



 **TRAMEC**, LLC

TRAMEC , LLC

- Corporate engineering
- Diversity of product
- Large diversified company
- Product specific engineering
- Quality products
- Service
- Trained professional staff

TRAMEC OEM Fastener Supply Program:

<ul style="list-style-type: none"><input type="checkbox"/> Dedicated Fastener Engineer<input type="checkbox"/> 60 Day Program	<ul style="list-style-type: none"><input type="checkbox"/> Partners with MacLean-Fogg; 80+ Years of Fastener Experience	<ul style="list-style-type: none"><input type="checkbox"/> Broad Line of Fastener Products & Services
<ul style="list-style-type: none"><input type="checkbox"/> Consolidation of Part Numbers<input type="checkbox"/> Eliminate Exotic Materials and Plating<input type="checkbox"/> Commonize Fasteners	<ul style="list-style-type: none"><input type="checkbox"/> Domestic<input type="checkbox"/> Imports<input type="checkbox"/> Combination	<ul style="list-style-type: none">✓ Achieve 7 to 10% Cost Savings 1st Year

Common Fasteners

- Bolts
- Hex Cap Screws
- Sheet Metal Screws
- Machine Screw
- Free Spinning Lock Nuts
- Prevailing Torque Lock Nuts
- Washers
- Rivets
- Specials

Raw Materials

- Low/Medium Carbon
- Alloy Steel
- Grade A, B, C, F, G
- Class 8, 10
- Grade 2, 5, 8
- 316 SS
- A286 SS
- 300 Series SS
- 400 Series SS
- Monel
- Brass
- Aluminum
- Other Exotics
- Nylon – 350 deg.
- Vespel – 450 deg.
- Teflon

Coatings

- Plain
- Zinc
- Zinc and Yellow
- Cadmium
- Black Zinc
- Nickel Plated
- Organic
- ROHS
- Special plating per specifications

Bolts

- Tap Bolts
- Square Head Machine
- Hex Head Machine
- Carriage Bolts
- Track Bolts
- Plow Bolts
- Step Bolts

Cap Screws

- Grade 5 Hex Head
- Grade 8 Hex Head
- Hex Head Socket
- Flat Head Socket
- Button Head

Screws: Machine/Sheet Metal/Wood

- Phillips Head
- Flat Head
- Hex Washer Head
- Truss Head
- Oval Head
- Combo Head

Free Spinning Nuts

- MF #1 Locknut® - Hex
- MF #1 Locknut® - Square
- Finished Hex
- Finished Jam
- Slotted
- Hex Flange
- Castle Nuts
- Coupling
- Acorn

All-Metal Prevailing Torque Lock Nuts

- Uni-Torque®
- Mac-Lock®
- Whiz Nuts® (Regular, Large, Super)
- Flexloc Type
- Collar

Advantages of a Uni-Torque[®] Lock Nut

- ❑ Top Lock – allows nut to be threaded almost all the way on the bolt before wrenching is required
- ❑ Re-useable – without galling and seizing
- ❑ Low Torque Scatter – provides uniform bolt loading
- ❑ Rugged – all metal, one piece withstands severe vibration and shock loads
- ❑ Precision manufactured – provides repeated, consistent performance

Advantages of a Mac-Lock® Nut

- ❑ Lock in the Middle – Allows locking effectiveness when bolt does not protrude through top of nut
- ❑ Re-useable
- ❑ Two way installation – Allows for automated feeding
- ❑ Rugged – all metal, one piece withstands severe vibration and shock loads
- ❑ Precision manufactured – provides repeated, consistent performance

Whiz-Lock[®] Fastening System

Advantages To You

One-Piece Construction!!

- Eliminates lock washers and multiple fastener assemblies
- Improves product reliability and eliminates inspection rejects due to lock washer omission
- Eliminates extra motions for assembly line personnel
- Simplifies inventory - one part instead of two or three

Flange Base!!

- Provides more strength than standard fasteners
- Gaps oversize and elongated holes
- Allows for and covers up extra tolerances in hole sizes for more efficient production assemblies
- Distributes bolt load over greater area
- Provides non-distortion bearing area on soft light metals and wood
- Whiz-Lock[®] Nut available without flange

Excellent Performance!!

- Takes more torque to remove than to apply
- It takes 30% more energy to remove a Whiz-Lock[®] than to apply it.
- No other free spinning fastener can equal the Whiz-Lock performance standard.
- It is as easy to apply as a common nut or screw - it is free-spinning - yet it locks.
- Resists loosening from vibration

Fully Reusable!!

- Teeth and surface case hardened
- Can be reapplied 15 times or more

Reduce In-Place and Total Fastening costs

**A time-tested system for
fastening products faster and better.
One-piece, all metal, free spinning
nuts and screws that spin on
....lock when seated.**



Take the **Whiz-Lock[®] Challenge** and compare our system to the competition.

Nylon Insert Locknuts

- Full Line of Red Nylon Insert Locknuts
- "Red Ring of Reliability" for Critical Applications
- Packaging Program
- Large Diameter Product
- We Hit All Value-Price Points
- World-Class Quality



Nylon Insert Locknuts

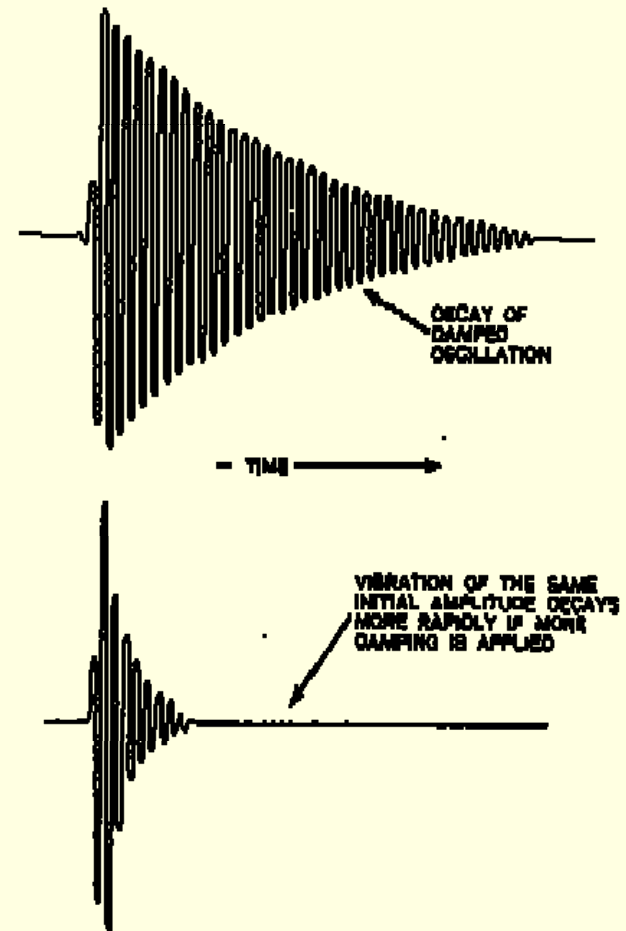
- ❑ NM – Machine screw series
- ❑ NE- Light Series
- ❑ NU - Heavy series
- ❑ NTM – Jam pattern machine screw series
- ❑ NTE – Jam pattern light series
- ❑ NTU – Jam pattern heavy series

Nylon Insert Lock Nuts Product Overview

- Vibration Damping
- Long Life
- Reusability
- Convenience
- Thread Sealing
- Low Cost

Vibration Damping

- ❑ Occurs at the bearing surfaces and thread flanks
- ❑ The Nylon Insert dramatically decreases the time needed for the decay of vibration

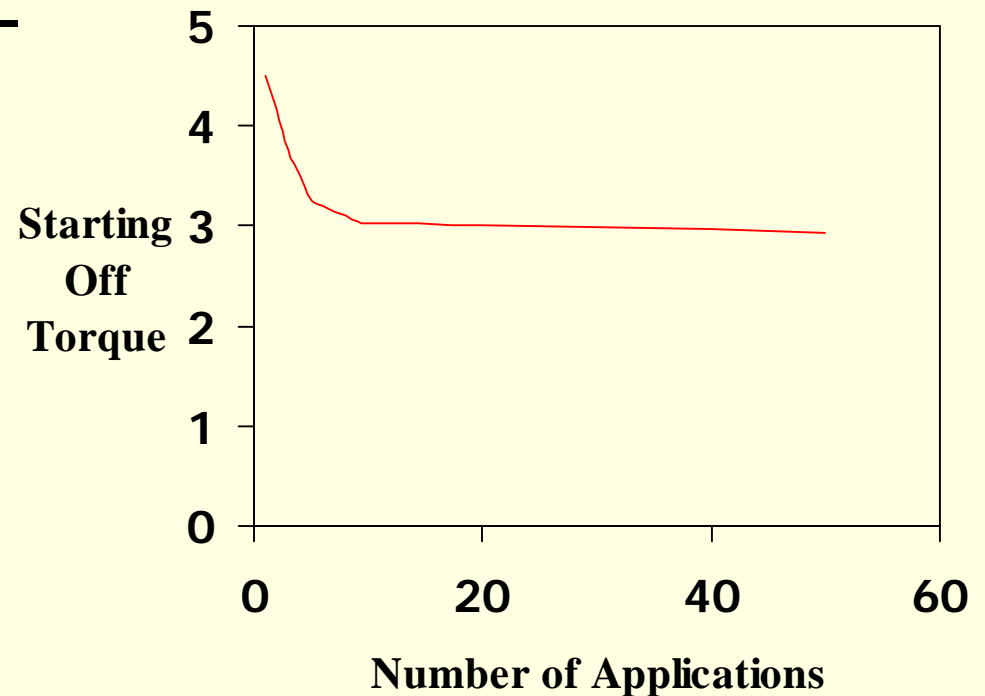


Long Life

- Long shelf life
- Long service life
- Resistance to chemicals
 - Acids
 - Bases
 - Oils
 - Salt Solutions
 - Solvents

Reusability

- ❑ Must meet minimum requirements of IFI 100/107 thru 15 re-use cycles
- ❑ With proper application can be used effectively 100's of re-use cycles



Other Non-Metallic Locknuts

- Vespel[®] Insert Locknut
 - Up to 450°F service temperature
 - Similar vibration resisting properties as nylon
- Nylon Patch Locknut
- Collarlok[®] - 360° Bonded Nylon Collar

Washers

- Flat (USS, SAE)
- Lockwashers
- Internal and External Tooth
- Bevel
- Structural

Rivets

- Solid
- Blind

Specials

- Per print specials

Programs

- Stock to Dock
- JIT
- Blanket Orders
- Hold for Release
- Packaging
- Service Supply