC-2B				
	21NTE-054	STEEL-ZINC			.3125-UNJF-3B				
	29NTE-054	STEEL - UNPLATED		.3125-24UNF-2B					
	68NTE-054	ALUMINUM-ANODIZED	1,830	.3125-24UNJF-3B					
	79NTE-054	STAINLESS-UNPLATED	.80						
99NTE-054	BRASS-UNPLATED	.87							
3/8	21NTE-066	STEEL-ZINC		.95	.3750-16UNJC-3B	.251-.281	.564-.553	.622	.150
	29NTE-066	STEEL - UNPLATED			.3750-16UNC-2B				
	52NTE-066	STEEL-CADMIUM			.3750-16UNJC-3B				
	79NTE-066	STAINLESS-UNPLATED			.3750-24UNJF-3B				
	21NTE-064	STEEL-ZINC			.3750-24UNF-2B				
	29NTE-064	STEEL - UNPLATED			.3750-24UNJF-3B				
	52NTE-064	STEEL-CADMIUM	5,700						
	68NTE-064	ALUMINUM-ANODIZED	2,840						
	79NTE-064	STAINLESS-UNPLATED	.95	1.00					
99NTE-064	BRASS-UNPLATED	1.00							
7/16	21NTE-070	STEEL-ZINC		1.30	.4375-20UNJF-3B	.298-.328	.627-.615	.694	.225
	29NTE-070	STEEL - UNPLATED			.4375-20UNF-2B				
	52NTE-070	STEEL-CADMIUM	7,720		.4375-20UNJF-3B				
	79NTE-070	STAINLESS-UNPLATED							
	79NTE-070U	STAINLESS-UNPLATED		2.10					
1/2	21NTE-080	STEEL-ZINC		2.00	.5000-20UNJF-3B	.298-.328	.741-.752	.837	.190
	29NTE-080	STEEL - UNPLATED			.5000-20UNF-3B				
	52NTE-080	STEEL-CADMIUM	10,550		.5000-20UNJF-3B				
	68NTE-080	ALUMINUM-ANODIZED	5,240						
	79NTE-080	STAINLESS-UNPLATED	2.00						
	99NTE-080	BRASS-UNPLATED	2.20						
9/16	21NTE-098	STEEL-ZINC		3.50	.5625-18UNJF-3B	.344-.374	.877-.865	.978	.225
	29NTE-098	STEEL - UNPLATED		.5625-18UNF-2B					
	52NTE-098	STEEL-CADMIUM	13,400	.5625-18UNJF-3B					
5/8	21NTE-108	STEEL-ZINC		3.90	.6250-18UNJF-3B	.376-.406	.940-.928	1.051	.265
	29NTE-108	STEEL - UNPLATED			.6250-18UNF-2B				
	52NTE-108	STEEL-CADMIUM	17,060	.6250-18UNJF-3B					
	68NTE-108	ALUMINUM-ANODIZED	8,460						
3/4	41NTE-126	STEEL-ZINC		5.20	.7500-16UNJF-3B	.391-.421	1.064-1.052	1.191	.288
	49NTE-126	STEEL - UNPLATED			.7500-16UNF-2B				
	52NTE-126	STEEL-CADMIUM	25,010	.7500-16UNJF-3B					
	68NTE-126	ALUMINUM-ANODIZED	12,400						
7/8	41NTE-144	STEEL-ZINC		8.00	.8750-14UNJF-3B	.454-.484	1.252-1.239	1.403	.340
	49NTE-144	STEEL - UNPLATED		.8750-14UNF-2B					
	52NTE-144	STEEL-CADMIUM	34,220	.8750-14UNJF-3B					
1	41NTE-164	STEEL-ZINC		14.00	1.000-14UNJS-3B	.516-.578	1.440-1.427	1.615	.405
	49NTE-164	STEEL - UNPLATED			1.000-14UNS-2B				
1 1/8	41NTE-182	STEEL-ZINC		19.00	1.1250-12UNJF-3B	.610-.672	1.627-1.614	1.826	.500
	49NTE-182	STEEL - UNPLATED			1.1250-12UNF-2B				
	52NTE-182	STEEL-CADMIUM	58,350		1.1250-12UNJF-3B				
1 1/4	41NTE-202	STEEL-ZINC		27.00	1.2500-12UNJF-3B	.703-.765	1.815-1.801	2.038	.523
	49NTE-202	STEEL - UNPLATED			1.2500-12UNF-2B				
	52NTE-202	STEEL-CADMIUM			1.2500-12UNJF-3B				
1 3/8	41NTE-222	STEEL-ZINC		33.00	1.3750-12UNJF-3B	.759-.821	2.008-1.973	2.249	.493
	49NTE-222	STEEL - UNPLATED			1.3750-12UNF-2B				
	52NTE-222	STEEL-CADMIUM			1.3750-12UNJF-3B				
1 1/2	41NTE-242	STEEL-ZINC		43.00	1.5000-12UNJF-3B	.766-.828	2.197-2.159	2.416	.565
	49NTE-242	STEEL - UNPLATED			1.5000-12UNF-2B				
	52NTE-242	STEEL-CADMIUM			1.5000-12UNJF-3B				

MATERIAL:

"2"

"4"

"5"

"6" ALUMINUM ALLOY - 2017-T4 OR EQUIV.

"7" STAINLESS STEEL - AISI 303 OR EQUIV.

"9" BRASS - COMMERCIAL HALF HARD OR EQUIV.

FINISH:

"1" ZINC PLATE, ASTM B633 Fe/Zn 8 SC2

"2" CADMIUM PLATE, SAE-AMS-QQ-P-416 TYPE I, CLASS 3 (SEE PART CODING NOTE)

"7" BRIGHT NICKEL PLATE

"8" ANODIZED, MIL-A-8625

"9" UNPLATED

LOCKING INSERT:

RED NYLON (350°F MAX PERFORMANCE)

THREADS:

AS8879 OR MIL-S-7742

THREAD SQUARENESS:

ESNA® SPEC 405, GROUP I

PERFORMANCE/APPROVAL STATUS:

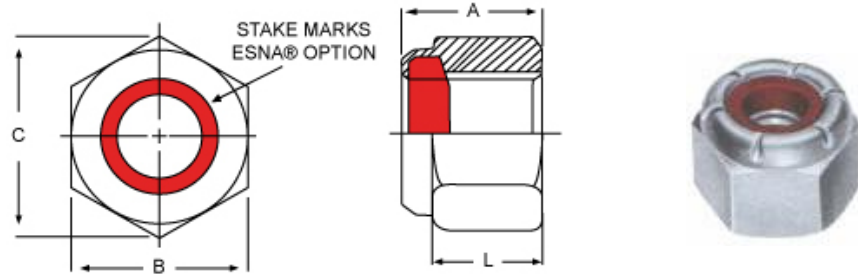
NASM25027 AS APPLICABLE

PART CODING:**F 5 2 NE - 070**

1	2	3	4	5

1. POST PLATE TREATMENT - PER SAE AMSQQ-P-416, TYPE II, CLASS 2 ON CADMIUM PLATED PARTS ONLY.
2. MATERIAL
3. FINISH
4. NUT TYPE
5. THREAD SIZE

NUT - HEX, HEAVY
NU



THREAD SIZE	ESNA® PART NUMBERS	MATERIAL & FINISH	APPROX. WEIGHT (LB./100)	THREAD	A	B	C REF	L REF
1/4	21NU-040	STEEL-ZINC	1.50	.2500-20UNJC-3B	.390-.360	.506-.489	.556	.290
	29NU-040	STEEL-UNPLATED		.2500-20UNC-2B				
	79NU-040	STAINLESS-UNPLATED	1.50	.2500-20UNJC-3B				
	99NU-040	BRASS-UNPLATED		1.60				
5/16	21NU-058	STEEL-ZINC	2.10	.3125-18UNJC-3B	.453-.423	.566-.551	.624	.335
	29NU-058	STEEL-UNPLATED		.3125-18UNC-2B				
	79NU-058	STAINLESS-UNPLATED	2.30	.3125-18UNJC-3B				
	99NU-058	BRASS-UNPLATED		2.30				
3/8	21NU-066	STEEL-ZINC	3.80	.3750-16UNJC-3B	.562-.532	.691-.675	.763	.392
	29NU-066	STEEL-UNPLATED		.3750-16UNC-2B				
	52NU-066	STEEL-CADMIUM		.3750-16UNJC-3B				
	79NU-066	STAINLESS-UNPLATED						
	99NU-066	BRASS-UNPLATED	4.10					
7/16	21NU-074	STEEL-ZINC	4.80	.4375-14UNJC-3B	.609-.579	.754-.736	.829	.464
	29NU-074	STEEL-UNPLATED		.4375-14UNC-2B				
1/2	21NU-083	STEEL-ZINC	8.20	.5000-13UNJC-3B	.718-.688	.879-.861	.969	.544
	29NU-083	STEEL-UNPLATED		.5000-13UNC-2B				
	52NU-083	STEEL-CADMIUM		.5000-13UNJC-3B				
	79NU-083	STAINLESS-UNPLATED						
	99NU-083	BRASS-UNPLATED	8.90					
9/16	21NU-092	STEEL-ZINC	10.00	.5625-12UNJC-3B	.812-.782	.942-.922	1.037	.655
5/8	21NU-101	STEEL-ZINC	14.00	.6250-11UNJC-3B	.874-.844	1.067-1.045	1.175	.677
	29NU-101	STEEL-UNPLATED		.6250-11UNC-2B				
	79NU-101	STAINLESS-UNPLATED	15.00	.6250-11UNJC-3B				
	99NU-101	BRASS-UNPLATED		15.00				
3/4	41NU-120	STEEL-ZINC	23.00	.7500-10UNJC-3B	1.015-.985	1.255-1.231	1.382	.790
	49NU-120	STEEL-UNPLATED		.7500-10UNC-2B				
7/8	41NU-149	STEEL-ZINC	34.00	.8750-9UNJC-3B	1.140-1.110	1.444-1.417	1.589	.883
	49NU-149	STEEL-UNPLATED		.8750-9UNC-3B				
1	41NU-168	STEEL-ZINC	48.00	1.0000-8UNJC-3B	1.312-1.250	1.632-1.602	1.796	1.000
	49NU-168	STEEL-UNPLATED		1.0000-8UNC-2B				
1 1/8	41NU-187	STEEL-ZINC	69.00	1.1250-7UNJC-3B	1.469-1.407	1.820-1.788	2.002	1.096
	49NU-187	STEEL-UNPLATED		1.1250-7UNC-2B				
1 1/4	41NU-207	STEEL-ZINC	92.00	1.2500-7UNJC-3B	1.672-1.610	2.008-1.973	2.209	1.250
	49NU-207	STEEL-UNPLATED		1.2500-7UNC-2B				
1 3/8	49NU-226	STEEL-UNPLATED	120.00	1.3750-6UNC-2B	1.828-1.766	2.197-2.159	2.416	1.376
1 1/2	49NU-246	STEEL-UNPLATED	150.00	1.5000-6UNC-2B	1.953-1.891	2.384-2.344	2.622	1.413
1 3/4	49NU-285	STEEL-UNPLATED	240.00	1.7500-5UNJC-3B	2.376-2.250	2.762-2.715	3.035	1.830
2	49NU-324	STEEL-UNPLATED	310.00	2.0000-4.5UNJC-3B	2.469-2.343	3.137-3.086	3.449	1.750
	49NU-3208	STEEL-UNPLATED	310.00	2.0000-8UN-3B	2.469-2.343	3.137-3.086	3.449	1.750
	49NU-3212	STEEL-UNPLATED	310.00	2.0000-12UN3B	2.469-2.343	3.137-3.086	3.449	1.750
2 1/2	49NU-4008	STEEL-UNPLATED	682.00	2.5000-8UN-3B	3.204-3.078	4.015-3.875	4.618	2.475

MATERIAL:

"2" STEEL
"4" STEEL
"5" STEEL
"7" STAINLESS STEEL - AISI 303 OR EQUIV.
"9" BRASS - COMMERCIAL HALF HARD OR EQUIV.

FINISH:

"1" ZINC PLATE (.0002 MIN THICKNESS)
"2" CADMIUM PLATE SAE-AMS-QQ-P-416 TYPE I, CLASS 3
"9" UNPLATED

LOCKING INSERT:

RED NYLON (350°F MAX PERFORMANCE)

THREAD SQUARENESS:

ESNA® SPEC 405, GROUP I

THREADS:

MIL-S-7742 OR AS8879

PERFORMANCE:

LOCKING TORQUE IN ACCORDANCE W/ NASM25027

APPROVAL STATUS:

ESNA® TYPE NU NUTS ARE APPROVED UNDER ARMY ORDNANCE DRAWINGS BBSX2 AND BBSX3

APPLICATION:

TYPE "NU" NUTS ARE CONSIDERED TO BE ALTERNATE SELF-LOCKING DESIGNS FOR THE AMERICAN STANDARD HEAVY HEX SERIES

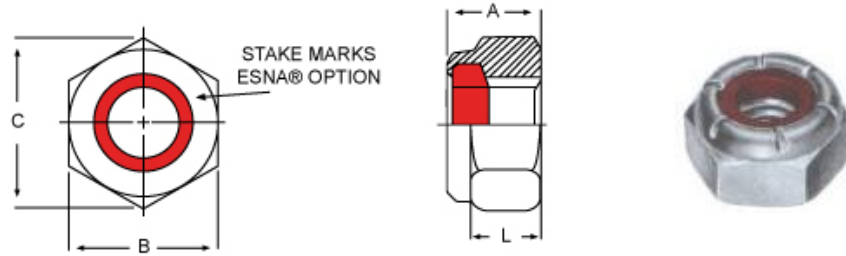
PART CODING:

2 9 NU - 040

1 2 3 4

1. MATERIAL
2. FINISH
3. NUT TYPE
4. THREAD SIZE

NUT - HEX, HEAVY,
THIN
NTU



THREAD SIZE	ESNA® PART NUMBERS	MATERIAL & FINISH	APPROX. WEIGHT (LB./100)	THREAD	A	B	C REF	L REF
1/4	21NTU-040	STEEL-ZINC	1.00	.2500-20UNJC-3B	.296-.266	.502-.492	.552	.194
	29NTU-040	STEEL-UNPLATED		.2500-20UNC-2B				
	79NTU-040	STAINLESS-UNPLATED		.2500-20UNJC-3B				
5/16	21NTU-058	STEEL-ZINC	1.40	.3125-18UNJC-3B	.328-.298	.564-.553	.622	.212
	29NTU-058	STEEL-UNPLATED		.3125-18UNC-2B				
	79NTU-058	STAINLESS-UNPLATED		.3125-18UNJC-3B				
3/8	21NTU-066	STEEL-ZINC	2.70	.3750-16UNJC-3B	.421-.391	.690-.679	.766	.251
	29NTU-066	STEEL-UNPLATED		.3750-16UNC-2B				
	79NTU-066	STAINLESS-UNPLATED	.3750-16UNJC-3B					
	99NTU-066	BRASS-UNPLATED		2.90				
7/16	21NTU-074	STEEL-ZINC	3.30	.4375-14UNJC-3B	.453-.423	.752-.741	.837	.316
	29NTU-074	STEEL-UNPLATED		.4375-14UNC-3B				
1/2	21NTU-083	STEEL-ZINC	5.40	.5000-13UNJC-3B	.546-.516	.877-.865	.978	.360
	29NTU-083	STEEL-UNPLATED		.5000-13UNC-2B				
	79NTU-083	STAINLESS-UNPLATED		.5000-13UNJC-3B				
5/8	21NTU-101	STEEL-ZINC	9.20	.6250-11UNJC-3B	.624-.594	1.064-1.052	1.191	.428
	29NTU-101	STEEL-UNPLATED		.6250-11UNC-2B				
	79NTU-101	STAINLESS-UNPLATED		.6250-11UNJC-3B				
3/4	41NTU-120	STEEL-ZINC	15.00	.7500-11UNJC-3B	.718-.688	1.252-1.239	1.403	.488
	49NTU-120	STEEL-UNPLATED		.7500-11UNC-2B				
	79NTU-120	STAINLESS-UNPLATED		.7500-11UNJC-3B				
7/8	41NTU-149	STEEL-ZINC	21.00	.8750-9UNJC-3B	.796-.766	1.440-1.427	1.615	.535
	49NTU-149	STEEL-UNPLATED		.8750-9UNC-2B				
1	41NTU-168	STEEL-ZINC	30.00	1.0000-8UNJC-3B	.922-.860	1.627-1.614	1.826	.600
	49NTU-168	STEEL-UNPLATED		1.0000-8UNC-2B				
1 1/8	49NTU-187	STEEL-UNPLATED	43.00	1.1250-7UNC-2B	1.000-.938	1.814-1.801	2.038	.627
1 1/4	49NTU-207	STEEL-UNPLATED	57.00	1.2500-7UNC-2B	1.140-1.078	2.008-1.973	2.232	.720
1 3/8	49NTU-226	STEEL-UNPLATED	70.00	1.3750-6UNC-2B	1.219-1.157	2.197-2.159	2.444	.767
1 1/2	49NTU-246	STEEL-UNPLATED	95.00	1.5000-6UNC-2B	1.344-1.282	2.384-2.344	2.622	.810
1 3/4	49NTU-285	STEEL-UNPLATED	140.00	1.7500-5UNJC-3B	1.532-1.406	2.762-2.715	3.075	.986
2	49NTU-3212	STEEL-UNPLATED	210.00	2.0000-12UNC-3B	1.735-1.609	3.137-3.086	3.497	1.016
2 1/4	49NTU-364	STEEL-UNPLATED	290.00	2.2500-4.5UNC-3B	2.001-1.875	3.514-3.457	3.918	1.179
2 1/2	49NTU-4012	STEEL-UNPLATED	430.00	2.5000-12UNC-3B	2.250-2.124	4.015-3.875	4.393	1.523

MATERIAL:

"2"
"4"
"7" STAINLESS STEEL - AISI 303 OR EQUIV. (SIZES -040 THRU -120)
"9" BRASS - COMMERCIAL HALF HARD (SIZES -040 THRU -066)

FINISH:

"1" ZINC PLATE, .0002 MIN THICKNESS
"9" UNPLATED

LOCKING INSERT:

RED NYLON (350°F MAX PERFORMANCE)

THREADS:

MIL-S-7742 OR AS8879

THREAD SQUARENESS:

ESNA® APEC 405, GROUP I

PERFORMANCE:

LOCKING TORQUE IN ACCORDANCE WITH NASM25027

APPLICATION:

TYPE "NTU" NUTS ARE PRIMARILY INTENDED FOR USE IN SHEAR LOAD APPLICATIONS AND ARE CONSIDERED TO BE SELF-LOCKING ALTERNATES TO THE AMERICAN STANDARD THIN HEX SERIES.

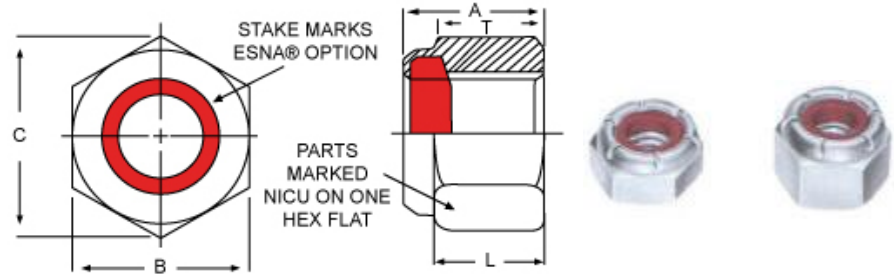
PART CODING:

2 9 NTU - 040

1 2 3 4

1. MATERIAL
2. FINISH
3. NUT TYPE
4. THREAD SIZE

NUT - HEX, MONEL
NM-NE-NU MONEL



ESNA® PART NUMBERS	THREAD	A	B	C REF	L REF	T REF	WEIGHT (LB./100 REF)
09NM-40(MONEL)	.1120-40UNJC-3B	.153-.133	.252-.243	.268	.081	.091	.14
09NM-62(MONEL)	.1380-32UNJC-3B	.188-.168	.316-.305	.339	.103	.113	.26
09NM-82(MONEL)	.1640-32UNJC-3B	.239-.219	.347-.336	.374	.140	.145	.42
09NM-04(MONEL)	.1900-24UNJC-3B	.249-.229	.378-.367	.410		.155	.50
09NM-02(MONEL)	.1900-32UNJF-3B			.328-.298	.439-.430	.482	.225
09NE-040(MONEL)	.2500-20UNJC-3B	.359-.329	.504-.492			.552	.250
09NE-048(MONEL)	.2500-28UNJF-3B			.468-.438	.566-.553	.622	.335
09NE-058(MONEL)	.3125-18UNJC-3B	.692-.679	.766			.766	.324
09NE-054(MONEL)	.3125-24UNJF-3B			.609-.579	.755-.741	.837	.464
09NE-066(MONEL)	.3750-16UNJC-3B	.656-.626	.880-.865			.978	.469
09NE-064(MONEL)	.3750-24UNJF-3B			.765-.735	.944-.928	1.051	.593
09NE-074U(MONEL)	.4375-14UNJC-3B	.890-.860	1.068-1.052			1.191	.647
09NE-083(MONEL)	.5000-13UNJC-3B			.999-.969	1.257-1.239	1.403	.790
09NE-080(MONEL)	.5000-20UNJF-3B	1.078-1.016	1.446-1.427			1.615	.825
09NE-092(MONEL)	.5625-12UNJC-3B			1.203-1.141	1.634-1.614	1.826	.930
09NE-101(MONEL)	.6250-11UNJC-3B	1.422-1.360	1.822-1.801			2.038	1.125
09NE-108(MONEL)	.6250-18UNJF-3B			1.609-1.547	2.011-1.973	2.232	1.282
09NE-120(MONEL)	.7500-10UNJC-3B	1.640-1.578	2.200-2.159			2.444	1.313
09NE-126(MONEL)	.7500-16UNJF-3B			2.376-2.250	2.766-2.715	3.075	1.830
09NE-149(MONEL)	.8750-9UNJC-3B	2.469-2.343	3.142-3.086			3.497	1.812
09NE-144(MONEL)	.8750-14UNJF-3B			2.876-2.750	3.518-3.457	3.916	2.187
09NE-168(MONEL)	1.0000-8UNJC-3B	3.204-3.078	4.020-3.875			4.393	2.602
09NE-187(MONEL)	1.1250-7UNJC-3B						
09NE-182(MONEL)	1.1250-12UNJF-3B						
09NE-207(MONEL)	1.2500-7UNJC-3B						
09NE-226(MONEL)	1.3750-6UNJC-3B						
09NE-246(MONEL)	1.5000-6UNJC-3B						
09NE-242(MONEL)	1.500-12UNJF-3B						
09NU-285(MONEL)	1.7500-5UNJC-3B						
09NU-324(MONEL)	2.0000-41/2UNJC-3B						
09NU-364(MONEL)	2.2500-41/2UNJC-3B						
09NU-404(MONEL)	2.5000-4UNJC-3B						

MATERIAL:

MONEL, QQ-N-281, CLASS A OR B

FINISH:

UNPLATED

LOCKING INSERT:

RED NYLON (350°F MAX PERFORMANCE)

THREAD SQUARENESS:

ESNA® SPEC 405, GROUP I

THREADS:

AS8879

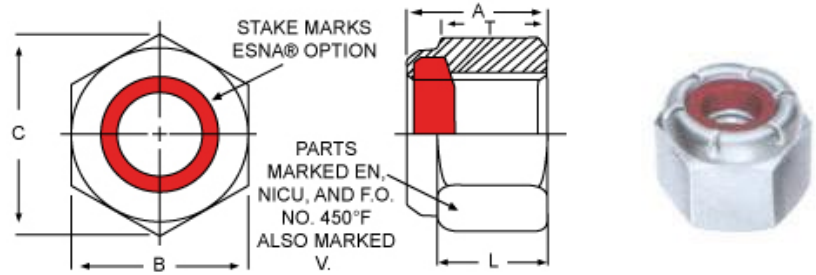
PERFORMANCE:

NASM25027/NASM17828

APPLICATION:

MONEL HEX NUTS ARE RECOMMENDED FOR APPLICATIONS REQUIRING FASTENERS WITH EXCEPTIONAL CHEMICAL AND/OR CORROSION RESISTANCE. THEY ARE PARTICULARLY SUITABLE FOR USES INVOLVING EXPOSURE TO SALT WATER AND ARE APPROVED BY THE BUREAU OF SHIPS.

NUT - HEX, MONEL, 350° F &
450° F
NU13841, VU13841



ESNA® PART NUMBERS		THREAD	A	B	C	L	MAX WEIGHT (LB./100)	MIN. TENSILE STRENGTH (LB.)	T
250°F	450°F								
NU13841-040	VU13841-040	.2500-20UNJC-3B	.390-.360	.504-.492	.552	.290	1.75	6,000	.265
NU13841-058	VU13841-058	.3125-18UNJC-3B	.453-.423	.566-.553	.622	.335	2.45	8,600	.322
NU13841-066	VU13841-066	.3750-16UNJC-3B	.562-.532	.692-.679	.766	.392	4.40	12,700	.416
NU13841-083	VU13841-083	.5000-13UNJC-3B	.718-.688	.880-.865	.978	.544	9.50	24,800	.565
NU13841-101	VU13841-101	.6250-11UNJC-3B	.874-.844	1.068-1.052	1.191	.677	16.25	38,300	.692
NU13841-120	VU13841-120	.7500-10UNJC-3B	1.015-.985	1.257-1.239	1.403	.790	26.70	54,000	.828
NU13841-149	VU13841-149	.8750-9UNJC-3B	1.140-1.110	1.446-1.427	1.615	.883	39.45	73,000	.948
NU13841-168	VU13841-168	1.0000-8UNJC-3B	1.312-1.250	1.634-1.614	1.826	1.000	55.70	95,800	1.000
NU13841-187	VU13841-187	1.125-7UNJC-3B	1.469-1.407	1.822-1.801	2.038	1.096	80.00	121,100	1.125
NU13841-207	VU13841-207	1.2500-7UNJC-3B	1.672-1.610	2.011-1.973	2.232	1.250	106.75	146,600	1.280
NU13841-226	VU13841-226	1.3750-6UNJC-3B	1.828-1.766	2.200-2.159	2.444	1.376	139.25	186,000	1.438
NU13841-246	VU13841-246	1.5000-6UNJC-3B	1.953-1.891	2.388-2.344	2.622	1.413	174.0	200,000	1.513
NU13841-285	VU13841-285	1.7500-5UNJC-3B	2.376-2.250	2.766-2.715	3.075	1.830	278.40	205,000	1.830
NU13841-324	VU13841-324	2.0000-4.5UNJC-3B	2.469-2.343	3.142-3.086	3.497	1.750	359.60	233,000	1.850
NU13841-364	VU13841-364	2.2500-4.5UNJC-3B	2.876-2.780	3.518-3.457	3.918	2.063	550.00	390,000	
NU13841-404	VU13841-404	2.5000-4.5UNJC-3B	3.204-3.078	4.020-3.875	4.393	2.475	850.00	500,000	2.699

MATERIAL:

MONEL, QQ-N-281, CLASS A OR B

FINISH:

UNPLATED

LOCKING INSERT:

RED NYLON, ASTM D4066 GROUP 1, CLASS 2 (350°F MAX PERFORMANCE)

THREAD SQUARENESS:

MIL-N-25027/1

THREADS:

AS8879

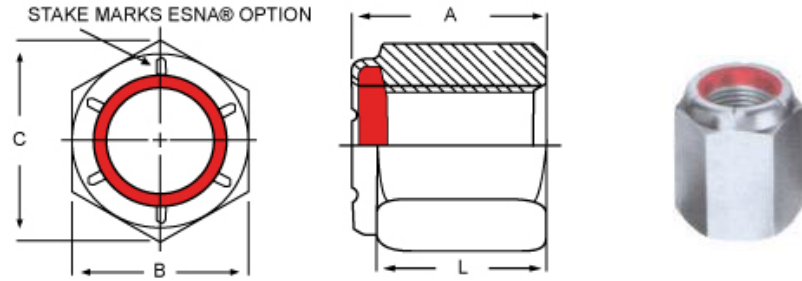
PERFORMANCE:

MIL-N-25027/1

APPLICATION:

MONEL HEX NUTS ARE RECOMMENDED FOR APPLICATIONS REQUIRING FASTENERS WITH EXCEPTIONAL CHEMICAL AND/OR CORROSION RESISTANCE. THEY ARE PARTICULARLY SUITABLE FOR USES INVOLVING EXPOSURE TO SALT WATER AND ARE APPROVED BY THE BUREAU OF SHIPS.

NUT - HEX, THICK
N1260



ESNA® PART NUMBERS		THREAD	A ± .015	B	C REF	L REF	APPROX. WEIGHT (LB./100)
UNPLATED	ZINC PLATED						
59N1260-064	51N1260-064	.3750-24UNJF-3B	.641	.566-.551	.624	.523	2.6
59N1260-070	51N1260-070	.4375-20UNJF-3B	.765	.628-.612	.694	.657	3.6
59N1260-080	51N1260-080	.5000-20UNJF-3B	.812	.754-.736	.829	.683	5.9
59N1260-098		.5625-18UNJF-3B	.922	.879-.861	.969	.736	9.6
59N1260-108	51N1260-108	.6250-18UNJF-3B	1.000	.942-.922	1.037	.881	12.0
59N1260-126	51N1260-126	.7500-16UNJF-3B	1.250	1.067-1.045	1.175	1.114	18.0
59N1260-144	51N1260-144	.8750-14UNJF-3B	1.438	1.255-1.231	1.382	1.299	30.0
59N1260-164	51N1260-164	1.0000-14UNJS-3B	1.672±.031	1.444-1.417	1.589	1.452	46.0
	51N1260-182	1.1250-12UNJF-3B	1.843±.031	1.632-1.602	1.796	1.697	65.0
59N1260-202	51N1260-202	1.2500-12UNJF-3B	2.031±.031	1.820-1.788	2.002	1.841	88.0

MATERIAL:
STEEL

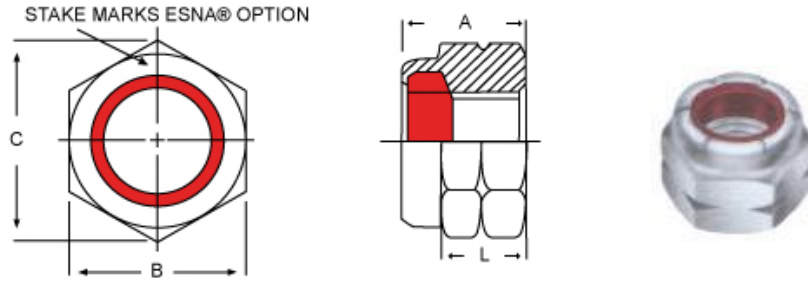
LOCKING INSERT:
RED NYLON (350°F MAX PERFORMANCE)

THREAD SQUARENESS:
ESNA® SPEC 405, GROUP I

THREADS:
AS8879

APPLICATION:
THE N1260 IS DESIGNED FOR APPLICATIONS THAT REQUIRE PRE-STRESSING HIGH STRENGTH BOLTS TO THEIR ELASTIC LIMIT. THE NUT IS PROVIDED WITH EXTRA THREAD LENGTH AND HEX HEIGHT TO ATTAIN UNIFORM THREAD LOADING AND ADEQUATE WRENCHING AREA. A TYPICAL APPLICATION WOULD BE FOR USE WITH "U" BOLTS IN ATTACHING LEAF SPRINGS TO COMMERCIAL AND PASSENGER VEHICLES AXLES.

NUT - HEX, HIGH TENSILE
N1610, NU1610



ESNA® PART NUMBERS			THREAD	A		B		C	L	ULTIMATE TENSILE STRENGTH (LB. MIN)	APPROX. WEIGHT (LB./100)
CADMIUM PLATE TYPE II, CLASS 2	CADMIUM PLATE TYPE I, CLASS 3	UNPLATED		MAX	MIN	MAX	MIN				
	52N1610-02		.1900-32UNJF-3B	.249	.219	.376	.367	.410	.140	3470	.50
F52N1610-048	52N1610-048		.2500-28UNJF-3B	.328	.298	.439	.430	.482	.225	6200	.90
F52N1610-058	52N1610-058		.3125-18UNJC-3B	.359	.329	.502	.492	.552	.250	9210	1.20
F52N1610-054	52N1610-054		.3125-24UNJF-3B							9820	
F52N1610-066			.3750-16UNJC-3B	.468	.438	.564	.553	.622	.335	11620	1.80
F52N1610-064	52N1610-064		.3750-24UNJF-3B							15200	
F52N1610-074U			.4375-14UNJC-3B	.468	.438	.690	.679	.766	.324	15940	3.10
F52N1610-070U			.4375-20UNJF-3B							17800	
	52N1610-070	59N1610-070	4375-20UNJF-3B	.468	.438	.627	.616	.694	.324	20600	2.30
F52N1610-083			.5000-13UNJC-3B	.609	.579	.752	.741	.837	.464	21300	4.30
F52N1610-080	52N1610-080	59N1610-080	.5000-20UNJF-3B							27500	
F52N1610-098		59N1610-098	.5625-18UNJF-3B	.656	.626	.877	.865	.978	.469	34800	7.10
F52N1610-101			.6250-11UNJC-3B	.765	.735	.940	.928	1.051	.593	33900	8.30
F52N1610-108	52N1610-108	59N1610-108	.6250-18UNJF-3B							43600	
F52N1610-120			.7500-10UNJC-3B	.890	.860	1.064	1.052	1.191	.742	50100	12.00
F52N1610-126		59N1610-126	.7500-16UNJF-3B							63400	
F52N1610-149			.8750-9UNJC-3B	.999	.969	1.252	1.239	1.403	.790	69300	19.00
F52N1610-168			1.000-8UNJC-3B	1.078	1.016	1.440	1.427	1.615	.825	106100	27.00
		59N1610-164	1.000-14UNJS-3B							116900	
F52N1610-187			1.1250-7UNJC-3B	1.203	1.141	1.627	1.614	1.826	.930	114000	41.00
F52N1610-182			1.1250-12UNJF-3B							128400	
F52N1610-207			1.2500-7UNJC-3B	1.422	1.360	1.814	1.801	2.038	1.125	145000	58.00
		59N1610-202	1.2500-12UNJF-3B							18540	
F52N1610-222			1.3750-12UNJF-3B	1.609	1.547	2.008	1.973	2.232	1.282	197000	77.00
F52N1610-246			1.5000-6UNJC-3B	1.640	1.578	2.197	2.159	2.444	1.313	211000	100.00
	52N1610-242	59N1010-242	1.5000-12UNJF-3B							275400	
F52NU1610-285			1.7500-5UNJC-3B	2.376	2.250	2.762	2.715	3.075	1.830	285000	250.00
F52NU1610-324			2.000-4.5UNJC-3B	2.469	2.343	3.137	3.086	3.497	1.750	375000	310.00
F52NU1610-364			2.2500-4.5UNJC-3B	2.876	2.750	3.514	3.457	3.918	2.063	487500	450.00
F52NU1610-404			2.5000-4UNJC-3B	3.204	3.078	4.015	3.875	4.393	2.475	600000	682.00

MATERIAL:

STEEL TYPE C1137 OF FED-STD-66 OR CARBON OR ALLOY STEEL MIL-S-1222 (C1137 STEEL MAY CONTAIN FROM 0.15 TO 0.35 PERCENT LEAD)

FINISH:

CADMIUM PLATE PER SAE AMS-QQ-P416 (TYPE AND CLASS AS NOTED IN TABULATION)
UNPLATED (AS NOTED IN TABULATION)

LOCKING INSERT:

RED NYLON (350°F PERFORMANCE)

THREAD SQUARENESS:

ESNA® SPEC 405, GROUP I

THREADS:

AS8879

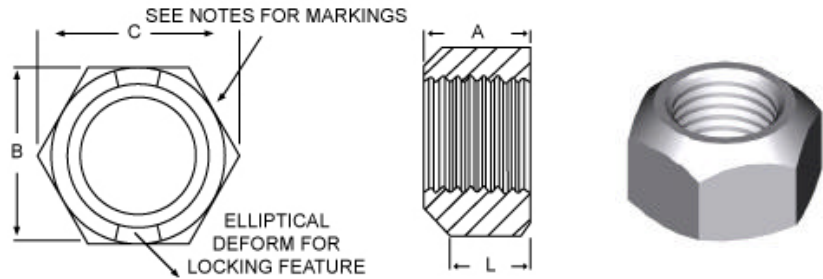
PERFORMANCE:

NASM2507 EXCEPT FOR TENSILE STRENGTH LISTED ABOVE

NOTES:

TYPE 1610 PARTS WITH A "G" PREFIX WILL BE INDIVIDUALLY MAGNETIC PARTICLE INSPECTED IN ACCORDANCE WITH ASTM E1444 AND THE DISCONTINUITY REQUIREMENTS OF NASM2507. EXAMPLE: GF52N1610-048. CONSULT ESNA® FOR AVAILABILITY AND ADDITIONAL CHARGE. CONSULT ESNA® FOR AVAILABILITY STATUS OF PARTS NOT INCLUDED IN TABULATION. PART NUMBERS LISTED IN COLUMN I OF THE PART NUMBER TABULATION (TYPE II, CLASS 2 PLATING) ARE EXACT ESNA® PART NUMBER CONVERSIONS OF THE FULL RANGE OF NASM17829 SIZES. UNPLATED STEEL PARTS HAVE CLASS 2B THREAD FIT.

NUT - HEX, SELF-LOCKING,
ALL METAL
LM/LE141309, LM/LE141334



THREAD SIZE	ESNA® PART NUMBERS*	ESNA® PART NUMBERS*	THREAD	B	B	C	A	A	L
				MAX	MIN	REF	MAX	MIN	REF
#0	LM141334-00	LM141309-00	0.060-80UNF3B	0.111	0.104	0.116	0.055	0.080	0.045
#1	LM141334-14	LM141309-14	0.073-64UNC3B	0.251	0.243	0.268	0.153	0.133	0.081
	LM141334-12	LM141309-12	0.073-72UNF3B	0.251	0.243	0.268	0.153	0.133	0.081
#2	LM141334-26	LM141309-26	0.086-56UNC3B	0.251	0.243	0.268	0.153	0.133	0.081
	LM141334-24	LM141309-24	0.086-64UNF3B	0.251	0.243	0.268	0.153	0.133	0.081
#3	LM141334-38	LM141309-38	0.099-48UNC3B	0.251	0.243	0.268	0.153	0.133	0.081
	LM141334-36	LM141309-36	0.099-56UNF3B	0.251	0.243	0.268	0.153	0.133	0.081
#4	LM141334-40	LM141309-40	0.112-40UNC3B	0.251	0.243	0.268	0.153	0.133	0.081
	LM141334-48	LM141309-48	0.112-48UNF3B	0.251	0.243	0.268	0.153	0.133	0.081
#5	LM141334-50	LM141309-50	0.125-40UNC3B	0.251	0.243	0.268	0.153	0.133	0.081
	LM141334-54	LM141309-54	0.125-44UNF3B	0.251	0.243	0.268	0.153	0.133	0.081
#6	LM141334-62	LM141309-62	0.138-32UNC3B	0.313	0.305	0.339	0.188	0.168	0.103
	LM141334-60	LM141309-60	0.138-40UNF3B	0.313	0.305	0.339	0.188	0.168	0.103
#8	LM141334-82	LM141309-82	0.164-32UNC3B	0.345	0.336	0.374	0.239	0.219	0.140
	LM141334-86	LM141309-86	0.164-36UNF3B	0.345	0.336	0.374	0.239	0.219	0.140
#10	LM141334-04	LM141309-04	0.190-24UNC3B	0.376	0.367	0.410	0.249	0.229	0.140
	LM141334-02	LM141309-02	0.190-32UNF3B	0.376	0.367	0.410	0.249	0.229	0.140
#12	LM141334-124	LM141309-124	0.216-24UNC3B	0.439	0.430	0.482	0.328	0.298	0.225
	LM141334-128	LM141309-128	0.216-28UNF3B	0.439	0.430	0.482	0.328	0.298	0.225
1/4	LE141334-040	LE141309-040	0.250-20UNC3B	0.439	0.428	0.482	0.328	0.298	0.225
	LE141334-048	LE141309-048	0.250-28UNF3B	0.439	0.428	0.482	0.328	0.298	0.225
5/16	LE141334-058	LE141309-058	0.312-18UNC3B	0.502	0.489	0.552	0.359	0.329	0.250
	LE141334-054	LE141309-054	0.312-24UNF3B	0.502	0.489	0.552	0.359	0.329	0.250
3/8	LE141334-066	LE141309-066	0.375-16UNC3B	0.564	0.551	0.622	0.468	0.438	0.335
	LE141334-064	LE141309-064	0.375-24UNF3B	0.564	0.551	0.622	0.468	0.438	0.335
7/16	LE141334-074	LE141309-074	0.437-14UNC3B	0.688	0.675	0.768	0.463	0.365	0.223
	LE141334-070	LE141309-070	0.437-20UNF3B	0.688	0.675	0.768	0.463	0.365	0.223
1/2	LE141334-083	LE141309-083	0.500-13UNC3B	0.752	0.736	0.837	0.609	0.579	0.464
	LE141334-080	LE141309-080	0.500-20UNF3B	0.752	0.736	0.837	0.609	0.579	0.464
9/16	LE141334-092	LE141309-092	0.562-12UNC3B	0.877	0.861	0.978	0.656	0.626	0.469
	LE141334-098	LE141309-098	0.562-18UNF3B	0.877	0.861	0.978	0.656	0.626	0.469
5/8	LE141334-101	LE141309-101	0.625-11UNC3B	0.940	0.922	1.051	0.765	0.735	0.593
	LE141334-108	LE141309-108	0.625-18UNF3B	0.940	0.922	1.051	0.765	0.735	0.593
3/4	LE141334-120	LE141309-120	0.750-10UNC3B	1.064	1.052	1.191	0.890	0.860	0.742
	LE141334-126	LE141309-126	0.750-16UNF3B	1.064	1.052	1.191	0.890	0.860	0.742
7/8	LE141334-149	LE141309-149	0.875-9UNC3B	1.252	1.239	1.403	0.999	0.969	0.790
	LE141334-144	LE141309-144	0.875-14UNF3B	1.252	1.239	1.403	0.999	0.969	0.790
1	LE141334-168	LE141309-168	1.000-8UNC3B	1.440	1.427	1.615	1.078	1.016	0.825
	LE141334-162	LE141309-162	1.000-12UNC3B	1.440	1.427	1.615	1.078	1.016	0.825
1 1/8	LE141334-187	LE141309-187	1.125-7UNC3B	1.627	1.614	1.826	1.203	1.141	0.930
	LE141334-182	LE141309-182	1.125-12UNF3B	1.627	1.614	1.826	1.203	1.141	0.930
1 1/4	LE141334-207	LE141309-207	1.250-7UNC3B	1.815	1.801	2.038	1.422	1.360	1.125
	LE141334-202	LE141309-202	1.250-12UNF3B	1.815	1.801	2.038	1.422	1.360	1.125
1 3/8	LE141334-226	LE141309-226	1.375-6UNC3B	2.008	1.973	2.232	1.609	1.547	1.282
	LE141334-222	LE141309-222	1.375-12UNF3B	2.008	1.973	2.232	1.609	1.547	1.282
1 1/2	LE141334-246	LE141309-246	1.500-6UNC3B	2.197	2.159	2.444	1.640	1.578	1.313
	LE141334-242	LE141309-242	1.500-12UNF3B	2.197	2.159	2.444	1.640	1.578	1.313

MATERIAL:

- "4" GRADE 5 STEEL - PARTS CODED "141334"
- "5" GRADE 8 STEEL - PARTS CODED "141309"
- "6" ALUMINUM - SAE AMS-QQ-A-225/5, /6, /8, OR /10 - PARTS CODED "141334"
- "7" CORROSION RESISTANT STEEL
300 SERIES ALLOY GROUP 1 OR 316 ALLOY GROUP 2 PER ASTM F594
PARTS CODED "141334" ARE MADE FROM 300 SERIES CRES
PARTS CODED "141309" ARE MADE FROM 316 SERIES CRES
- "9" BRASS UNS C46200 OR C46400 PER ASTM F467 - PARTS CODED "141334"

FINISH:

- "2" CADMIUM PLATED PER SAE AMS-QQ- P-416, TYPE II CLASS 2 - CARBON STEEL PARTS ONLY FOR THIS FINISH;
ALSO PREFIX THE ENTIRE PART NUMBER WITH "F". SEE THE "PART CODING" SECTION BELOW.
- "3" PHOSPHATE COATED PER DOD- P-16232, TYPE Z, CLASS 2 - CARBON STEEL PARTS ONLY
- "4" ZINC PLATED PER ASTM B633, TYPE II, FE/ZN 8 - CARBON STEEL PARTS ONLY
- "8" ANODIZED PER MIL-A-8625, TYPE II, CLASS 1 - ALUMINUM PARTS ONLY
- "9" PLAIN FINISH

THREADS:

ASME B1.1

NOTES:

MATERIAL AND FINISH PREFIX: WHEN ORDERING, THE BASE PART NUMBER SHOWN IN THE TABLE MUST BE PREFIXED BY THE PROPER MATERIAL AND FINISH CODES. USE THE GUIDE (ABOVE) TO SELECT THE MATERIAL AND FINISH TO SUIT THE SPECIFIC APPLICATION.

MARKING:

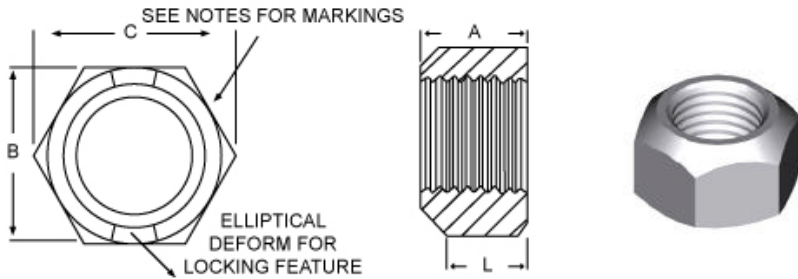
CARBON STEEL PARTS WILL BE MARKED "5" OR "8" AS APPLICABLE. RED NYLON INSERT INDICATES MACLEAN ESNA® AS THE MANUFACTURER.

PART CODING:**F 5 2 LE141334 - 040**

1	2	3	4	5
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1. POST PLATE TREATMENT - CHROMATE FORTIFICATION ON CADMIUM PLATED PARTS ONLY.
2. MATERIAL
3. FINISH
4. NUT TYPE
5. THREAD SIZE

NUT - HEX, SELF-LOCKING,
ALL METAL
LM/LE141332, LM/LE141303



THREAD SIZE	ESNA* PART NUMBERS*	ESNA* PART NUMBERS*	THREAD SIZE	B	B	C	A	A	L
				MAX	MIN	REF	MAX	MIN	REF
#0	LM141332-00	LM141333-00	0.060-80UNF2B	0.111	0.104	0.116	0.055	0.080	0.045
#1	LM141332-14	LM141333-14	0.073-64UNC2B	0.251	0.243	0.268	0.153	0.133	0.081
	LM141332-12	LM141333-12	0.073-72UNF2B	0.251	0.243	0.268	0.153	0.133	0.081
#2	LM141332-26	LM141333-26	0.086-56UNC2B	0.251	0.243	0.268	0.153	0.133	0.081
	LM141332-24	LM141333-24	0.086-64UNF2B	0.251	0.243	0.268	0.153	0.133	0.081
#3	LM141332-38	LM141333-38	0.099-48UNC2B	0.251	0.243	0.268	0.153	0.133	0.081
	LM141332-36	LM141333-36	0.099-56UNF2B	0.251	0.243	0.268	0.153	0.133	0.081
#4	LM141332-40	LM141333-40	0.112-40UNC2B	0.251	0.243	0.268	0.153	0.133	0.081
	LM141332-48	LM141333-48	0.112-48UNF2B	0.251	0.243	0.268	0.153	0.133	0.081
#5	LM141332-50	LM141333-50	0.125-40UNC2B	0.251	0.243	0.268	0.153	0.133	0.081
	LM141332-54	LM141333-54	0.125-44UNF2B	0.251	0.243	0.268	0.153	0.133	0.081
#6	LM141332-62	LM141333-62	0.138-32UNC2B	0.313	0.305	0.339	0.188	0.168	0.103
	LM141332-60	LM141333-60	0.138-40UNF2B	0.313	0.305	0.339	0.188	0.168	0.103
#8	LM141332-82	LM141333-82	0.164-32UNC2B	0.345	0.336	0.374	0.239	0.219	0.140
	LM141332-86	LM141333-86	0.164-36UNF2B	0.345	0.336	0.374	0.239	0.219	0.140
#10	LM141332-04	LM141333-04	0.190-24UNC2B	0.376	0.367	0.410	0.249	0.229	0.140
	LM141332-02	LM141333-02	0.190-32UNF2B	0.376	0.367	0.410	0.249	0.229	0.140
#12	LM141332-124	LM141333-124	0.216-24UNC2B	0.439	0.430	0.482	0.328	0.298	0.225
	LM141332-128	LM141333-128	0.216-28UNF2B	0.439	0.430	0.482	0.328	0.298	0.225
1/4	LE141332-040	LE141333-040	0.250-20UNC2B	0.439	0.428	0.482	0.328	0.298	0.225
	LE141332-048	LE141333-048	0.250-28UNF2B	0.439	0.428	0.482	0.328	0.298	0.225
5/16	LE141332-058	LE141333-058	0.312-18UNC2B	0.502	0.489	0.552	0.359	0.329	0.250
	LE141332-054	LE141333-054	0.312-24UNF2B	0.502	0.489	0.552	0.359	0.329	0.250
3/8	LE141332-066	LE141333-066	0.375-16UNC2B	0.564	0.551	0.622	0.468	0.438	0.335
	LE141332-064	LE141333-064	0.375-24UNF2B	0.564	0.551	0.622	0.468	0.438	0.335
7/16	LE141332-074U	LE141333-074U	0.437-14UNC2B	0.688	0.675	0.768	0.463	0.365	0.223
	LE141332-070U	LE141333-070U	0.437-20UNF2B	0.688	0.675	0.768	0.463	0.365	0.223
1/2	LE141332-083	LE141333-083	0.500-13UNC2B	0.752	0.736	0.837	0.609	0.579	0.464
	LE141332-080	LE141333-080	0.500-20UNF2B	0.752	0.736	0.837	0.609	0.579	0.464
9/16	LE141332-092	LE141333-092	0.562-12UNC2B	0.877	0.861	0.978	0.656	0.626	0.469
	LE141332-098	LE141333-098	0.562-18UNF2B	0.877	0.861	0.978	0.656	0.626	0.469
5/8	LE141332-101	LE141333-101	0.625-11UNC2B	0.940	0.922	1.051	0.765	0.735	0.593
	LE141332-108	LE141333-108	0.625-18UNF2B	0.940	0.922	1.051	0.765	0.735	0.593
3/4	LE141332-120	LE141333-120	0.750-10UNC2B	1.064	1.052	1.191	0.890	0.860	0.742
	LE141332-126	LE141333-126	0.750-16UNF2B	1.064	1.052	1.191	0.890	0.860	0.742
7/8	LE141332-149	LE141333-149	0.875-9UNC2B	1.252	1.239	1.403	0.999	0.969	0.790
	LE141332-144	LE141333-144	0.875-14UNF2B	1.252	1.239	1.403	0.999	0.969	0.790
1	LE141332-168	LE141333-168	1.000-8UNC2B	1.440	1.427	1.615	1.078	1.016	0.825
	LE141332-162	LE141333-162	1.000-12UNC2B	1.440	1.427	1.615	1.078	1.016	0.825
1 1/8	LE141332-187	LE141333-187	1.125-7UNC2B	1.627	1.614	1.826	1.203	1.141	0.930
	LE141332-182	LE141333-182	1.125-12UNF2B	1.627	1.614	1.826	1.203	1.141	0.930
1 1/4	LE141332-207	LE141333-207	1.250-7UNC2B	1.815	1.801	2.038	1.422	1.360	1.125
	LE141332-202	LE141333-202	1.250-12UNF2B	1.815	1.801	2.038	1.422	1.360	1.125
1 3/8	LE141332-226	LE141333-226	1.375-6UNC2B	2.008	1.973	2.232	1.609	1.547	1.282
	LE141332-222	LE141333-222	1.375-12UNF2B	2.008	1.973	2.232	1.609	1.547	1.282
1 1/2	LE141332-246	LE141333-246	1.500-6UNC2B	2.197	2.159	2.444	1.640	1.578	1.313
	LE141332-242	LE141333-242	1.500-12UNF2B	2.197	2.159	2.444	1.640	1.578	1.313

* PROPER MATERIAL AND FINISH PREFIX MUST BE SPECIFIED ALONG WITH THE BASE PART NUMBER SHOWN ABOVE. SEE NOTE.

MATERIAL:

- "4" GRADE 5 STEEL - PARTS CODED "141332"
- "5" GRADE 8 STEEL - PARTS CODED "141333"
- "6" ALUMINUM - SAE AMS-QQ-A-225/5, /6, /8, OR /10 - PARTS CODED "141332"
- "7" CORROSION RESISTANT STEEL
300 SERIES ALLOY GROUP 1 OR 316 ALLOY GROUP 2 PER ASTM F594
PARTS CODED "141332" ARE MADE FROM 300 SERIES CRES
PARTS CODED "141333" ARE MADE FROM 316 SERIES CRES
- "9" BRASS UNS C46200 OR C46400 PER ASTM F467 - PARTS CODED "141332"

FINISH:

- "2" CADMIUM PLATED PER SAE AMS-QQ- P-416, TYPE II CLASS 2 - CARBON STEEL PARTS ONLY FOR THIS FINISH;
ALSO PREFIX THE ENTIRE PART NUMBER WITH "F". SEE THE "PART CODING" SECTION BELOW.
- "3" PHOSPHATE COATED PER DOD- P-16232, TYPE Z, CLASS 2 - CARBON STEEL PARTS ONLY
- "4" ZINC PLATED PER ASTM B633, TYPE II, FE/ZN 8 - CARBON STEEL PARTS ONLY
- "8" ANODIZED PER MIL-A-8625, TYPE II, CLASS 1 - ALUMINUM PARTS ONLY
- "9" PLAIN FINISH

THREADS:

ASME B1.1

NOTES:

MATERIAL AND FINISH PREFIX: WHEN ORDERING, THE BASE PART NUMBER SHOWN IN THE TABLE MUST BE PREFIXED BY THE PROPER MATERIAL AND FINISH CODES. USE THE GUIDE (ABOVE) TO SELECT THE MATERIAL AND FINISH TO SUIT THE SPECIFIC APPLICATION.

MARKING:

CARBON STEEL PARTS WILL BE MARKED "5" OR "8" AS APPLICABLE. RED NYLON INSERT INDICATES MACLEAN - ESNA® AS THE MANUFACTURER.

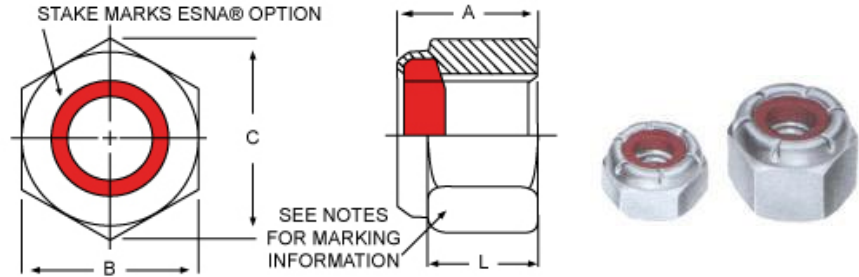
PART CODING:

F 5 2 LE141334 - 040

1	2	3	4	5
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1. POST PLATE TREATMENT - CHROMATE FORTIFICATION ON CADMIUM PLATED PARTS ONLY.
2. MATERIAL
3. FINISH
4. NUT TYPE
5. THREAD SIZE

NUT - HEX, SELF-LOCKING,
350° F
NM/NE141252, NM/NE141310



THREAD SIZE	ESNA® PART NUMBERS*	ESNA® PART NUMBERS*	THREAD SIZE	B	B	C	A	A	L
				MAX	MIN	REF	MAX	MIN	REF
#0	NM141252-00	NM141310-00	0.060-80UNF2B	0.111	0.104	0.116	0.055	0.080	0.045
	NM141252-14	NM141310-14	0.073-64UNC2B	0.251	0.243	0.268	0.153	0.133	0.081
#1	NM141252-12	NM141310-12	0.073-72UNF2B	0.251	0.243	0.268	0.153	0.133	0.081
	NM141252-26	NM141310-26	0.086-56UNC2B	0.251	0.243	0.268	0.153	0.133	0.081
#2	NM141252-24	NM141310-24	0.086-64UNF2B	0.251	0.243	0.268	0.153	0.133	0.081
	NM141252-38	NM141310-38	0.099-48UNC2B	0.251	0.243	0.268	0.153	0.133	0.081
#3	NM141252-36	NM141310-36	0.099-56UNF2B	0.251	0.243	0.268	0.153	0.133	0.081
	NM141252-40	NM141310-40	0.112-40UNC2B	0.251	0.243	0.268	0.153	0.133	0.081
#4	NM141252-48	NM141310-48	0.112-48UNF2B	0.251	0.243	0.268	0.153	0.133	0.081
	NM141252-50	NM141310-50	0.125-40UNC2B	0.251	0.243	0.268	0.153	0.133	0.081
#5	NM141252-54	NM141310-54	0.125-44UNF2B	0.251	0.243	0.268	0.153	0.133	0.081
	NM141252-62	NM141310-62	0.138-32UNC2B	0.313	0.305	0.339	0.188	0.168	0.103
#6	NM141252-60	NM141310-60	0.138-40UNF2B	0.313	0.305	0.339	0.188	0.168	0.103
	NM141252-82	NM141310-82	0.164-32UNC2B	0.345	0.336	0.374	0.239	0.219	0.140
#8	NM141252-86	NM141310-86	0.164-36UNF2B	0.345	0.336	0.374	0.239	0.219	0.140
	NM141252-04	NM141310-04	0.190-24UNC2B	0.376	0.367	0.410	0.249	0.229	0.140
#10	NM141252-02	NM141310-02	0.190-32UNF2B	0.376	0.367	0.410	0.249	0.229	0.140
	NM141252-124	NM141310-124	0.216-24UNC2B	0.439	0.430	0.482	0.328	0.298	0.225
#12	NM141252-128	NM141310-128	0.216-28UNF2B	0.439	0.430	0.482	0.328	0.298	0.225
	NE141252-040	NE141310-040	0.250-20UNC2B	0.439	0.428	0.482	0.328	0.298	0.225
1/4	NE141252-048	NE141310-048	0.250-28UNF2B	0.439	0.428	0.482	0.328	0.298	0.225
	NE141252-058	NE141310-058	0.312-18UNC2B	0.502	0.489	0.552	0.359	0.329	0.250
5/16	NE141252-054	NE141310-054	0.312-24UNF2B	0.502	0.489	0.552	0.359	0.329	0.250
	NE141252-066	NE141310-066	0.375-16UNC2B	0.564	0.551	0.622	0.468	0.438	0.335
3/8	NE141252-064	NE141310-064	0.375-24UNF2B	0.564	0.551	0.622	0.468	0.438	0.335
	NE141252-074	NE141310-074	0.437-14UNC2B	0.627	0.616	0.698	0.468	0.438	0.324
7/16	NE141252-070	NE141310-070	0.437-20UNF2B	0.627	0.616	0.698	0.468	0.438	0.324
	NE141252-083	NE141310-083	0.500-13UNC2B	0.752	0.736	0.837	0.609	0.579	0.464
1/2	NE141252-080	NE141310-080	0.500-20UNF2B	0.752	0.736	0.837	0.609	0.579	0.464
	NE141252-092	NE141310-092	0.562-12UNC2B	0.877	0.861	0.978	0.656	0.626	0.469
9/16	NE141252-098	NE141310-098	0.562-18UNF2B	0.877	0.861	0.978	0.656	0.626	0.469
	NE141252-101	NE141310-101	0.625-11UNC2B	0.940	0.922	1.051	0.765	0.735	0.593
5/8	NE141252-108	NE141310-108	0.625-18UNF2B	0.940	0.922	1.051	0.765	0.735	0.593
	NE141252-120	NE141310-120	0.750-10UNC2B	1.064	1.052	1.191	0.890	0.860	0.742
3/4	NE141252-126	NE141310-126	0.750-16UNF2B	1.064	1.052	1.191	0.890	0.860	0.742
	NE141252-149	NE141310-149	0.875-9UNC2B	1.252	1.239	1.403	0.999	0.969	0.790
7/8	NE141252-144	NE141310-144	0.875-14UNF2B	1.252	1.239	1.403	0.999	0.969	0.790
	NE141252-168	NE141310-168	1.000-8UNC2B	1.440	1.427	1.615	1.078	1.016	0.825
1	NE141252-162	NE141310-162	1.000-12UNC2B	1.440	1.427	1.615	1.078	1.016	0.825
	NE141252-187	NE141310-187	1.125-7UNC2B	1.627	1.614	1.826	1.203	1.141	0.930
1 1/8	NE141252-182	NE141310-182	1.125-12UNF2B	1.627	1.614	1.826	1.203	1.141	0.930
	NE141252-207	NE141310-207	1.250-7UNC2B	1.815	1.801	2.038	1.422	1.360	1.125
1 1/4	NE141252-202	NE141310-202	1.250-12UNF2B	1.815	1.801	2.038	1.422	1.360	1.125
	NE141252-226	NE141310-226	1.375-6UNC2B	2.008	1.973	2.232	1.609	1.547	1.282
1 3/8	NE141252-222	NE141310-222	1.375-12UNF2B	2.008	1.973	2.232	1.609	1.547	1.282
	NE141252-246	NE141310-246	1.500-6UNC2B	2.197	2.159	2.444	1.640	1.578	1.313

* PROPER MATERIAL AND FINISH PREFIX MUST BE SPECIFIED ALONG WITH THE BASE PART NUMBER SHOWN ABOVE. SEE NOTE.

MATERIAL:

"4" GRADE 5 STEEL - PARTS CODED "141252"
 "5" GRADE 8 STEEL - PARTS CODED "141310"
 "6" ALUMINUM - SAE AMS-QQ-A-225/5, /6, /8, OR /10 - PARTS CODED "141252"
 "7" CORROSION RESISTANT STEEL
 300 SERIES ALLOY GROUP 1 OR 316 ALLOY GROUP 2 PER ASTM F594
 PARTS CODED "141252" ARE MADE FROM 300 SERIES CRES
 PARTS CODED "141310" ARE MADE FROM 316 SERIES CRES
 "9" BRASS UNS C46200 OR C46400 PER ASTM F467 - PARTS CODED "141252"

FINISH:

"2" CADMIUM PLATED PER SAE AMS-QQ- P-416, TYPE II CLASS 2 - CARBON STEEL PARTS ONLY FOR THIS FINISH;
 ALSO PREFIX THE ENTIRE PART NUMBER WITH "F". SEE THE "PART CODING" SECTION BELOW.
 "3" PHOSPHATE COATED PER DOD- P-16232, TYPE Z, CLASS 2 - CARBON STEEL PARTS ONLY
 "4" ZINC PLATED PER ASTM B633, TYPE II, FE/ZN 8 - CARBON STEEL PARTS ONLY
 "8" ANODIZED PER MIL-A-8625, TYPE II, CLASS 1 - ALUMINUM PARTS ONLY
 "9" PLAIN FINISH

LOCKING INSERT:

RED NYLON (350°F MAX PERFORMANCE)

THREADS:

ASME B1.1

NOTES:

MATERIAL AND FINISH PREFIX: WHEN ORDERING, THE BASE PART NUMBER SHOWN IN THE TABLE MUST BE PREFIXED BY THE PROPER MATERIAL AND FINISH CODES. USE THE GUIDE (ABOVE) TO SELECT THE MATERIAL AND FINISH TO SUIT THE SPECIFIC APPLICATION.

MARKING:

CARBON STEEL PARTS WILL BE MARKED "5" OR "8" AS APPLICABLE. RED NYLON INSERT INDICATES MACLEAN ESNA® AS THE MANUFACTURER.

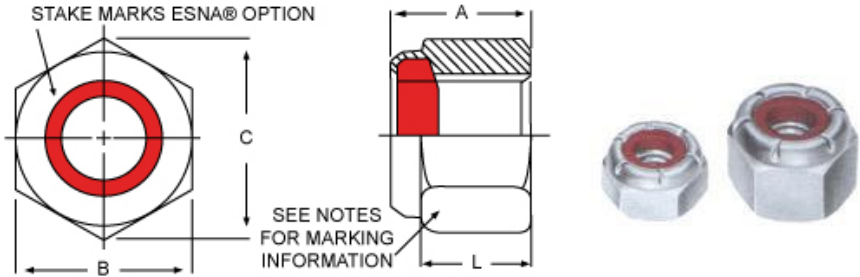
PART CODING:

F 5 2 LE141334 - 040

1	2	3	4	5

1. POST PLATE TREATMENT - CHROMATE FORTIFICATION ON CADMIUM PLATED PARTS ONLY.
2. MATERIAL
3. FINISH
4. NUT TYPE
5. THREAD SIZE

NUT - HEX, SELF-LOCKING,
350° F
NM/NE141253, NM/NE141316



THREAD SIZE	ESNA® PART NUMBERS*	ESNA® PART NUMBERS*	THREAD SIZE	B	B	C	A	A	L
				MAX	MIN	REF	MAX	MIN	REF
#0	NM141316-00	NM141253-00	0.060-80UNF3B	0.111	0.104	0.116	0.055	0.080	0.045
#1	NM141316-14	NM141253-14	0.073-64UNC3B	0.251	0.243	0.268	0.153	0.133	0.081
	NM141316-12	NM141253-12	0.073-72UNF3B	0.251	0.243	0.268	0.153	0.133	0.081
#2	NM141316-26	NM141253-26	0.086-56UNC3B	0.251	0.243	0.268	0.153	0.133	0.081
	NM141316-24	NM141253-24	0.086-64UNF3B	0.251	0.243	0.268	0.153	0.133	0.081
#3	NM141316-38	NM141253-38	0.099-48UNC3B	0.251	0.243	0.268	0.153	0.133	0.081
	NM141316-36	NM141253-36	0.099-56UNF3B	0.251	0.243	0.268	0.153	0.133	0.081
#4	NM141316-40	NM141253-40	0.112-40UNC3B	0.251	0.243	0.268	0.153	0.133	0.081
	NM141316-48	NM141253-48	0.112-48UNF3B	0.251	0.243	0.268	0.153	0.133	0.081
#5	NM141316-50	NM141253-50	0.125-40UNC3B	0.251	0.243	0.268	0.153	0.133	0.081
	NM141316-54	NM141253-54	0.125-44UNF3B	0.251	0.243	0.268	0.153	0.133	0.081
#6	NM141316-62	NM141253-62	0.138-32UNC3B	0.313	0.305	0.339	0.188	0.168	0.103
	NM141316-60	NM141253-60	0.138-40UNF3B	0.313	0.305	0.339	0.188	0.168	0.103
#8	NM141316-82	NM141253-82	0.164-32UNC3B	0.345	0.336	0.374	0.239	0.219	0.140
	NM141316-86	NM141253-86	0.164-36UNF3B	0.345	0.336	0.374	0.239	0.219	0.140
#10	NM141316-04	NM141253-04	0.190-24UNC3B	0.376	0.367	0.410	0.249	0.229	0.140
	NM141316-02	NM141253-02	0.190-32UNF3B	0.376	0.367	0.410	0.249	0.229	0.140
#12	NM141316-124	NM141253-124	0.216-24UNC3B	0.439	0.430	0.482	0.328	0.298	0.225
	NM141316-128	NM141253-128	0.216-28UNF3B	0.439	0.430	0.482	0.328	0.298	0.225
1/4	NE141316-040	NE141253-040	0.250-20UNC3B	0.439	0.428	0.482	0.328	0.298	0.225
	NE141316-048	NE141253-048	0.250-28UNF3B	0.439	0.428	0.482	0.328	0.298	0.225
5/16	NE141316-058	NE141253-058	0.312-18UNC3B	0.502	0.489	0.552	0.359	0.329	0.250
	NE141316-054	NE141253-054	0.312-24UNF3B	0.502	0.489	0.552	0.359	0.329	0.250
3/8	NE141316-066	NE141253-066	0.375-16UNC3B	0.564	0.551	0.622	0.468	0.438	0.335
	NE141316-064	NE141253-064	0.375-24UNF3B	0.564	0.551	0.622	0.468	0.438	0.335
7/16	NE141316-074	NE141253-074	0.437-14UNC3B	0.627	0.616	0.698	0.468	0.438	0.324
	NE141316-070	NE141253-070	0.437-20UNF3B	0.627	0.616	0.698	0.468	0.438	0.324
1/2	NE141316-083	NE141253-083	0.500-13UNC3B	0.752	0.736	0.837	0.609	0.579	0.464
	NE141316-080	NE141253-080	0.500-20UNF3B	0.752	0.736	0.837	0.609	0.579	0.464
9/16	NE141316-092	NE141253-092	0.562-12UNC3B	0.877	0.861	0.978	0.656	0.626	0.469
	NE141316-098	NE141253-098	0.562-18UNF3B	0.877	0.861	0.978	0.656	0.626	0.469
5/8	NE141316-101	NE141253-101	0.625-11UNC3B	0.940	0.922	1.051	0.765	0.735	0.593
	NE141316-108	NE141253-108	0.625-18UNF3B	0.940	0.922	1.051	0.765	0.735	0.593
3/4	NE141316-120	NE141253-120	0.750-10UNC3B	1.064	1.052	1.191	0.890	0.860	0.742
	NE141316-126	NE141253-126	0.750-16UNF3B	1.064	1.052	1.191	0.890	0.860	0.742
7/8	NE141316-149	NE141253-149	0.875-9UNC3B	1.252	1.239	1.403	0.999	0.969	0.790
	NE141316-144	NE141253-144	0.875-14UNF3B	1.252	1.239	1.403	0.999	0.969	0.790
1	NE141316-168	NE141253-168	1.000-8UNC3B	1.440	1.427	1.615	1.078	1.016	0.825
	NE141316-162	NE141253-162	1.000-12UNC3B	1.440	1.427	1.615	1.078	1.016	0.825
1 1/8	NE141316-187	NE141253-187	1.125-7UNC3B	1.627	1.614	1.826	1.203	1.141	0.930
	NE141316-182	NE141253-182	1.125-12UNF3B	1.627	1.614	1.826	1.203	1.141	0.930
1 1/4	NE141316-207	NE141253-207	1.250-7UNC3B	1.815	1.801	2.038	1.422	1.360	1.125
	NE141316-202	NE141253-202	1.250-12UNF3B	1.815	1.801	2.038	1.422	1.360	1.125
1 3/8	NE141316-226	NE141253-226	1.375-6UNC3B	2.008	1.973	2.232	1.609	1.547	1.282
	NE141316-222	NE141253-222	1.375-12UNF3B	2.008	1.973	2.232	1.609	1.547	1.282
1 1/2	NE141316-246	NE141253-246	1.500-6UNC3B	2.197	2.159	2.444	1.640	1.578	1.313
	NE141316-242	NE141253-242	1.500-12UNF3B	2.197	2.159	2.444	1.640	1.578	1.313

* PROPER MATERIAL AND FINISH PREFIX MUST BE SPECIFIED ALONG WITH THE BASE PART NUMBER SHOWN ABOVE. SEE NOTE.

MATERIAL:

"4" GRADE 5 STEEL - PARTS CODED "141316"
 "5" GRADE 8 STEEL - PARTS CODED "141253"
 "6" ALUMINUM - SAE AMS-QQ-A-225/5, /6, /8, OR /10 - PARTS CODED "141316"
 "7" CORROSION RESISTANT STEEL
 300 SERIES ALLOY GROUP 1 OR 316 ALLOY GROUP 2 PER ASTM F594
 PARTS CODED "141252" ARE MADE FROM 300 SERIES CRES
 PARTS CODED "141310" ARE MADE FROM 316 SERIES CRES
 "9" BRASS UNS C46200 OR C46400 PER ASTM F467 - PARTS CODED "141316"

FINISH:

"2" CADMIUM PLATED PER SAE AMS-QQ- P-416, TYPE II CLASS 2 - CARBON STEEL PARTS ONLY FOR THIS FINISH.
 ALSO PREFIX THE ENTIRE PART NUMBER WITH "F". SEE THE "PART CODING" SECTION BELOW
 "3" PHOSPHATE COATED PER DOD- P-16232, TYPE Z, CLASS 2 - CARBON STEEL PARTS ONLY
 "4" ZINC PLATED PER ASTM B633, TYPE II, FE/ZN 8 - CARBON STEEL PARTS ONLY
 "8" ANODIZED PER MIL-A-8625, TYPE II, CLASS 1 - ALUMINUM PARTS ONLY
 "9" PLAIN FINISH

LOCKING INSERT:

RED NYLON (350°F MAX PERFORMANCE)

THREADS:

ASME B1.1

NOTES:

MATERIAL AND FINISH PREFIX: WHEN ORDERING, THE BASE PART NUMBER SHOWN IN THE TABLE MUST BE PREFIXED BY THE PROPER MATERIAL AND FINISH CODES. USE THE GUIDE (ABOVE) TO SELECT THE MATERIAL AND FINISH TO SUIT THE SPECIFIC APPLICATION.

MARKING:

CARBON STEEL PARTS WILL BE MARKED "5" OR "8" AS APPLICABLE. RED NYLON INSERT INDICATES MACLEAN ESNA® AS THE MANUFACTURER.

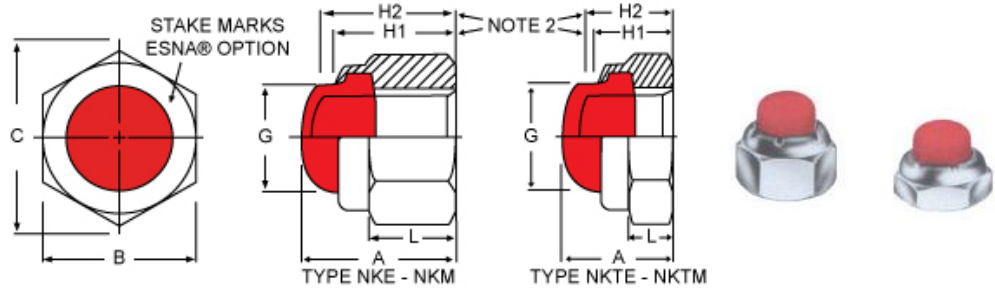
PART CODING:

F 5 2 NE141334 - 070

1	2	3	4	5

1. POST PLATE TREATMENT - CHROMATE FORTIFICATION ON CADMIUM PLATED PARTS ONLY.
2. MATERIAL
3. FINISH
4. NUT TYPE
5. THREAD SIZE

NUT - HEX, NYLON
CAP
NKE, NKTE, NKM,
NKTM



ESNA® PART NUMBERS	THREAD	A REF	B	C REF	G REF	BOLT END		L REF	APPROX. WEIGHT (LB./100)
						H1 MIN	H2 MAX		
22NKTM-40	.1120-40UNJC-3B	.210	.251-.243	.268	.140	.116	.172	.075	.11
22NKM-40		.234				.147	.203	.081	.15
22NKTM-62	.1380-32UNJC-3B	.249	.313-.305	.339	.200	.131	.191	.090	.20
22NKM-62		.297				.179	.239	.103	.27
22NKM-60	.1380-40UNJF-3B	.297							
22NKTM-82	.1640-32UNJC-3B	.308	.345-.336	.374	.225	.191	.250	.110	.31
22NKM-82		.353				.236	.295	.140	.43
22NKM-04	.1900-24UNJC-3B	.363				.262	.314	.140	.50
22NKTM-02	.1900-32UNJF-3B	.308	.376-.367	.410	.234	.207	.259	.110	.36
22NKM-02		.363				.262	.314	.140	.50
52NKTE-048	.2500-28UNJF-3B	.380	.439-.430	.482	.290	.244	.335	.125	.55
42NKE-048		.480				.344	.435	.225	.95
52NKTE-054	.3125-24UNJF-3B	.431	.502-.492	.552	.343	.308	.386	.158	.86
42NKE-054		.525				.400	.462	.250	1.30
52NKE-064	.3750-24UNJF-3B	.622	.564-.553	.622	.415	.498	.575	.335	1.90
52NKTE-070	.4375-20UNJF-3B	.519	.627-.616	.694	.480	.375	.466	.225	1.40

MATERIAL:

NUT - STEEL, CAP - RED NYLON

FINISH:

CADMIUM PLATE, SAE AMS-QQ- P-416, TYPE I, CLASS 3

LOCKING INSERT:

RED NYLON (350°F MAX PERFORMANCE)

THREAD SQUARENESS:

ESNA® SPEC 405, GROUP I

THREADS:

AS8879

PERFORMANCE:

NASM25027 AS APPLICABLE
SEALING - 80 PSI (SEE APPLICATION NOTE)

APPLICATION:

TYPE NKM, NKE, NKTM, AND NKTE CAP NUTS ARE DESIGNED FOR USE IN PLACE OF STANDARD AND THIN HEIGHT HEX NUTS IN APPLICATIONS WHERE FOR REASONS OF SAFETY OR APPEARANCE, IT IS DESIRABLE TO COVER EXPOSED BOLT ENDS. THEY ARE ALSO SUITABLE FOR SEALING INTERNAL OR EXTERNAL PRESSURES, UP TO 80 PSI PAST THE BOLT THREADS, PROVIDED A PROPER SEAL IS AFFECTED BETWEEN THE NUT SEAT AND IT'S MATING SURFACE.

NOTES:

1. THE LOCKING INSERT AND CAP ARE AN INTEGRAL PART.
2. H2" MAXIMUM DESIGNATES THE MAXIMUM RECOMMENDED BOLT ENTRY TO AVOID CONTACT WITH THE TIP OF THE CAP. "H1" MINIMUM DESIGNATES THE MINIMUM RECOMMENDED BOLT ENTRY TO ENSURE SATISFACTORY LOCKING PERFORMANCE.

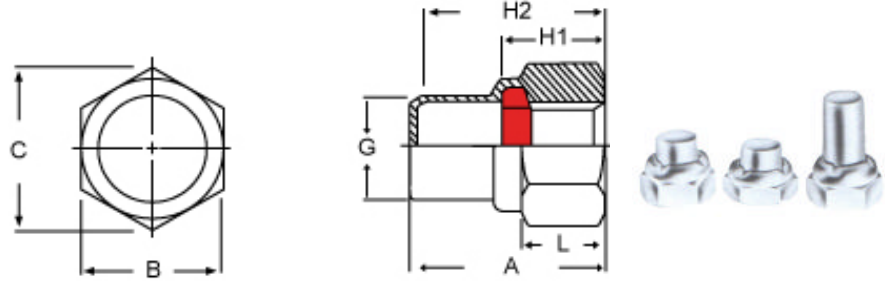
PART CODING:

F 2 2 NKTE - 048

1 2 3 4 5

1. POST PLATE TREATMENT - (PER SAE AMS QQ-P-416, TYPE II) ON CADMIUM PLATED PARTS, PREFIX COMPLETE PART NUMBER WITH LETTER "F".
2. MATERIAL
3. FINISH
4. NUT TYPE
5. THREAD SIZE

NUT - HEX, METAL CAP
K1, K2, K3



ESNA® PART NUMBERS	THREAD	A	B	C	G	H1	H2	L	ULTIMATE TENSILE STRENGTH (LB. MIN)	APPROX. WEIGHT (LB./100)
		REF		REF	REF	MAX	MAX	REF		
22K1-62	.1380-32UNJC-3B	.346	.377-.365	.413	.230	.221	.323	.140	1,130	.63
22K2-62		.291				.166	.268	.110	560	.40
22K3-62		.596				.221	.568	.140	1,130	.60
22K1-82	.1640-32UNJC-3B	.346	.377-.365	.413	.230	.221	.323	.140	1,720	.52
22K2-82		.291				.166	.268	.110	860	.39
22K1-02		.346				.221	.323	.140	2,460	.49
22K2-02	.1900-32UNJF-3B	.291	.377-.365	.413	.230	.166	.268	.110	1,230	.38
22K3-02		.596				.221	.568	.140	2,460	.56
22K1-048		.449				.291	.420	.210	4,100	1.10
22K2-048	.2500-28UNJF-3B	.374	.502-.490	.557	.316	.216	.345	.135		.79
42K3-048		.700				.291	.665	.210	4,100	1.30
22K1-054		.601				.431	.569	.335	7,390	2.10
22K1-064	.3750-24UNJF-3B	.665	.691-.675	.763	.445	.466	.632	.350	11,450	3.50

MATERIAL:

NUT AND CAP – STEEL

FINISH:

NUT AND CAP - CADMIUM PLATE, SAE AMS-QQ- P-416, TYPE I, CLASS 3

LOCKING INSERT:

RED NYLON (350°F MAX PERFORMANCE)

THREAD SQUARENESS:

ESNA® SPEC 405, GROUP I

THREADS:

AS8879

PERFORMANCE:

NASM25027 AS APPLICABLE
SEALING - 80 PSI (SEE APPLICATION NOTE)

APPLICATION:

TYPES K1, K2, AND K3 CAP NUTS ARE DESIGNED FOR USE IN PLACE OF REGULAR HEX NUTS IN APPLICATIONS WHERE FOR REASONS OF SAFETY OR APPEARANCE, IT IS DESIRABLE TO COVER EXPOSED BOLT ENDS. THEY ARE ALSO SUITABLE FOR SEALING INTERNAL OR EXTERNAL PRESSURES, UP TO 80 PSI PAST THE BOLT THREADS, PROVIDED A PROPER SEAL IS AFFECTED BETWEEN THE NUT SEAT AND IT'S MATING SURFACE.

NOTES:

1. THE LOCKING INSERT AND CAP ARE AN INTEGRAL PART.
2. "H2" MAXIMUM DESIGNATES THE MAXIMUM RECOMMENDED BOLT ENTRY TO AVOID CONTACT WITH THE TIP OF THE CAP. "H1" MINIMUM DESIGNATES THE MINIMUM RECOMMENDED BOLT ENTRY TO ENSURE SATISFACTORY LOCKING PERFORMANCE.

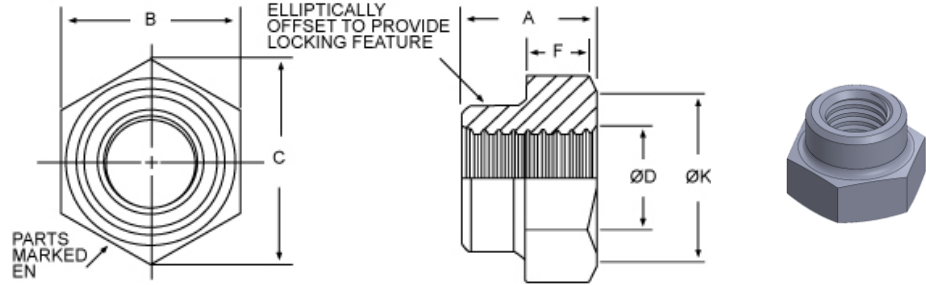
PART CODING:

F 2 2 NKTE - 048

1 2 3 4 5

1. POST PLATE TREATMENT - (PER SAE AMS QQ-P-416, TYPE II) ON CADMIUM PLATED PARTS, PREFIX COMPLETE PART NUMBER WITH LETTER "F".
2. MATERIAL
3. FINISH
4. NUT TYPE
5. THREAD SIZE

NUT - SELF-LOCKING,
HEX, REGULAR HEIGHT,
125 KSI FTU
LE141355



ESNA PART NUMBERS	THREAD	A		B		C	ØD ± .020	F MIN	ØK MIN	AXIAL TENSILE STRENGTH (LB. MIN)	APPROX. WEIGHT (LB./100)
		MAX	MIN	MAX	MIN						
LE141355-02	.1900-32UNJF-3B	.250	.208	.376	.367	.410	.210	.085	.347	2,460	.58
LE141355-048	.2500-28UNJF-3B	.328	.240	.439	.430	.482	.273	.116	.410	4,580	.99
LE141355-054	.3125-24UNJF-3B	.360	.271	.502	.492	.552	.336	.123	.472	7,390	1.40
LE141355-064	.3750-24UNJF-3B	.469	.318	.564	.553	.622	.390	.153	.533	11,450	2.15
LE141355-070	.4375-20UNJF-3B	.469	.435	.690	.679	.766	.467	.178	.669	16,450	3.40
LE141355-080	.5000-20UNJF-3B	.610	.575	.752	.741	.837	.531	.221	.721	21,110	4.70
LE141355-098	.5625-18UNJF-3B	.704	.623	.877	.865	.978	.594	.243	.845	26,810	7.801
LE141355-108	.6250-18UNJF-3B	.766	.732	.940	.928	1.051	.656	.274	.908	34,130	9.50
LE141355-126	.7500-16UNJF-3B	.861	.855	1.064	1.052	1.191	.787	.316	1.032	50,020	13.60
LE141355-144	.8750-14UNJF-3B	1.016	.965	1.252	1.239	1.403	.918	.570	1.219	68,440	21.00
LE141355-162	1.000-12UNJF-3B	1.141	1.010	1.440	1.427	1.615	1.044	.635	1.407	92,180	36.00
LE141355-182	1.125-12UNJF-3B	1.266	1.130	1.627	1.614	1.826	1.171	.710	1.594	116,700	46.00
LE141355-202	1.250-12UNJF-3B	1.454	1.300	1.814	1.801	2.038	1.295	.795	1.781	147,940	65.00

MATERIAL:

"2" STEEL
"4" STEEL
"5" STEEL
"7" STAINLESS STEEL, AISI 303 OR EQUIV.
"A" STAINLESS STEEL, A286

FINISH:

"2" CADMIUM PLATE, SAE-AMS-QQ-P-416 TYPE I, CLASS 2
"L" DRY FILM LUBRICANT, AS5272 TYPE 1
"M" CADMIUM PLATE, SAE-AMS-QQ-P-416 TYPE I, CLASS 2
& DRY FILM LUBRICANT, AS5272 TYPE 1
"S" SILVER PLATE, AMS2410

THREADS:

AS8879 MINIMUM "GO GAGE" ENTRY IS FROM THE BOTTOM OF THE NUT TO ONE AND A HALF THREADS BELOW THE BARREL (PRIOR TO ADDITION OF DRY FILM LUBRICANT)

PERFORMANCE:

NASM25027 FOR TEMPERATURE 450 F & 800 F
NASM7873 FOR TEMPERATURE 1200 F

APPLICATION:

THE ABOVE DESIGNS ARE PARTICULARLY WELL SUITED FOR USE IN APPLICATIONS INVOLVING PROLONGED SERVICE AT HIGH TEMPERATURES

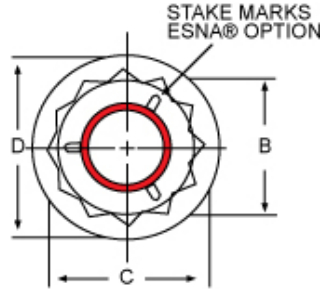
PART CODING:

F 1 2 LE141355 - 048

1 2 3 4 5

1. POST PLATE TREATMENT (PER SAE-AMSQQ-P-416, TYPE II) ON CADMIUM PLATED PARTS PREFIX PART NUMBER WITH LETTER "F" THREAD SIZE.
2. MATERIAL
3. FINISH
4. NUT TYPE
5. THREAD SIZE

NUT - DOUBLE HEX, HIGH
TENSILE, 180,000 PSI, 350° F
NH



ESNA® PART NUMBERS	THREAD	B	C	D	ULTIMATE TENSILE STRENGTH (LB. MIN)	APPROX. WEIGHT (LB./100)
12NH-4	.2500-28UNJF-3B	.376-.367	.420	.531	6,980	1.0
12NH-5	.3125-24UNJF-3B	.439-.430	.491	.593	11,100	1.4
12NH-6	.3750-24UNJF-3B	.502-.492	.562	.687	17,100	2.0

MATERIAL:

ALLOY STEEL - AISI 4130, 4340, 8740 OR EQUIVALENT

FINISH:

CADMIUM PLATE, SAE AMS-QQ- P-416, TYPE I, CLASS 2 (SEE PART CODING)

LOCKING INSERT:

RED NYLON (350°F MAX PERFORMANCE)

MAGNETIC PARTICLE INSPECTION:

PARTS INDIVIDUALLY INSPECTED IN ACCORDANCE WITH ASTM E1444

THREAD SQUARENESS:

ESNA® SPEC 405, GROUP II, SIZES -048 THRU -080
ESNA® SPEC 405, GROUP I, SIZES -098 AND LARGER

THREADS:

AS8879

PERFORMANCE:

NASM25027, EXCEPT MIN TENSILE STRENGTH EQUIVALENT TO 180,000 PSI AT 98% OF THE BASIC PITCH DIAMETER, FOR SIZES -4, -5 AND THE BASIC PITCH DIAMETER FOR SIZES -6 AND LARGER. THE VALUES TABULATED ABOVE WILL BE OBTAINED WHEN TENSILE TESTED ON A BOLT HAVING A MINIMUM TENSILE STRENGTH OF 200,000 PSI.

APPLICATIONS:

THIS DESIGN IS SUITED FOR APPLICATION INVOLVING HIGH STRENGTH BOLTS SUCH AS NASM21250 AND THE NASM20004 SERIES.

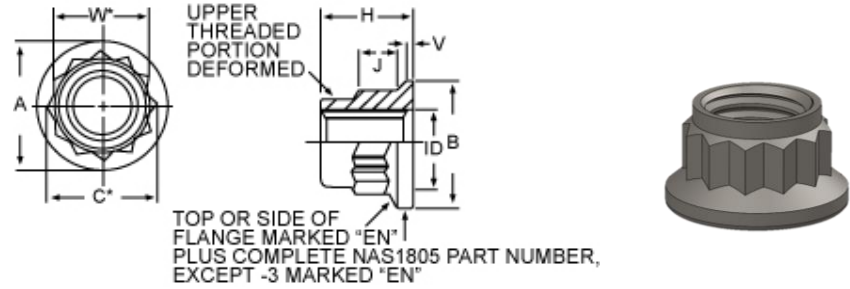
PART CODING:

F 12NH - 4

1 2 3

1. POST PLATE TREATMENT - (PER SAE AMS QQ-P-416, TYPE II) ON CADMIUM PLATED PARTS, PREFIX COMPLETE PART NUMBER WITH LETTER "F".
2. NUT TYPE
3. THREAD SIZE

NUT - DOUBLE HEX, 180 KSI,
450°F AND 800°F
LH141362



ESNA® PART NUMBERS	THREAD	A		B		C		H		ID		J	V	W		X	APPROX. WEIGHT (LB./100)
		MAX	MIN	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX		
LH141362-3	.1900-32UNJF-3B	.339	.29	0.28	.190	.190	.220	.065	.015	.243	.251	.006	.21				
LH141362-4	.2500-28UNJF-3B	.434	.394	.347	.250	.250	.280	.082	.020	.305	.313	.006	.42				
LH141362-5	.3125-24UNJF-3B	.532	.492	.418	.312	.312	.342	.120	.035	.367	.376	.006	.71				
LH141362-6	.3750-24UNJF-3B	.631	.591	.490	.375	.375	.405	.129	.056	.430	.439	.010	1.27				
LH141362-7	.4375-20UNJF-3B	.729	.689	.631	.438	.438	.473	.156	.069	.550	.564	.010	2.14				
LH141362-8	.5000-20UNJF-3B	.828	.788	.703	.500	.500	.535	.190	.074	.616	.627	.010	3.04				
LH141362-9	.5625-18UNJF-3B	.926	.886	.775	.562	.562	.597	.230	.079	.679	.690	.010	4.13				
LH141362-10	.6250-18UNJF-3B	1.024	.984	.846	.625	.625	.660	.250	.084	.741	.752	.010	5.41				
LH1413622-12	.7500-16UNJF-3B	1.221	1.181	1.059	.750	.785	.750	.310	.094	.940	.928	.010	10.20				

MATERIAL:

A286 CRES - AMS 5737

FINISH:

CODE: LH141362-X - SILVER PLATE, AMS 2410

121LH141362-X - CADMIUM PLATE, SAE AMS-QQ-P-416 TYPE I, CLASS 2 PLUS CETYL ALCOHOL

109LH141362-X - PASSIVATED PER AMS 2700, PLUS DRY FILM LUBRICANT

102LH141362-X - CADMIUM PLATE, SAE AMS-QQ-P-416, CLASS 2 PLUS DRY FILM LUBRICANT. MEET SALT REQUIREMENTS OF SAE AMS-QQ-P-416, TYPE II

MAGNETIC PARTICLE INSPECTION:

PARTS INDIVIDUALLY INSPECTED IN ACCORDANCE WITH ASTM E1444

THREAD SQUARENESS:

ESNA SPEC 405, GROUP I

THREADS:

AS8879

PERFORMANCE:

NAS3350, CLASS IIIA

NOTES:

DIMENSIONS "C" & "W" APPLY PRIOR TO DEFORMATION OF UPPER THREADED PORTION.

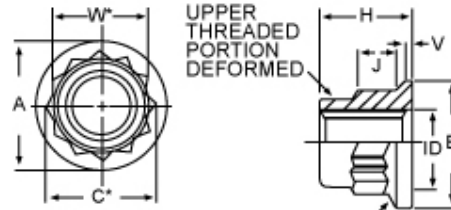
PART CODING:

121 LH141362 - 4

1 2 3

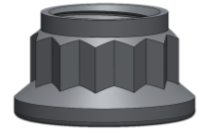
1. FINISH
2. NUT TYPE
3. THREAD SIZE

NUT - DOUBLE HEX, 180 KSI,
450°F
LH141385



UPPER
THREADED
PORTION
DEFORMED

TOP OR SIDE OF
FLANGE MARKED "EN"
PLUS COMPLETE NAS1804 PART NUMBER,
EXCEPT -3 MARKED "EN"



ESNA® PART NUMBERS	THREAD	A		B		C		H		ID		J		V		W		X	APPROX. WEIGHT (LB./100)
		MAX	MIN	MIN	MAX	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN				
LH141385-3	.1900-32UNJF-3B	.339	.29	0.28	.190	.220	.190	.065	.015	.251	.243	.006	.21						
LH141385-4	.2500-28UNJF-3B	.434	.394	.347	.250	.280	.250	.082	.020	.313	.305	.006	.42						
LH141385-5	.3125-24UNJF-3B	.532	.492	.418	.312	.342	.312	.120	.035	.376	.367	.006	.71						
LH141385-6	.3750-24UNJF-3B	.631	.591	.490	.375	.405	.375	.129	.056	.439	.430	.010	1.27						
LH141385-7	.4375-20UNJF-3B	.729	.689	.631	.438	.473	.438	.156	.069	.564	.550	.010	2.14						
LH141385-8	.5000-20UNJF-3B	.828	.788	.703	.500	.535	.500	.190	.074	.627	.616	.010	3.04						
LH141385-9	.5625-18UNJF-3B	.926	.886	.775	.562	.597	.562	.230	.079	.690	.679	.010	4.13						
LH141385-10	.6250-18UNJF-3B	1.024	.984	.846	.625	.660	.625	.250	.084	.752	.741	.010	5.41						
LH141385-12	.7500-16UNJF-3B	1.221	1.181	1.059	.750	.785	.750	.310	.094	.940	.928	.010	10.20						

MATERIAL:

ALLOY STEEL - AMS6304 OR AMS6487

FINISH:

CODE: 1FLH141385-X - CADMIUM PLATE, SAE AMS-QQ-P-416, TYPE I, CLASS 2 PLUS CETYL ALCOHOL.
1MLH141385-X - CADMIUM PLATE, SAE AMS-QQ-P-416, CLASS 2, PLUS DRY FILM LUBRICANT, MEETS SALT SPRAY REQUIREMENTS OF AMS-QQ-P-416.

PART CODING:

1F LH141385 - 4

1 2 3

1. FINISH
2. NUT TYPE
3. THREAD SIZE

MAGNETIC PARTICLE INSPECTION:

PARTS INDIVIDUALLY INSPECTED IN ACCORDANCE WITH ASTM E1444

THREAD SQUARENESS:

ESNA SPEC 405, GROUP I

THREADS:

AS8879

PERFORMANCE:

NAS3350, CLASS III

APPLICATIONS:





DIMENSIONS "C" & "W" APPLY PRIOR TO DEFORMATION OF UPPER THREADED PORTION.

SECTION 2 - ELECTRONIC FASTENERS / SELF-RETAINING NUTS

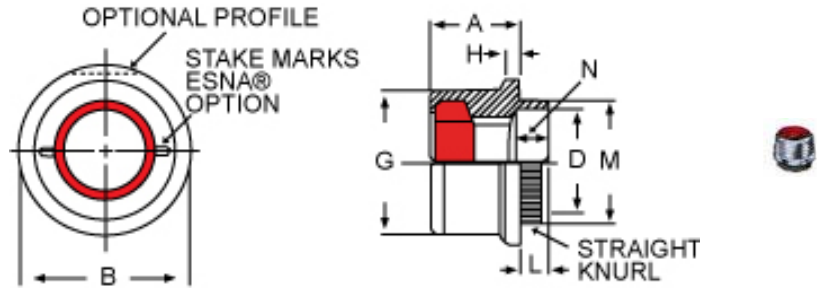
SELECTING THE CORRECT SELF-RETAINING, SELF-LOCKING NUTS FOR YOUR APPLICATION

The complex requirements of the Aircraft-Aerospace have created multiple lines of self-locking Elastic Stop® nut Anchor type nuts to meet the rigid engineering demands. Characteristics such as shape, material, finish, strength, weight, and temperature limits, all within strict dimensional limits, can be provided in the wide range of ESNA® "available" parts. The Aerospace designer has only to select from this listing to resolve a large part of his assembly problems, however, if the part needed is not shown in this catalog, he is invited to contact our Technical Sales Department for assistance. Additional hundreds of special designs (not shown) are readily available for review.

VISUAL INDEX

<p>NCFMA</p> 	<p>NUT - CLINCH, FLUSH MOUNTING, MINIATURE, NYLON INSERT, 350°F 2 - 56 THRU 10 - 32 TO 350° F NASM45938/5</p> <p>PAGE 52</p>	<p>NKCFM</p> 	<p>NUT - CLINCH, FLUSH MOUNTING, MINIATURE, NYLON CAP, 350°F 2 - 56 THRU 10 - 32 TO 350° F</p> <p>PAGE 54</p>
<p>NC</p> 	<p>NUT - CLINCH 4 - 40 THRU 5/16 - 24 TO 350° F NASM45938/8</p> <p>PAGE 56</p>	<p>ND</p> 	<p>NUT - SPLINE 8 - 32 THRU 1/2 - 20 TO 350° F MS51866</p> <p>PAGE 58</p>

NUT - CLINCH, FLUSH
MOUNTING, MINIATURE, NYLON
INSERT, 350°F
NCFMA



ESNA® PART NUMBERS		THREAD	A ± .010	B ± .005	D +.003 -.002	G MAX	H ± .005	L ± .003	M ± .002	N REF	APPROX. WEIGHT (LB./100)
STEEL	STAINLESS STEEL										
22NCFMA1-26	79NCFMA1-26	.0860-56UNJC-3B	.075	.172	.098	.150	.020	.040	.129	.040	.03
22NCFMA2-26	79NCFMA2-26							.060			
22NCFMA1-40	79NCFMA1-40	.1120-40UNJC-3B	.090	.203	.130	.182	.020	.040	.160	.040	.05
22NCFMA2-40	79NCFMA2-40							.060			
12NCFMA1-62	79NCFMA1-62	.1380-32UNJC-3B	.130	.281	.154	.242	.025	.040	.192	.040	.11
12NCFMA2-62	79NCFMA2-62							.060			
12NCFMA1-82	79NCFMA1-82	.1640-32UNJC-3B	.160	.312	.180	.268	.025	.040	.223	.040	.16
12NCFMA2-82	79NCFMA2-82							.060			
12NCFMA1-02	79NCFMA1-02	.1900-32UNJF-3B	.179	.344	.212	.287	.030	.040	.254	.040	.21
12NCFMA2-02	79NCFMA2-02							.060			

MATERIAL:

STEEL
STAINLESS STEEL, AISI 303 OR EQUIV.

FINISH:

STEEL - CADMIUM PLATE, SAE AMS-QQ-P- 416 TYPE I, CLASS 3
STAINLESS STEEL – UNPLATED

LOCKING INSERT:

RED NYLON (350°F MAX PERFORMANCE)

THREADS:

AS8879

PERFORMANCE:

TORQUE PER NASM25027, SIZES –82 AND LARGER

APPLICATION:

TYPE NCFMA PARTS ARE PARTICULARLY SUITED FOR USE IN APPLICATIONS INVOLVING INSTALLATIONS IN THIN ALUMINUM OR SOFT STEEL SHEETS OR PLATES HAVING SMALL MOUNTING AREAS MAKING THE USE OF A MINIATURE FIXED TYPE NUT DESIRABLE. THE ADAPTABILITY OF NCFMA'S TWO SHANK LENGTHS TO MANY SHEET THICKNESSES IS ALSO WORTHY OF NOTE SINCE IT MINIMIZES NUT STOCKING REQUIREMENTS FOR NUMEROUS APPLICATIONS.

SHANK LENGTH SELECTION:

NCFMA1 PARTS ARE RECOMMENDED FOR INSTALLATIONS INVOLVING SHEET THICKNESSES UP TO APPROXIMATELY .050". PRACTICAL FLUSHNESS CAN BE ACHIEVED IN THICKNESSES AS LOW AS .030" NCFMA2 PARTS ARE RECOMMENDED FOR USE IN SHEET THICKNESSES OF .050" AND HEAVIER. FOR OPTIMUM INSTALLATION IT IS RECOMMENDED THAT THE PROPER TOOLS BE USED, AND THAT THE MAXIMUM TABULATED CLINCHING PRESSURES NOT BE EXCEEDED. EXCEEDING THESE VALUES CAN, DEPENDING UPON THE MATERIAL INTO WHICH THE NUT IS INSTALLED, CAUSE DISTORTION OF THE WORK AND/OR THE NUT ITSELF. THE MOST SATISFACTORY INSTALLATIONS ARE OBTAINED WHEN THE NUT IS PRESSED INTO THE WORK UNTIL ITS SHOULDER RESTS AGAINST THE SURFACE OF THE WORK. THE SHANK SHOULD THEN BE FLARED. IT IS RECOMMENDED THAT THE ACTING SURFACE OF THE PUNCH FACE BE MAINTAINED. BOTH THE PUNCH AND THE DOLLY SHOULD BE REGULARLY INSPECTED AND CLEANED OF ANY PLATING BUILD-UP IN ORDER TO ASSURE PROPER SEATING OF THE NUT. FLUSH MOUNTING PUNCHES ARE INTENDED FOR USE WITH NO. 1 SHANK LENGTH PARTS IN .030 - .040" THICK SHEET AND NO. 2 SHANK LENGTH PARTS IN .050 - .060" THICK SHEET. FOR SHEET THICKNESSES .040 - .050" IT IS RECOMMENDED THAT NO. 1 SHANK LENGTH PARTS BE USED WITH INTERNAL FLARING PUNCHES AND FOR THICKNESSES GREATER THAN .060", NO. 2 SHANK LENGTH PARTS BE USED WITH INTERNAL FLARING PUNCHES.

PART CODING:

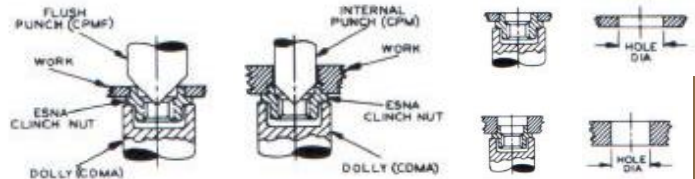
F 1 2 NCFMA 2 - 02

1 2 3 4 5 6

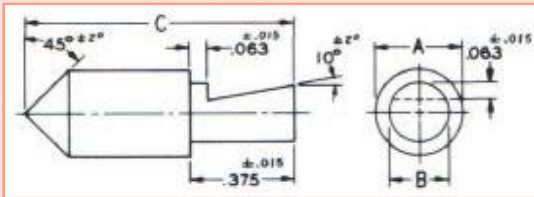
1. POST PLATE TREATMENT- PER SAE AMS-QQ-P-416, TYPE II.
2. MATERIAL
3. FINISH
4. NUT TYPE
5. SHANK LENGTH
6. THREAD SIZE

BASIC PART NUMBER	INSTALLATION TOOLS			MAXIMUM RECOMMENDED CLINCHING PRESSURE (LBS.)	INSTALLATION HOLE DIAMETERS	
	FLUSH PUNCH	INTERNAL PUNCH	DOLLY		MIN	MAX
NCFMA1-26	CPMF1	CPMF2	CDMA21	300	.124	.126
NCFMA2-26						
NCFMA1-40	CPMF1	CPM4	CDMA41	600	.155	.157
NCFMA2-40						
NCFMA1-62	CPMF1	CPM6	CDMA61	750	.187	.189
NCFMA2-62						
NCFMA1-82	CPMF2	CPM8	CDMA81	1000	.218	.220
NCFMA2-82						
NCFMA1-02	CPMF2	CPM10	CDMA101	1500	.249	.251
NCFMA2-02						

ILLUSTRATION SHOWS THE RECOMMENDED APPLICATION OF THE PUNCH AND DOLLY. THESE TOOLS ARE ADAPTABLE TO PUNCH PRESSES, ARBOR PRESSES AND OTHER COMMON TYPES OF SHOP EQUIPMENT.



FLUSH MOUNTING PUNCH

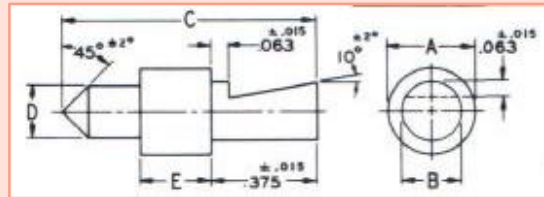


PUNCH PART NUMBER	A	B	C
	± .015	+ .000 - .002	± .015
CPMF1	.307	.200	.966
CPMF2	.419	.300	1.022

MATERIAL:
TOOL STEEL, 60 Rc REF

FINISH:
UNPLATED

INTERNAL FLARING MOUNTING PUNCH

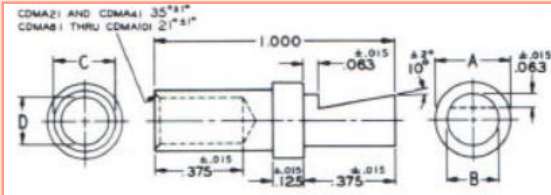


PUNCH PART NUMBER	A	B	C	D	E
	± .015	+ .000 - .002	± .015	+ .000 - .002	± .015
CPMF2	.307	.200	.873	.120	.250
CPM4			.888	.151	
CPM6			.904	.183	
CPM8	.419	.300	.920	.214	.188
CPM10			.935	.245	

MATERIAL:
TOOL STEEL, 60 Rc REF

FINISH:
UNPLATED

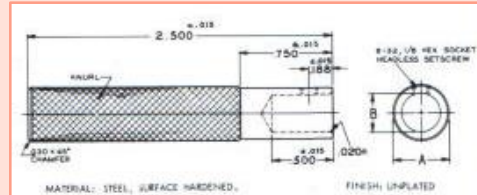
DOLLY - MINIATURE, CLINCH NUT



DOLLY PART NUMBER	A	B	C	D
	± .015	+ .000 - .002	± .015	+ .000 - .002
CDMA21	.307	.200	.873	.120
CDMA41			.888	.151
CDMA61			.904	.183
CDMA81			.920	.214
CDMA101			.935	.245

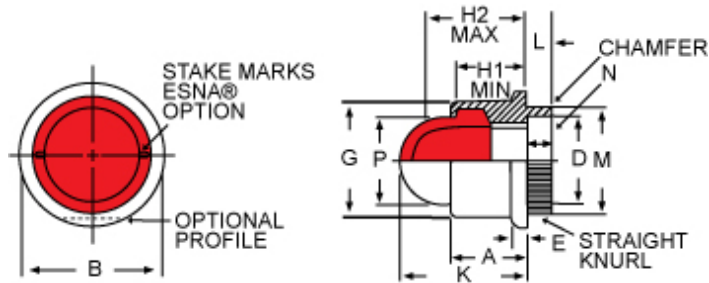
MATERIAL:
TOOL STEEL, 60 Rc REF

FINISH:
UNPLATED



HANDLE PART NUMBER	A	B
	± .015	+ .000 - .002
CHM1	.312	.201
CHM2	.437	.301

NUT - CLINCH, FLUSH
MOUNTING, MINIATURE,
NYLON CAP, 350°F
NKCFM



ESNA® PART NUMBERS		THREAD	A	B	D	E	G	H1	H2	K	L	M	N	P	APPROX. WEIGHT (LB./100)
STEEL	STAINLESS STEEL														
22NKCFM1-26	79NKCFM1-26	.0860-56UNJC-3B	.075	.172	.098	.020	.150	.072	.119	.143	.040	.129	.040	.106	.03
	79NKCFM2-26														
22NKCFM1-40	79NKCFM1-40	.1120-40UNJC-3B	.090	.203	.130	.025	.182	.086	.154	.176	.040	.160	.040	.131	.05
	79NKCFM2-40														
12NKCFM1-62	79NKCFM1-62	.1380-32UNJC-3B	.130	.281	.154	.025	.242	.130	.211	.251	.040	.192	.040	.170	.11
	79NKCFM2-62														
12NKCFM2-82		.1640-32UNJC-3B	.160	.312	.180	.030	.268	.162	.251	.289	.060	.233	.060	.191	.17
	79NKCFM2-02	.1900-32UNJF-3B	.179	.344	.212	.030	.287	.177	.255	.290	.060	.254	.060	.221	.22

MATERIAL:

STEEL
STAINLESS STEEL – AISI 303 OR EQUIV.
CAP - RED NYLON

FINISH:

STEEL CADMIUM PLATE, SAE AMS-QQ-P
416 TYPE I, CLASS 3.
STAINLESS STEEL – UNPLATED

LOCKING INSERT:

RED NYLON – HEAT STABILIZED
(SUITABLE FOR TEMPERATURES UP
TO 350°F)

THREADS:

AS8879

PERFORMANCE:

TORQUE PER NASM25027, SIZES –82
AND LARGER. SEALING ABILITY:
INTERNAL AND EXTERNAL PRESSURES
UP TO 80 PSI, PAST THE BOLT THREADS,
PROVIDED A SUITABLE SEAL IS
EFFECTED BETWEEN THE NUT BASE
AND ITS MATING SURFACE

APPLICATION:

TYPE "NKCFM" NUTS FEATURE A NYLON
CAP IN MINIATURIZED CLINCH NUT
SERIES. THEY ARE PARTICULARLY
SUITED FOR USE IN THIN ALUMINUM OF
SOFT STEEL SHEETS WHERE
CONDITIONS OF THE APPLICATION
NECESSITATE SEALING OR COVERING
OF SCREW ENDS.

SHANK LENGTH SELECTION:

NKCFM1 PARTS ARE RECOMMENDED FOR
INSTALLATIONS INVOLVING SHEET
THICKNESSES UP TO APPROXIMATELY .050
INCHES. PRACTICAL FLUSHNESS CAN BE
ACHIEVED IN THICKNESSES AS LOW AS .030
INCH. NKCFM2 PARTS ARE RECOMMENDED FOR
USE IN SHEET THICKNESSES OF .050 OR
HEAVIER. FOR OPTIMUM INSTALLATION IT IS
RECOMMENDED THAT THE PROPER TOOLS BE
USED, AND THAT THE MAXIMUM TABULATED
CLINCHING PRESSURES NOT BE EXCEEDED.
EXCEEDING THESE VALUES CAN, DEPENDING
UPON THE MATERIAL INTO WHICH THE NUT IS
INSTALLED, CAUSE DISTORTION OF THE WORK
AND/OR THE NUT ITSELF. THE MOST
SATISFACTORY INSTALLATIONS ARE OBTAINED
WHEN THE NUT IS PRESSED INTO THE WORK
UNTIL ITS SHOULDER RESTS AGAINST THE
SURFACE OF THE WORK. THE SHANK SHOULD
THEN BE FLARED. IT IS RECOMMENDED THAT
THE ACTING SURFACE OF THE PUNCH FACE BE
MAINTAINED. BOTH THE PUNCH AND THE DOLLY
SHOULD BE REGULARLY INSPECTED AND
CLEANED OF ANY PLATING BUILD-UP IN ORDER
TO ASSURE PROPER SEATING OF THE NUT.
FLUSH MOUNTING PUNCHES ARE INTENDED
FOR USE WITH NO.1 SHANK LENGTH PARTS IN
.030 TO .040 THICK SHEET AND NO. 2 SHANK
LENGTH PARTS IN .050 TO .060 THICK SHEET.
FOR SHEET THICKNESSES .040 TO .050 IT IS
RECOMMENDED THAT NO.1 SHANK LENGTH
PARTS BE USED WITH INTERNAL FLARING
PUNCHES AND FOR THICKNESSES GREATER
THAN .060 NO. 2 SHANK LENGTH PARTS BE USED
WITH INTERNAL FLARING PUNCHES.

NOTES:

1. THE LOCKING INSERT AND CAP ARE AN INTEGRAL PART.
2. "H2 MAX" DESIGNATES THE MAXIMUM RECOMMENDED BOLT ENTRY TO AVOID CONTACT WITH THE TOP OF THE CAP. "H1 MIN" DESIGNATES THE MINIMUM RECOMMENDED BOLT ENTRY TO INSURE SATISFACTORY LOCKING PERFORMANCE.

PART CODING:

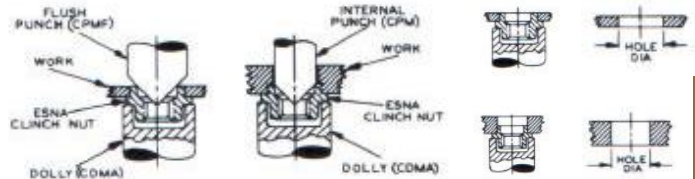
F 2 2 NKCFM 2 - 40

1 2 3 4 5 6

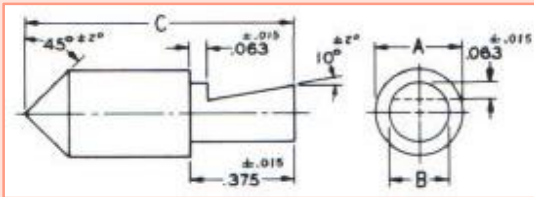
1. POST PLATE TREATMENT-PER SAE AMS-QQ-P-416, TYPE II.
2. MATERIAL
3. FINISH
4. NUT TYPE
5. SHANK LENGTH
6. THREAD SIZE

BASIC PART NUMBER	INSTALLATION TOOLS			MAXIMUM RECOMMENDED CLINCHING PRESSURE (LBS.)	INSTALLATION HOLE DIAMETERS	
	FLUSH PUNCH	INTERNAL PUNCH	DOLLY		MIN	MAX
NCFMA1-26	CPMF1	CPMF2	CDMA21	300	.124	.126
NCFMA2-26						
NCFMA1-40	CPMF1	CPM4	CDMA41	600	.155	.157
NCFMA2-40						
NCFMA1-62	CPMF1	CPM6	CDMA61	750	.187	.189
NCFMA2-62						
NCFMA1-82	CPMF2	CPM8	CDMA81	1000	.218	.220
NCFMA2-82						
NCFMA1-02	CPMF2	CPM10	CDMA101	1500	.249	.251
NCFMA2-02						

ILLUSTRATION SHOWS THE RECOMMENDED APPLICATION OF THE PUNCH AND DOLLY. THESE TOOLS ARE ADAPTABLE TO PUNCH PRESSES, ARBOR PRESSES AND OTHER COMMON TYPES OF SHOP EQUIPMENT.



FLUSH MOUNTING PUNCH

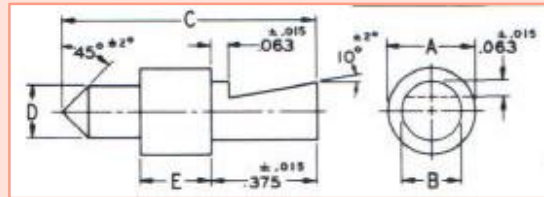


PUNCH PART NUMBER	A	B	C
	± .015	+ .000 - .002	± .015
CPMF1	.307	.200	.966
CPMF2	.419	.300	1.022

MATERIAL:
TOOL STEEL, 60 Rc REF

FINISH:
UNPLATED

INTERNAL FLARING MOUNTING PUNCH

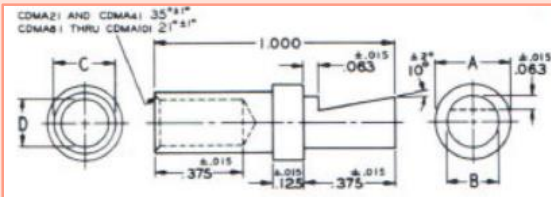


PUNCH PART NUMBER	A	B	C	D	E
	± .015	+ .000 - .002	± .015	+ .000 - .002	± .015
CPMF2	.307	.200	.873	.120	.250
CPM4			.888	.151	
CPM6			.904	.183	
CPM8	.419	.300	.920	.214	.188
CPM10			.935	.245	

MATERIAL:
TOOL STEEL, 60 Rc REF

FINISH:
UNPLATED

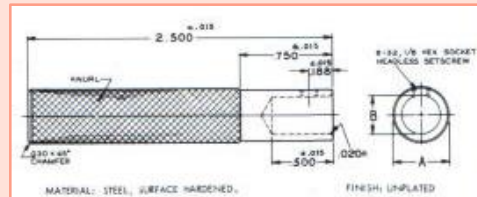
DOLLY - MINIATURE, CLINCH NUT



DOLLY PART NUMBER	A	B	C	D
	± .015	+ .000 - .002	± .015	+ .000 - .002
CDMA21	.307	.200	.873	.120
CDMA41			.888	.151
CDMA61			.904	.183
CDMA81			.920	.214
CDMA101			.935	.245

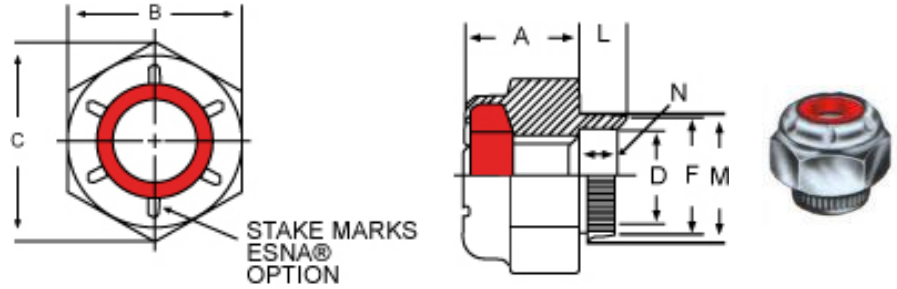
MATERIAL:
TOOL STEEL, 60 Rc REF

FINISH:
UNPLATED



HANDLE PART NUMBER	A	B
	± .015	+ .000 - .002
CHM1	.312	.201
CHM2	.437	.301

NUT - CLINCH
NC



ESNA® PART NUMBERS							THREAD	A	B	C	D	F	L	M	N
STEEL CADMIUM PLATED	STAINLESS UNPLATED	APPROX. WEIGHT (LB./100)	ALUMINUM ANODIZED	APPROX. WEIGHT (LB./100)	BRASS CADMIUM PLATED	APPROX. WEIGHT (LB./100)		± .015	REF	REF	REF	MAX	±.006	±.002	REF
22NC1-40	79NC1-40	.15	68NC1-40	.06			.1120-40UNJC-3B	.141	.250	.275	.147	.183	.063	.189	.080
22NC2-40	79NC2-40	.16	68NC2-40	.06		.085							.080		
22NC3-40	79NC3-40	.17	68NC3-40	.07		.105							.105		
22NC4-40	79NC4-40	.18				.135							.135		
22NC5-40	79NC5-40	.19	68NC5-40	.08		.165							.165		
22NC2-48		.16				.1120-48UNJF-3B	.141	.250	.275	.147	.183	.085	.222	.080	
22NC3-48		.17										.105		.105	
22NC1-62	79NC1-62	.28	68NC1-62	.12		.1380-32UNJC-3B	.188	.313	.344	.165	.216	.063	.275	.080	
22NC2-62	79NC2-62	.30	68NC2-62	.12								.085		.080	
22NC3-62	79NC3-62	.32	68NC3-62	.13								.105		.105	
22NC4-62	79NC4-62	.34	68NC4-62	.13								.035		.135	
22NC5-62	79NC5-62	.36										.165		.165	
	79NC6-62	.38				.195	.195								
22NC3-60		.32				.1380-40UNJF-3B	.188	.313	.344	.165	.216	.105	.222	.105	
22NC1-82	79NC1-82	.57	68NC1-82	.22		.1640-32UNJC-3B	.250	.375	.413	.220	.267	.063	.275	.080	
22NC2-82	79NC2-82	.59	68NC2-82	.23								.085		.080	
22NC3-82	79NC3-82	.61	68NC3-82	.24	92NC3-82							.65		.105	.105
22NC4-82	79NC4-82	.63	68NC4-82	.25								.135		.135	
22NC5-82	79NC5-82	.65										.165		.165	
22NC6-82	79NC6-82	.67	68NC6-82	.27		.195	.195								
22NC1-04		.52				.1900-24UNJC-3B	.250	.375	.413	.220	.267	.063	.275	.080	
22NC2-04	79NC2-04	.54	68NC2-04	.21								.085		.080	
22NC3-04	79NC3-04	.56										.105		.105	
22NC4-04	79NC4-04	.58										.135		.035	
22NC5-04	79NC5-04	.60										.165		.165	
22NC6-04		.62				.195	.195								
22NC1-02	79NC1-02	.52				.1900-32UNJC-3B	.250	.375	.413	.220	.267	.063	.275	.080	
22NC2-02	79NC2-02	.54	68NC2-02	.21	92NC2-02							.59		.085	.080
22NC3-02	79NC3-02	.56										.105		.105	
22NC4-02	79NC4-02	.58	68NC4-02	.23								.135		.135	
22NC5-02	79NC5-02	.60	68NC5-02	.24								.165		.165	
22NC6-02	79NC6-02	.62				.195	.195								
22NC1-040	79NC1-040	.90	68NC1-040	.35		.2500-20UNJC-3B	.313	.438	.488	.280	.351	.063	.359	.080	
22NC2-040	79NC2-040	.95										.085		.080	
22NC3-040	79NC3-040	1.00										.105		.105	
22NC4-040	79NC4-040	1.05	68NC4-040	.41								.135		.135	
22NC5-040	79NC5-040	1.10										.165		.165	
22NC6-040	79NC6-040	1.15				.195	.195								
22NC3-048		1.00	68NC3-048	.39		.2800-28UNJF-38	.313	.438	.488	.280	.351	.105	.359	.105	
22NC4-048	79NC4-048	1.05										.135		.135	
22NC5-048		1.10	68NC5-048	.43								.165		.165	
	79NC6-048	1.15				.195	.195								
22NC1-058	79NC1-058	1.25	68NC1-058	.49		.3125-18UNJC-3B	.344	.500	.557	.343	.407	.063	.416	.080	
	79NC3-058	1.35										.105		.105	
22NC4-058	79NC4-058	1.40				.135	.135								
22NC4-054		1.40				.3125-24UNJF-3B	.344	.500	.557	.343	.407	.135	.416	.135	
22NC5-054		1.45										.165		.165	
22NC6-054		1.50										.195		.195	

MATERIAL:

STEEL
 ALUMINUM ALLOY – 2017-T4 OR EQUIV.
 STAINLESS STEEL – AISI 303
 BRASS – COMMERCIAL HALF HARD

FINISH:

CADMIUM PLATE, AMS SAE-QQ-P-416, TYPE 1,
 CLASS 3 (SEE PART CODING)
 ANODIZED, MIL-A-8625

LOCKING INSERT:

RED NYLON (350°F MAX PERFORMANCE)

THREADS:

AS8879

PERFORMANCE:

NASM25027 AS APPLICABLE

APPLICATION:

CLINCH NUTS ARE PERMANENTLY SELF-RETAINED, SELF-LOCKING FASTENERS FOR INSTALLATION IN ALUMINUM OR SOFT SHEET STEEL ASSEMBLIES. THEY PROVIDE LOAD-BEARING THREADS IN THIN SHEET METAL AND OFFER A HIGHLY RELIABLE METHOD OF BLIND FASTENING. ONLY FOUR SIMPLE STEPS, OUTLINED ON THIS PAGE, ARE REQUIRED TO INSURE TROUBLE FREE PRODUCTION AND SUPERIOR PRODUCT PERFORMANCE.

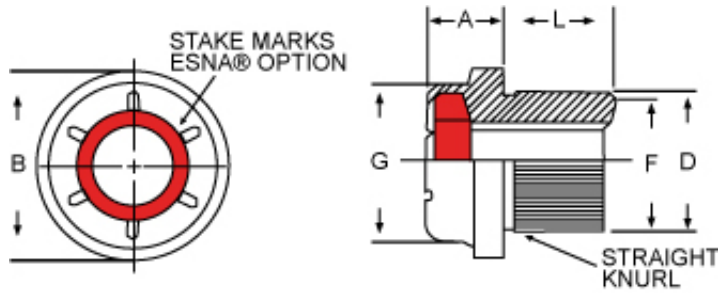
PART CODING:

F 2 2 NC 3 - 02

1 2 3 4 5 6

1. POST PLATE TREATMENT- PER SAE AMS-QQ-P-416, TYPE II.
2. MATERIAL
3. FINISH
4. NUT TYPE
5. SHANK LENGTH
6. THREAD SIZE

NUT - SPLINE
ND



ESNA® PART NUMBERS	THREAD	A ± .015	B ± .015	D		F REF	G REF	RECOMMENDED INSTALLATION HOLE SIZE		L ± .015	MINIMUM AXIAL STRENGTH (LBS)	APPROX. WEIGHT (LB./100)
				MIN	MAX			MIN	MAX			
22ND8-82	.1640-32UNJC-3B	.172	.438	.321	.325	.287	.370	.312	.316	.125	1,720	.57
22ND10-82										.156		.62
22ND12-82										.188		.67
22ND14-82										.219		.72
22ND16-82										.250		.77
22ND20-82										.313		.87
22ND8-02	.1900-32UNJF-3B	.172	.438	.321	.325	.287	.370	.312	.316	.125	2,460	.53
22ND10-02										.156		.58
22ND12-02										.188		.63
22ND14-02										.219		.68
22ND16-02										.250		.73
22ND18-02										.281		.78
22ND20-02	.313	.83										
42ND8-048	.2500-28UNJF-3B	.188	.563	.384	.388	.350	.438	.375	.379	.125	3,750	.70
42ND10-048										.156		.80
42ND12-048										.188		.90
42ND14-048										.219		1.00
42ND16-048										.250		1.10
42ND20-048										.313		1.30
42ND24-048	.376	1.50										
42ND28-048	.438	1.70										
42ND8-054	.3125-24UNJF-3B	.234	.625	.446	.450	.412	.500	.437	.441	.125	6,500	1.00
42ND10-054										.156		1.10
42ND12-054										.188		1.20
42ND14-054										.219		1.30
42ND16-054										.250		1.40
42ND20-054										.313		1.60
42ND24-054	.376	1.80										
42ND10-064	.3750-24UNJF-3B	.281	.688	.509	.513	.475	.570	.500	.504	.156	11,000	1.30
42ND12-064										.188		1.40
42ND14-064										.219		1.50
42ND16-064										.250		1.60
42ND20-064										.313		1.80
42ND24-064										.376		2.00
42ND32-064	.500	2.40										
42ND28-070	.4375-20UNJF-3B	.359	.750	.571	.575	.537	.660	.562	.566	.438	12,000	2.60
42ND22-080	.5000-20UNJF-3B	.375	.875	.696	.700	.662	.770	.687	.691	.344	12,000	3.90
42ND28-080										.438		4.20

MATERIAL:

STEEL

FINISH:

CADMIUM PLATE, AMS SAE-QQ-P-416, TYPE I, CLASS 3

LOCKING INSERT:

RED NYLON (350° MAX PERFORMANCE)

THREADS:

AS8879

CONCENTRICITY:

SHANK O.D. CONCENTRIC WITH P.D. OF THREADS WITHIN .007 F.I.R.

PERFORMANCE:

TORQUE NASM25027, AXIAL TENSILE STRENGTH AS LISTED

APPLICATION:

TYPE "ND" SPLINE NUT IS A SELF-WRENCHING FASTENER DESIGNED FOR USE IN EITHER BLIND MOUNTED APPLICATIONS OR IN APPLICATIONS WHERE MAINTENANCE CAN BE FACILITATED BY THE USE OF AN ATTACHED NUT. TYPE "ND" SPLINE NUTS ARE DESIGNED PRIMARILY FOR INSTALLATION IN RELATIVELY SOFT MATERIALS, SUCH AS ALUMINUM AND MAGNESIUM ALLOYS, WHICH CAN BE EFFECTIVELY BROACHED BY THE SPLINES OF THE NUT SHANK. ESNA® SPLINE NUTS CAN ALSO BE INSTALLED IN CERTAIN TYPES OF STEEL, HOWEVER, IT IS SUGGESTED THAT SUCH APPLICATIONS BE SUBMITTED FOR ENGINEERING RECOMMENDATIONS.

NOTES:

1. ESNA® SPLINE NUTS ARE NOT NORMALLY AVAILABLE IN THE NUMBER 6 THREAD SIZE. ESNA® TYPE "NC" CLINCH NUTS ARE BETTER ADAPTED FOR THE THIN SHEET METAL GENERALLY USED IN APPLICATIONS UTILIZING NUMBER 6 SCREWS.
2. IF PARTIALLY THREADED BOLTS ARE USED THE ASSEMBLED DIMENSIONS SHOULD BE CAREFULLY CHECKED TO MAKE CERTAIN THAT THE BOLT WILL NOT "BOTTOM" IN THE THREADS OF THE NUT SHANK. ESNA® TYPE ND2398 SPLINE NUT IS RECOMMENDED AS A REPLACEMENT FOR TYPE "ND" IN APPLICATIONS IN WHICH "BOTTOMING" IS A POSSIBILITY. TYPE ND2398 IS A HEAT TREATED SPLINE NUT, THE SHANK OF WHICH IS COUNTERBORED FOR CLEARANCE. THE ND2398 REDUCED THREAD LENGTHS CONFORM TO THE THREAD LENGTHS OF ESNA® TYPE "E" AND "M" HEX NUTS, WHICH ARE APPROVED AS NASM21044.
3. IT IS RECOMMENDED THAT AN ARBOR PRESS, OR EQUIVALENT, BE USED TO PRESS THE SPLINE NUT INTO THE MATING MEMBER. PRESSURE SHOULD NOT BE APPLIED TO THE CROWN OF THE NUT. SLIGHT DISTORTION OF THE SHANK MIGHT RESULT FROM INSERTION IN CERTAIN MATERIALS AND PREVENT ENTRY OF THE THREAD GO-GAGE. IT IS IMPORTANT TO NOT INSTALL "ND: SPLINE NUTS IN MATERIALS WHICH WILL DEFLECT THE SHANK INWARD TO A POINT WHICH WILL PREVENT ENTRY OF THE MATING BOLT.

PART CODING:**F 2 2 NC 3 - 02**

1	2	3	4	5	6

1. POST PLATE TREATMENT- PER SAE AMS-QQ-P-416, TYPE II.
2. MATERIAL
3. FINISH
4. NUT TYPE
5. SHANK LENGTH
6. THREAD SIZE

SUGGESTED METHODS FOR HAND OR SEMI-AUTOMATIC INSTALLATION

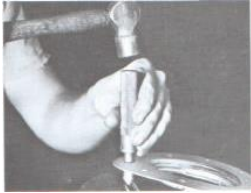
Simple punch and dolly tools for installing standard, miniature and floating types of clinch nuts may be obtained from ESNA®. Detail drawings of these tools are included in this catalog. To insure that clinch nuts will not have any tendency to push out or twist out, recommended installation procedures outlined in this catalog should be carefully followed.

INSTALLATION METHODS

There are several types of installation methods possible with ESNA® standard and miniature clinch nuts. The preferred method is entirely dependent upon the nature of the assembly, the volume of production and the tools available. The most common methods are illustrated here and will serve as a guide to the method most suitable to your production requirements. It is important that the procedures outlined in this catalog be followed to insure trouble free production and superior product performance.

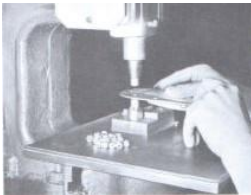
AUTOMATIC PRODUCTION EQUIPMENT

Automatic clinch and press nut installation machines are available to meet the requirements for high volume production. Interchangeable tooling, reduced installation time, flexibility and accuracy are some of the advantages.



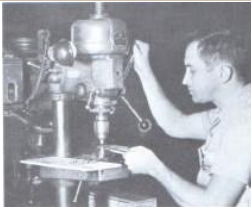
HAND TOOLS

The hand tools shown are for short run or prototype assemblies and are not recommended for production.



ARBOR PRESS INSTALLATION

Use of an arbor or light power press is simple and fast for large or small production runs. Standard or miniature clinch nut tools adapt readily to the press giving the operator full control over position, pressure and speed of production.



HAND RIVETER TOOLS

Standard punch and dolly tools can be used in a hand operated squeeze type riveter as illustrated. In this method steady controlled pressure can be exerted and the hand tool can be moved to various positions on larger units to facilitate production. This method is particularly suited to units with narrow flanges or restricted access areas.



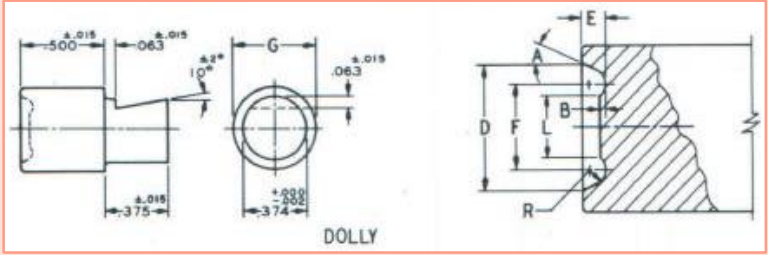
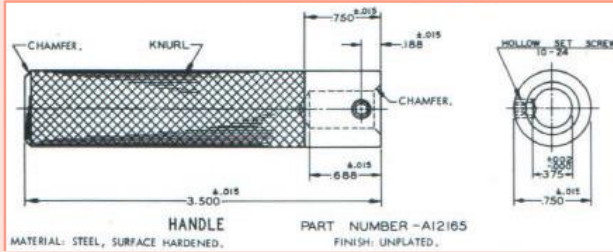
DRILL PRESS SPINNING METHOD

Both standard and miniature clinch nuts can be quickly and efficiently installed by the spinning technique using a spin riveter or shop drill press. ESNA® punch and dolly tools readily adapt to either machine and give high production installation in large or small components. Spinning automatically centers the punch on the shank insuring equal force against the shank walls.



The typical unit illustrated is suitable to use for inserting standard or miniature clinch nuts or press nuts. The machine inserts, presses and stakes the nuts without requiring that the work be reversed. Other models semi-automatic or automatic, depending on requirements, are available.

INSTALLATION TOOL DATA

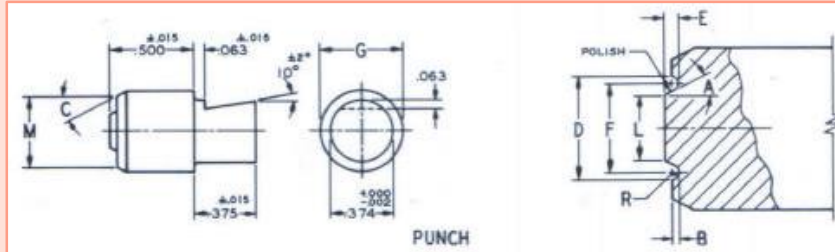


CLINCH NUT THREAD SIZE	DOLLY PART NUMBER	A ± 2°	B ± .002	D +.002 -.000	E ± .002	F REF	G DIA.	L ± .002	R ± .001
.1120	CD3-4	25°	.006	.245	.045	.173	.438	.141	.024
.1380	CD6	25°	.010	.310	.040	.222	.438	.169	.040
.1640	CD8	23° 20'	.011	.380	.070	.247	.500	.179	.055
.1900	CD10	15°	.008	.376	.070	.267	.500	.213	.048
.2500	CD416	25°	.010	.451	.080	.326	.563	.273	.040
.3125	CD516	20°	.012	.515	.075	.398	.625	.337	.045

MATERIAL:
TOOL STEEL, 60 Rc REF

FINISH:
UNPLATED

PUNCH



CLINCH NUT THREAD SIZE	PUNCH PART NUMBER	A ± 2°	B ± .002	A ± 2°	D +.002	E ± .002	F REF	G DIA	L ± .002	L ± .015	R ± .001
.1120	CP3-4	25°	.008	30°	.210	.040	.182	.438	.125	.344	.015
.1380	CP6	25°	.012	30°	.258	.040	.210	.438	.136	.406	.030
.1640	CP8-10	25°	.014	30°	.318	.038	.266	.500	.200	.453	.023
.1900	CP8-10	25°	.014	30°	.318	.038	.266	.500	.200	.453	.023
.2500	CP416	30°	.012		.403	.043	.350	.563	.260	.563	.035
.3125	CP516	25°	.015		.460	.050	.406	.625	.319	.625	.032

HOW TO INSTALL ESNA® SELF-LOCKING CLINCH NUTS

USE THE TABLES ON THE FOLLOWING PAGE FOR CORRECT NUT SELECTION AND ASSEMBLY PROCEDURE

Clinch nuts are permanently self-retained, self-locking fasteners for installation in aluminum or soft sheet steel assemblies. They provide load-bearing threads in thin sheet metal and offer a highly reliable method of blind fastening. A major advantage of the ESNA® clinch nut series is its ease of installation. Only three simple installation steps, outlined on this page, are required to insure trouble free production and superior product performance.



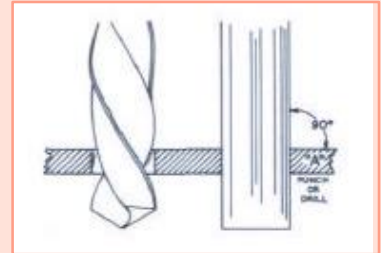
STEP 1

SELECT THE PROPER NUT, MOUNTING HOLE DIAMETER, TOOLS AND FLARING PRESSURES

STANDARD INSTALLATION DATA									
THREAD SIZE	INSTALLATION HOLE DIAMETER		PUNCH PART NUMBER	DOLLY PART NUMBER	MAX CLINCHING PRESSURE (LBS.)				MIN C'BORE DIAMETER (FOR FLUSH)
	MIN	MAX			STEEL NUT	CRES NUT	ALUM NUT	BRASS NUT	
.1120	.184	.186	CP3-4	CD3-4	1400	1900	1400	1000	.501
.1380	.217	.219	CP6	CD6	1900	3000	1900	1800	.501
.1640	.268	.271	CP8-10	CD8	2100	4000	2100	2100	.563
.1900	.268	.271	CP8-10	CD10	2100	4000	2100	2100	.563
.2500	.352	.355	CP416	CD416	4000	4300	4000	3300	.626
.3125	.408	.412	CP516	CD516	4500	4500	4500	3900	.688

STEP 1

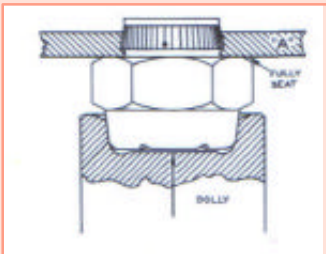
PREPARE THE HOLE CORRECTLY



Installation holes may be drilled or punched by normal production methods but must be held to the tolerances indicated in TABLE 1. Care should be taken to have the hole clean, perfectly round (not oval) and at 90° to the surface of the work. It is recommended that the holes be punched rather than drilled for greater accuracy.

STEP 2

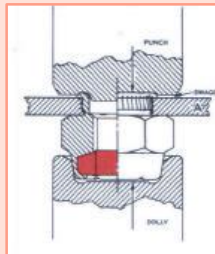
INSERT NUT SHANK COMPLETELY INTO THE HOLE



When inserting the nut in the hole it is important that the nut base be fully and squarely seated against the work face. According to the clinch nut size, select the correct dolly from TABLE 3. Place the dolly on the crown of the nut, forcing the nut into the seated position. Use a light hammer blow or small power press on the dolly to seat the nut – DO NOT strike or press directly on the crown of the nut.

STEP 3

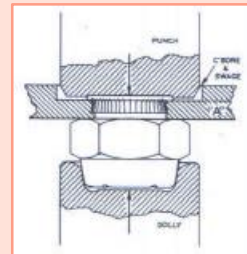
CLINCH OR SWAGE THE NUT SHANK



This final step securely locks the nut in the hole against twist-out and push-out forces and makes the nut an integral part of the assembly. Place the dolly against the head of the nut with the punch centered on the extended shank of the nut. The dolly acts as a support for the nut body as the pressure exerted by the punch forces the edges of the shank outward. Best results are obtained by exerting steady controlled pressure to the limits outlined in TABLE 4.

STEP 4

FOR COUNTERBORED INSTALLATIONS



In assemblies requiring flush mounting surfaces or where material thickness is greater than the .163 maximum standard clinch nut grip, the rolled-over clinch shank may be recessed into a counterbored hole. TABLE 5 gives the minimum counterbore diameters allowing access of the punch tool to properly roll over the shank.

TABLE 1

STANDARD HOLE DIAMETERS		
THREAD SIZE	INSTALLATION HOLE	
	MIN	MAX
4	.184	.186
6	.217	.219
8	.268	.271
10	.268	.271
1/4	.352	.355
5/16	.408	.412

TABLE 4

STANDARD CLINCHING PRESSURES			
CLINCH NUT THREAD SIZE	MAXIMUM CLINCHING PRESSURE (POUNDS)		
	STEEL NUT	ALUM ALLOY NUT	BRASS NUT
	4	1400	1400
6	1900	1900	1800
8	2100	2100	2100
10	2100	2100	2100
1/4	4000	4000	3300
5/16	4500	4500	3900

TABLE 2

STANDARD SHANK LENGTHS			
CLINCH NUT TYPE SYMBOL	SHANK LENGTH (REF)	SHEET THICKNESS "A"	
		MIN	MAX
NC1	.063	.020	.031
NC2	.085	.032	.053
NC3	.105	.054	.073
NC4	.135	.074	.103
NC5	.165	.104	.133
NC6	.195	.134	.163

TABLE 5

STANDARD COUNTERBORE DIAMETER	
THREAD SIZE	MINIMUM COUNTERBORE DIAMETER
4	.501
6	.501
8	.563
10	.563
1/4	.626
5/16	.688

TABLE 3

STANDARD CLINCH TOOLS		
CLINCH NUT THREAD SIZE	PUNCH PART NUMBER (SEE NOTE 2)	DOLLY PART NUMBER (SEE NOTE 2)
4	CP3-4	CD3-4
6	CP6	CD6
8	CP8-10	CD8
10	CP8-10	CD10
1/4	CP416	CD416
5/16	CP516	CD516

SECTION 3 - ENGINEERING DATA

DOCUMENT	PAGE NUMBER
NYLON LOCKING INSERTS	65
ANGULARITY OF THREAD AXIS	67
TORQUE TENSION MANUAL	70
MAINTAINING FASTENER TIGHTNESS	70
AVOID FASTENER FAILURES	70

NYLON LOCKING INSERTS

PHYSICAL CHARACTERISTICS

Nylon locking inserts exhibit the following characteristics, which assure outstanding performance of the self-locking nuts in which they are installed.

SPECIFIC GRAVITY		1.14
TENSILE STRENGTH	-70°F 73°F 170°F	15,700 PSI 10,500 PSI 7,600 PSI
ELONGATION	-70°F 73°F 170°F	1.6 90% 320%
MODULUS OF ELASTICITY	73°F	400,000 PSI
FLEXURAL STRENGTH	73°F	13,800 PSI
STIFFNESS	73°F	200,000 PSI
IMPACT STRENGTH (IZOD)	-70°F 77°F 170°F	0.42 FT-LB 0.94 FT-LB 0.97 FT-LB
ROCKWELL HARDNESS		R118
FLOW TEMPERATURE		480°F
HEAT DISTORTION TEMPERATURE FOR 264 PSI		150°F
HEAT DISTORTION TEMPERATURE FOR 66 PSI		360°F
COEFFICIENT OF EXPANSION; LINEAR PER DEGREES FAHRENHEIT		5.5 X 10 ⁻⁵
THERMAL CONDUCTIVITY BTU/HR./SQ. FT./°F/IN		1.7
DIELECTRIC STRENGTH, SHORT TIME, VOLT/MIL.		385 (0.125 IN.)
VOLUME RESISTIVITY, OHM. CM		4.5 X 10 ¹³
WATER ABSORPTION		1.50%
FLAMMABILITY		SELF-EXTINGUISHING

1. MECHANICAL STRENGTH

A. Nylon exhibits relatively high hardness, tensile, compressive, and impact strength. Stiffness and rigidity are high also.

B. The high tensile and tear strength of nylon, in conjunction with its comparatively low frictional properties, produce excellent abrasion resistance.

2. THERMAL PROPERTIES

A. Nylon is one of the most resistant of the thermoplastic resins. It will not soften gradually as the temperature rises, but has a sharp melting point below which it remains fairly rigid. Thus, nylon inserts maintain their locking effectiveness throughout the applicable temperature range.

B. The tensile strength of nylon increases with a decrease in temperature. With excellent low temperature flexibility nylon insert-locking performance is not affected by sub-zero conditions.

3. RESISTANCE TO CHEMICALS

Nylon is unaffected by common solvents, alkalis, dilute mineral acids, and most organic acids. It is impervious to oils and greases, and in turn will have no contaminating effect on such lubricants. Nylon is not subject to fungus attack and will withstand continuous salt or fresh water immersion and repeated steam sterilization. The following is a tabulation of some of the chemicals and solvents to which nylon is inert or highly resistant:

ORGANIC ACIDS	CAUSTICS	SOLVENTS (ALIPHATIC)
CONC. CITRIC ACID	10% SODIUM CARBONATE	ACETONE
10% LACTIC ACID	12% SODIUM HYDROXIDE	ETHYL ALCOHOL
OLEIC ACID	0.5% AMMONIUM HYDROXIDE	BUTYL ALCOHOL
ACETIC ACID	SOAPS AND DETERGENTS	MINERAL SPIRITS
OILS	MINERAL SALT SOLUTIONS	METHYL ETHYL KETONE
MINERAL OILS	SODIUM SULPHITE	PROPANE
LUBRICATING OILS	LITHIUM SULPHATE	HEPTANE
HYDROGENATED VEGETABLE OILS	FERRIC CHLORIDE	ISOPROPYL ALCOHOL
FURFURAL	SAT. SODIUM CHLORIDE	BUTYL ACETATE
VARNISH OIL	FERRIC ARSENATE	ANILINE
PEANUT OIL	SODIUM FLUORIDE	ETHYL PROPIONATE
CASTOR OIL	SODIUM CHROMATE	CYCLOHEXANOL
CORN OIL	SODIUM ARSENATE	CARBON TETRACHLORIDE
SOY BEAN OIL	SODIUM STANNATE	CARBON BI-SULPHIDE
FISH OIL	SODIUM TUNGSTATE	CHLOROFORM
ORGANIC SALT SOLUTIONS	THIOSULPHATES	TURPENTINE
POTASSIUM CYANIDE	SOLVENTS (AROMATIC)	GASOLINE
SODIUM CYANIDE	BENSOL	KEROSENE
SODIUM ACETATE	TOLUOL	TRICHLOROETHYLENE
LEAD ACETATE	XYLOL	ALDEHYDES
	CHLOROBENZOL	FREON
	BENZ ALDEHYDE	GLYCOLS
	NITROBENZOL	

4. ELASTIC RECOVERY

Nylon has the unique property of recovery after deformation. As an insert material, it will tend to return to its original shape after the mating bolt thread has made an impression. A definite increase in locking torque can be noted when the nut is allowed to remain locked on the bolt, even after numerous installation cycles. In any application the ultimate number of re-use cycles which can be accomplished will depend on factors such as bolt thread roughness, the minimum breakaway torque acceptable, and other service conditions. Nylon insert equipped nuts have fulfilled performance requirements even after several hundred successive applications.

LOCKING EFFECTIVENESS

The basic function of the locking device in a self-locking nut is to resist loosening when the bolted joint is subjected to impact and vibratory loads in service. Self-locking nuts develop "torque", a measure of grip- ping action, when installed on the mating bolt and this is often the sole factor considered in evaluating performance. Exhausting analyses by ESNA utilizing test equipment and methods which reproduced actual operating conditions demonstrated that other factors must be accounted for in appraising locking effectiveness. Of concern are the mechanical means by which the locking device creates torque; the flexibility of the locking element in maintaining compatibility with the normal range of bolt dimensional and quality variations; the capability of providing renewed locking action after removal and reinstallation on the same or other bolts; and others as well.

Some locking devices that depend on areas in high pressure metal to metal contact with the mating bolt will develop excessive initial torque due to interference. They may rapidly lose their effectiveness during vibration or upon reinstallation as the contact points yield or are worn away.

The nylon locking element in ESNA's insert type fasteners is designed to engage the thread of the mating bolt so that the nylon will be compressed between adjacent flanks and exert sufficient force to resist loosening. When contact is made between the nut insert and the mating bolt, the nylon flows into the void between thread flanks until uniform pressure is exerted against these surfaces as well as against the thread crests. This pressure effectively resists any induced tendency of the nut to rotate while at the same time nylon's physical characteristics provide a vibration damping action. ESNA nylon equipped parts have demonstrated superior resistance to loosening over all other types of self-locking nuts and locking devices. Upon request, ESNA's Engineering Report ER115-1745, which outlines relative test results, will be furnished; ER272-2177 describing an improved vibration test for thread locking devices is also available.

APPLICATION ADVANTAGES

The excellent re-usability of Elastic Stop Nuts, resulting from the elastic recovery and abrasion resistance of the nylon inserts, makes them ideally suited for such applications as the following:

1. The mating screw is used repeatedly for making adjustments.
2. Maintenance requirements result in frequent removal of the mating screw. Also, where fixed type fasteners, such as clinch and anchor nuts, must retain their locking effectiveness during the life of the equipment.
3. When adequate locking action must persist after unusually lengthy travel of the nut on bolts that vary considerably in class, finish or other thread irregularities.
4. In large thread sizes (3/4" - 4") or very thin nut types where metallic locking devices are not feasible or are prone to develop excessive torques and to gall or damage the mating bolt threads.
5. For fine and extra fine thread engagements where the locking torque and resistance to galling of metallic locking elements are more difficult to control.
6. For electronic units where the flaking of bolt plating must be held to a minimum.
7. The fastening combination is subjected to extreme vibration or impact loading.
8. Where consistent locking torque values between nuts in the same lot are needed to provide uniform tightness or preload in the mating bolts.
9. Materials are required such as brass or soft aluminum, which do not lend themselves to the formation of reliable locking devices.
10. The resilient nature of nylon and its physical characteristics make insert equipped parts highly satisfactory for the following applications:
11. Where the nut may be immersed continuously or intermittently in hot oils or other liquids.
12. When resistance to fungus growth is necessary as on electronic equipment intended for use in the tropics.
13. Where sealing between the nut and bolt threads is required to limit fluid leakage or prevent thread corrosion with incident difficulty in disassembly.

ANGULARITY OF THREAD AXIS

1. SCOPE AND CLASSIFICATION

1.1 SCOPE

This specification relates to the classification and measurement of the angularity of the seating surface of the nut with respect to the axis of the pitch diameter of the threads. It is to be applied to parts manufactured by the Elastic Stop Nut Corporation of America when specified on the applicable standard drawing.

1.2 CLASSIFICATION

ESNA® thread squareness requirements will be classified into two groups, as follows:

GROUP I - Standard squareness.

GROUP II - Special squareness, supplied only when specifically called out on the ESNA drawing.

2. REQUIREMENTS

2.1 SEATING SURFACE

The seating surface of the nut must be square with the axis of the pitch diameter of the nut thread within the limits specified in Table 1.

2.2 MEASUREMENT

All nuts are to be measured for angularity of thread axis by means of a table squareness gage consisting of a table and threaded mandrel.

2.2.1 TABLE - The table of the gage is made as shown in Figure 1.

2.2.2 MANDREL - The threaded mandrel of the gage is made in accordance with the pitch diameters and major diameters listed in Tables III and IV.

2.2.2.1 SQUARENESS OF MANDREL AND TABLE - The method of mounting the mandrel in the table is optional. The mandrel is mounted in the center of the measuring surface within .002 of the true center. When mounted, the center of the pitch diameter of the threads must be at 90° to the measuring surface of the table within a tolerance of 10% of the limits specified in Table I, or 0° 4' whichever is the smaller.

2.2.2.2 LENGTH OF MANDREL - The mandrel must not contact the locking element of the nut when the nut is inspected. The length of thread on the mandrel shall not be shorter than 75% of the effective threads in the nut. This minimum need not be held when it exceeds the thread length of a standard "GO" gage.

2.2.2.3 MANDREL MOUNTING - The mandrel is mounted so that the first full thread above the measuring surface is less than .062 or the pitch of one thread, whichever is the smaller, from the measuring surface.

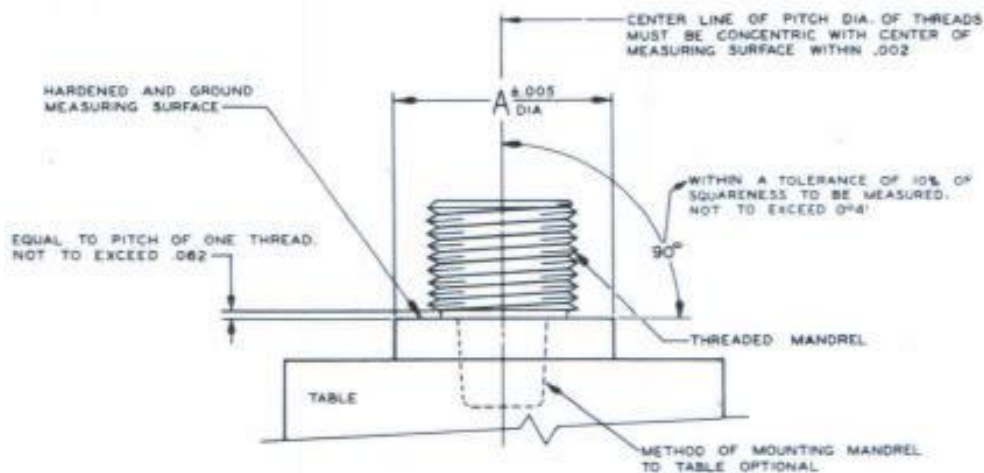


FIGURE 1: ASSEMBLED TABLE CAGE

TABLE 1				
MAXIMUM LIMIT OF ANGULARITY OF THREAD AXIS				
THREAD SIZE	GROUP I		GROUP II	
	DECIMAL	MAX PERMISSIBLE ANGLE	DECIMAL	MAX PERMISSIBLE ANGLE
1 THRU 5	.004	0°55'		
6	.005	0°55'		
8	.006	1°00'	.005	0°50'
10	.006	0°55'	.005	0°46'
1/4	.007	0°55'	.005	0°39'
5/16	.007	0°48'	.005	0°34'
3/8	.008	0°49'	.005	0°31'
7/16	.008	0°42'	.005	0°28'
1/2	.009	0°41'	.006	0°28'
9/16	.010	0°39'		
5/8	.010	0°37'		
3/4	.010	0°32'		
7/8	.011	0°31'		
1	.012	0°29'		
1 1/8	.013	0°28'		
1 1/4	.014	0°27'		
1 3/8	.015	0°26'		
1 1/2	.016	0°25'		
1 3/4	.018	0°22'		
2	.020	0°22'		

NOTE: THESE LIMITS APPLY TO THE BOLT SIZE LISTED, REGARDLESS OF THE PITCH OF THE THREADS.

TABLE 3				
MANDREL DIAMETERS (FINE THREAD)				
THREAD SIZE	MAJOR DIAMETER		PITCH DIAMETER	
	MIN	MAX	MIN	MAX
1-72UNF-3B	.0730	.0733	.0640	.0642
2-64UNF-3B	.0860	.0864	.0759	.0761
3-56UNF-3B	.0990	.0994	.0874	.0876
4-48UNF-3B	.1120	.1124	.0985	.0987
5-44UNF-3B	.1250	.1254	.1102	.1104
6-40UNF-3B	.1380	.1384	.1218	.1220
8-36UNF-3B	.1640	.1644	.1460	.1462
10-32UNF-3B	.1900	.1905	.1697	.1700
1/4-28UNF-3B	.2500	.2505	.2268	.2271
5/16-24UNF-3B	.3125	.3130	.2854	.2857
3/8-24UNF-3B	.3750	.3755	.3479	.3482
7/16-20UNF-3B	.4375	.4380	.4050	.4053
1/2-20UNF-3B	.5000	.5005	.4675	.4678
9/16-18UNF-3B	.5625	.5630	.5264	.5267
5/8-18UNF-3B	.6250	.6255	.5889	.5892
3/4-16UNF-3B	.7500	.7506	.7094	.7097
7/8-14UNF-3B	.8750	.8756	.8286	.8289
1-14UNS-3B	1.0000	1.0006	.9536	.9539
1 1/8-12UNF-3B	1.1250	1.1256	1.0709	1.0712
1 1/4-12UNF-3B	1.2500	1.2506	1.1959	1.1962
1 3/8-12UNF-3B	1.3750	1.3756	1.3209	1.3212
1 1/2-12UNF-3B	1.5000	1.5006	1.4559	1.4462

TABLE 2	
DIAMETER OF MEASURING SURFACE	
THREAD SIZE	DIMENSION
	A ±.005 DIA.
1	.250
2	.250
3	.250
4	.250
5	.250
6	.312
8	.344
10	.375
1/4	.438
5/16	.500
3/8	.563
7/16	.625
1/2	.750
9/16	.875
5/8	.938
3/4	1.063
7/8	1.250
1	1.438
1 1/8	1.625
1 1/4	1.813
1 3/8	2.000
1 1/2	2.188
1 3/4	2.750
2	3.125

TABLE 4				
MANDREL DIAMETERS (COARSE THREAD)				
THREAD SIZE	MAJOR DIAMETER		PITCH DIAMETER	
	MIN	MAX	MIN	MAX
1-64UNC-3B	.0730	.0734	.0629	.0631
2-56UNC-3B	.0860	.0864	.0744	.0746
3-48UNC-3B	.0990	.0994	.0855	.0857
4-40UNC-3B	.1120	.1124	.0958	.0960
5-40UNC-3B	.1250	.1254	.1088	.1090
6-32UNC-3B	.1380	.1385	.1177	.1180
8-32UNC-3B	.1640	.1645	.1437	.1440
10-24UNC-3B	.1900	.1905	.1629	.1632
1/4-20UNC-3B	.2500	.2505	.2175	.2178
5/16-18UNC-3B	.3125	.3130	.2764	.2767
3/8-16UNC-3B	.3750	.3756	.3344	.3347
7/16-14UNC-3B	.4375	.4381	.3911	.3914
1/2-13UNC-3B	.5000	.5006	.4500	.4503
9/16-12UNC-3B	.5625	.5631	.5084	.5087
5/8-11UNC-3B	.6250	.6256	.5660	.5663
3/4-10UNC-3B	.7500	.7506	.6850	.6853
7/8-9UNC-3B	.8750	.8757	.8028	.8031
1-8UNC-3B	1.0000	1.0007	.9188	.9192
1 1/8-7UNC-3B	1.1250	1.1257	1.0322	1.0326
1 1/4-7UNC-3B	1.2500	1.2507	1.1572	1.1576
1 3/8-6UNC-3B	1.3750	1.3758	1.2667	1.2671
1 1/2-6UNC-3B	1.5000	1.5008	1.33917	1.392
1 3/4-5UNC-3B	1.7500	1.7508	1.6201	1.6208
2-4 1/2UNC-3B	2.0000	2.0008	1.8557	1.8562

3. METHOD OF MEASUREMENT

3.1 GAGING

Prior to the measurement for squareness of thread, all inspection samples are to be measured for proper thread fit by means of the appropriate thread gages.

3.2 INSTALLATION

The nut is installed on the threaded mandrel until the seating surface of the nut makes contact with the measuring surface of the table, as shown in Figure 2. The nut is tightened finger tight only.

3.3 MEASUREMENT

After installation, the assembly is examined for angularity of thread axis. The maximum permissible space between the seating surface of the nut and the measuring surface of the gage shall not exceed the limit listed in Table I.

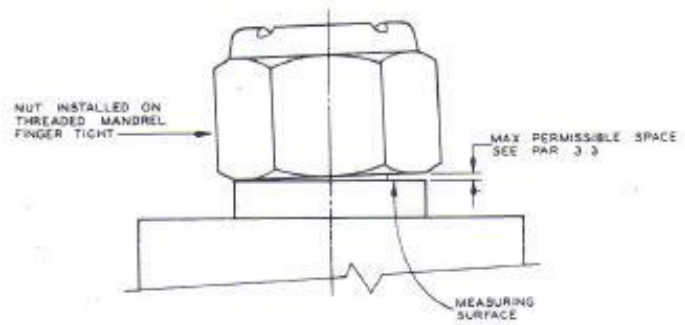


FIGURE 2: METHOD OF MEASUREMENT

4. NOTES

4.1 SEAT SQUARENESS

The specifications applicable to self-locking nuts which have requirements for angularity of thread axis with respect to the seat of the nut, generally referred to as "Seat Squareness".

4.2 GROUP 1 REQUIREMENTS

These requirements are specified in degrees and for comparative purposes they have been converted to inches as measured at dimension "A" (FIG 1) and tabulated together with ESNA Group I requirements. ESNA Group I requirements are applicable to airframe and commercial design.

4.3 ANGULARITY TOLERANCES

ESNA angularity tolerances are maintained by close process control, with regular production facilities. Inspection is based on a sampling basis of 2% average quality level in accordance with MIL-STD-1916.

4.4 DEEP COUNTERSUNK NUTS

For nuts that are deep countersunk, where the countersink diameter exceeds the dimension "A" given in Table 2, the measuring table diameter and the permissible maximum decimal limit of angularity may be increased provided the maximum permissible angle is not exceeded (See Table 1).

THREAD SIZE	ESNA STANDARD GROUP I	NASM25027
	INCHES	INCHES
1 THRU 5	.004	.005
6	.005	.006
8	.006	.006
10	.006	.006
1/4	.007	.007
5/16	.007	.007
3/8	.008	.008
7/16	.008	.008
1/2	.009	.009
9/16	.010	.010
5/8	.010	.011
3/4	.010	.012
7/8	.011	.013
1	.012	.015
1 1/8	.013	.016
1 1/4	.014	.018
1 3/8	.015	
1 1/2	.016	
1 3/4	.018	
2	.020	

TORQUE-TENSION MANUAL NO. 8804

SUGGESTED TORQUE VALUES AS A GUIDE TO RELIABLE FASTENING PRACTICES

The information offered in ESNA®'s Torque Tension Manual will help you obtain full performance values from Elastic Stop nut hex fasteners by installing them correctly. These recommended values have been derived from thousands of torque/tension tests run in our laboratories. They are intentionally conservative averages deliberately selected to avoid the possibility of overstressing the nut or bolt. It is quite possible, depending on a particular nut/bolt combination, that higher values may be used after specific testing proves it to be a reliable combination.

MAINTAINING TIGHTNESS OF THREADED FASTENERS MANUAL NO. 8805

"Maintaining Tightness of Threaded Fasteners" is available in this catalog. This bulletin is an expansion of ER 272-2177 on how and why threaded fasteners loosen. The headings of the main sections of the report will give you a fair idea of its content. They are:

- What the designer wants of a threaded fastener system.
- Why do threaded fasteners loosen?
- Fasteners first loosen WITHOUT TURNING!
- Vibration testing
- Mechanical impacts set up resonance.
- ENERGY ABSORPTION IS THE KEY FACTOR.
- NYLON – most practical and effective energy absorber.
- SUMMARY...A new theory of fastener loosening.












The third section of this bulletin deals with a verified but relatively unrecognized fact. Even under static conditions a newly tightened nut and bolt lose some amount of priestess during the first few hours. Clearer understanding is given to another relatively unrecognized detail: a fastener subjected to intense vibration always loosens before the nut actually rotates on the bolt. And for the first time that we know of – the real significance of damping in thread interface areas is spotlighted.

We believe that this HOW and WHY of fastener technology is a "must" for designers and engineers concerned with fastening systems, long term reliability, product warranties and related quality assurance factors.

AVOID FASTENER FAILURES

Tightened fasteners loosen for a variety of reasons – shock, vibration, inadequate installation torque, and wear between parts, bolt stretch and the ever-present human error. The Elastic Stop® nut with its integral red nylon locking collar, has proven in both laboratory and extensive field tests, to be the highest standard of locknut performance. The ESNA® red nylon collar can take extreme vibration and shock loads, remaining locked in place under the severest conditions. With ESNA®'s relative vibration performance at 100 (see chart) the vibration resistance of alternative locking devices can be clearly evaluated.

This chart, the result of thousands of vibration tests under controlled laboratory conditions helps you select the nut locking device that will meet your requirements. When cost is a factor, consider the expense of stocking and handling of secondary locking elements (lock washers, lock wires and cotter pins) and human error. Elastic Stop® nuts clearly become the most efficient choice.

FASTENER TYPE	LOCKING DEVICE	RELATIVE PERFORMANCE
DAMPING, SELF-LOCKING	 ESNA® NYLON RING	100
ALL-METAL, SELF-LOCKING, AIRCRAFT	 BEAM TYPE	53
	 DISTORTED THREAD	19
CASTELLATED NUT	 SPRING PIN	38
	 LOCKWIRE	18
	 COTTER KEY	8
ALL-METAL, SELF-LOCKING, COMMERCIAL	 BEAM TYPE	4 TO 17
	 DISTORTED THREAD	1 TO 10
PLAIN NUT	 SPRING-TYPE LOCKWASHER	5
	 TOOTH-TYPE LOCKWASHER	1
	 NONE	1