



LEAD SCREW ASSEMBLIES





Helix Linear Technologies, Inc., Beachwood, Ohio USA

Helix Linear Technologies is the most high-tech lead screw manufacturing facility globally, producing the broadest product line of any lead screw manufacturer. We offer precision rolled, milled, and ground screws in diameters from 1.6 mm to 152.4 mm and leads from .3 mm to 75 mm. When you need Acme, Trapezoidal, or high-helix lead screws with precision low-backlash nuts, or a state-of-the-art anti-backlash design, we deliver the highest quality coupled with exceptional value.

Helix Linear Technologies offers a complete line of nuts in standard, anti-backlash, or custom designs with centralizing threads to match our precision lead screws, making our assemblies the lowest backlash product on the market. Our nuts come in various materials, including Acetal, PEEK, Bronze, Ertalyte, Carbon-Filled HPV, Turcite, Torlon, Vespel, PAI, PVDF, and medical-grade Acetal to fit your specific use and environment.

CULTURE

Our culture is rooted in teamwork and consists of smart, happy, and competitive professionals focused on manufacturing innovative products and delivering precise electromechanical linear motion solutions. We are in the people business, as well as the product business. Our talented employees make and sell our products, and our extraordinary scope of teamwork keeps our company healthy.

OPERATIONS

Our company delivers high-quality products and offers world-class engineering support, solving the most demanding linear motion applications across multiple industries. We manufacture components and subsystem solutions to high volume OEMs and custom machine builders to ensuring their success.

COMPANY

Helix Linear Technologies is a global supplier in the medical device, life science, security, semiconductor, aerospace, electromechanical, and defense industries. Leading the linear motion industry by manufacturing the highest quality linear actuation solutions in the world, we focus on helping our customers be productive and profitable. Our innovative product design solves real-world linear motion issues and builds a foundation for long term success.

HISTORY

Helix Linear Technologies was founded in 2011 to meet the demand for high-quality lead screws in the growing electromechanical actuation industry. Our rapid growth has included the addition of end-to-end linear actuator solutions, providing integrated solutions.

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PARTNERS



CERTIFICATIONS



MARKET SEGMENTS SERVED



Medical & Diagnostic



Aerospace



Packaging



Automotive

Electronics



Transportation



Tire Manufacture



Entertainment



Semiconductor

Military and Defense



Factory Automation



Pulp & Paper



Steel



Chemical

Mobility/Patient Handling



Material Handling



HIGH TECH QUALITY EXPERIENCE

When you select Helix Linear Technologies as a supplier, you can be assured that your product will be designed and tested to rigorous product planning. Pre-design activity includes understanding of customer requirements applied to predictive models, engineering calculations and linear modeling through prototype development, stereo-lithography samples of form, fit, and function that verify design criteria.

VALIDATION AND VERIFICATION

Through years of rigorous development, Helix has proven its designs and manufacturing processes against the most stringent standards and specifications. Design and process verification and validation tools are employed throughout the product life cycle.

CERTIFICATIONS

Helix serves many customers in the Aerospace and Medical device markets and has complied with common Quality System Requirements.

QUALITY TOOLS:

- Design for Six Sigma manufacturing
- D.O.E. (Design of Experiments)
- APQP (Advanced Product Quality Planning)
- DFMEA, PFMEA
- FEA (Finite Element Analysis)
- DVP&R (Design Verification Plan & Report)
- Reliability Testing
- Process validation to 21 CFR Part 82 (Medical Device)



Helix lead screws are used in multi-channel pipetting applications

INSPECTION CAPABILITY

Laser Lead Measurement - Precise lead error gauging is utilized to validate processes to conform to Helix internal specifications and customer requirements.

Roundness Measurement - Critical to quality, characteristics such as roundness are monitored throughout the screw manufacturing process.

Contour Readers - Prior to the start of any production run, thread form geometry is precisely measured to stringent engineering specifications.

Metallurgical Lab - The metallurgical lab is capable of determining material composition from raw materials to final product. A micro hardness and case depth inspection is a routine check that validates the heat treat processes when required.



Helix lead screws are used in medical devices

TESTING

Efficiency Measurement - Helix Engineering has designed test machines to measure and validate screw assembly efficiency.

Torque Measurement - Preloaded lead screw assemblies are evaluated to determine compliance with engineering specifications utilizing a Dynamic Torque Testing Machine.

FUNCTIONAL TESTING

Helix test systems and engineered testing processes perform analysis, verification, and solidification of life, durability, and performance. The functional testing defines operating limits in specifications and helps set defined targets in Product Launch Process and Assurance Plans.

The engineered testing provides predictive tools, generates data for prognostics, and validates performance wear models. Life tests help determine performance in multiple operating conditions as well. Helix offers proof testing for customers developing new systems and actuators to help accelerate product release dates.

HELIX QUALITY EVOLUTION

- DEVELOPED MANUFACTURING SYSTEMS
- QUALITY SYSTEMS AND ACCREDITATIONS
- SUPPLY CHAIN APPROVAL PROCESS
- STATE OF THE ART MANAGEMENT SYSTEMS
- APQP LAUNCH PROTOCOLS
- SYSTEM AND PROCESS PROTOCOLS
- ENGINEERING ANALYSIS AND PREDICTIVE TOOLS
- CTQ/KPV ENGINEERING SPECIFICATION PROCESSES
- RELIABILITY ENGINEERING AND TESTING
- DVP&R AND TEST PLANNING
- CUSTOM ENGINEERED AND BUILT TEST INSTRUMENTATION
- DESIGN AND TEST FOR FAULT TOLERANCE AND PROGNOSTICS
- OVERLOAD/PROOF END OF LINE TESTING CERTIFICATION TESTING



Hexlix Linear Technologies lead screws are in used in infusion pumps.

MATERIALS AND MANUFACTURING

Helix Linear Technologies manufactures precision lead screws by thread rolling, thread whirling, or thread grinding. Helix lead screw products feature centralizing and custom thread forms for smooth, no-wedging performance.

THREAD ROLLING

Helix offers the largest selection of rolled lead screw sizes in the industry. Rolled thread screws are precise, cost effective, and are stocked for quick delivery.

THREAD GRINDING

Ground thread screws offer higher lead accuracy for applications where positioning tolerances are extremely critical.

THREAD WHIRLING

Helix thread whirling results in increased productivity and improved thread surface finish.

Plastic Acme & Trapezoidal Nuts

The high strength and inherent lubricity of our proprietary plastic nut material can result in product life that can equal or exceed conventional nut materials.

- Material: Helix™ ACETAL/PTFE blend
- Tensile Strength @70°F: 8,000 psi
- Compressive Strength @70°F: 16,000 psi
- PV Limit: 2,700 lubricated
- Coefficient of Friction: 0.10 lubricated

Bronze Acme & Trapezoidal Nuts

Special high tensile bronze is selected for our smooth running, anti-wedging bronze nuts.

- Material: Bronze
- Tensile Yield: 50,000 psi
- Tensile Ultimate: 65,000 psi
- Hardness: HB75
- Dynamic Coefficient of Friction: 0.125 with Helix™ Lubricant

Flanges For Bronze & Plastic Nuts

Made from carbon steel with black oxide finish. See page 12 for instructions on how to secure a flange to a thread mount style nut.

THE HELIX NUT PRODUCT LINE

<p>General Purpose Nut NAB Series</p> 	<p>Torsional Anti-Backlash Nut TAB Series</p> 	<p>Power AC (Plastic) NPA Series</p> 	<p>Cylinder Nut CYA Series</p> 	<p>Heavy Load Nut (4-hole) HLR</p> 
<p>Axial Anti-Backlash Nut AAB Series</p> 	<p>Trunnion Nut (Bronze) TMB Series</p> 	<p>Power AC (Bronze) NPB Series</p> 	<p>Torsional Anti-Backlash Nut GNA Compact Series</p> 	<p>Gear Nut</p> 
<p>Radial -Backlash Nut RAB Series</p> 	<p>Trunnion Nut (Plastic) TMA Series</p> 	<p>Ball Nut Replacement BNR Series</p> 	<p>Heavy Load Nut (2-hole) HLC</p> 	<p>Custom Specialty</p> 



Torsional anti-backlash lead screw assemblies

Screw Type	Material	Thread Class	Lead Accuracy	Screw Dia.	Screw Lengths
Rolled	Alloy	Helix Centralizing 2C or Stub	± .0003 in/in up to 2 1/2" dia.	1/8" to 6"	Limited only by material availability
	Stainless	Helix Centralizing 2C or Stub	± .0003 in/in up to 1 1/2" dia.	1/8" to 1 1/2"	Limited only by material availability
Ground	Alloy	Helix Centralizing 2C, 3C, 3G, 4C, 4G	± .0005"/ft	1/4" to 4"	up to 19"
	Stainless	Helix Centralizing 2C, 2G, 3C, 4G	± .0005"/ft	1/4" to 4"	up to 19"

	Alloy	Stainless Steel
Screw Material	4140	300 Series
Minimum Hardness	200 Brinell	170 Brinell
Tensile Ultimate Strength	95,000 psi	85,000 psi
Finish	Black Oxide	Polished



GLOSSARY AND TECHNICAL DATA

Thread Types

The acme thread form, established over 100 years ago, replaced square thread screws, which had straight-sided flanks and were difficult to manufacture.

There are three main classes of acme thread forms: general purpose (G), centralizing (C), and stub acme. The General Purpose and Centralizing thread forms have a nominal depth of thread of $0.50 \times \text{pitch}$ and have a 29° included thread angle. Trapezoidal thread forms have a 30° included thread angle. Helix precision lead screw assemblies have a 40° angle.

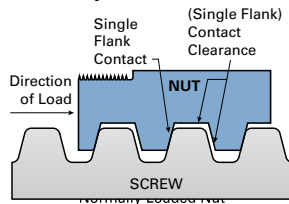
Compared to general-purpose thread forms, centralizing threads are manufactured with tighter tolerances and reduced clearance on the major diameter.

Stub acme threads follow the same basic design, but have a thread depth less than one half the pitch.

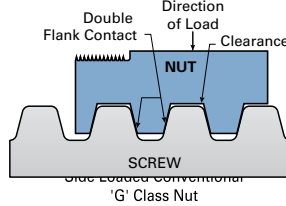
If an acme nut is side loaded with a radial load, a "G" class will "wedge" when the nut thread flanks come in contact with the screw thread flanks. To prevent wedging, less clearance and tighter tolerances are allowed between the major diameter of the nut and the major diameter of the screw.

CAUTION - Although a side load will not cause a centralizing thread to wedge, the nut is not designed to operate with a side load such as a pulley, drive belt, etc.

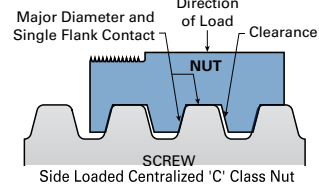
Normally Loaded Nut



Side Loaded Conventional 'G' Class Nut



Side Loaded Centralized 'C' Class Nut



DEFINITIONS

Land (Major) Diameter - The outside diameter of the screw.

Pitch Diameter - On an acme screw, this diameter is approximately halfway between the land diameter and the root diameter. It is the diameter at which the thread thickness is equal to the space between threads.

Root (Minor) Diameter - The diameter of the screw measured at the bottom of the thread.

Pitch - The axial distance between threads. Pitch is equal to the lead in a single start screw.

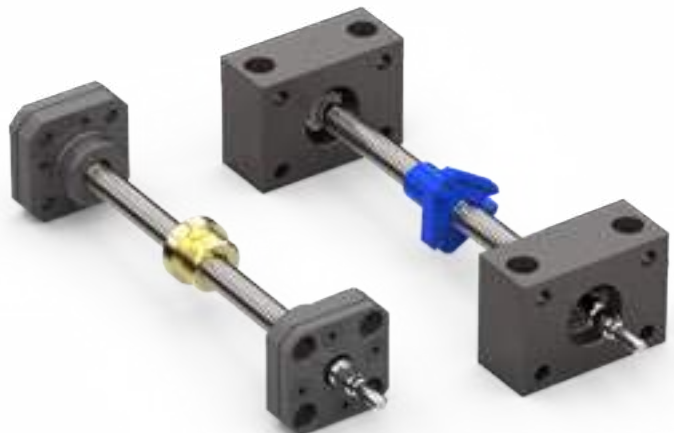
Lead - The axial distance the nut advances in one revolution of the screw. The lead is equal to the pitch times the number of starts.

$$\text{PITCH} \times \text{STARTS} = \text{LEAD}$$

NOTE: Helix precision lead screw designations reference nominal diameter and lead. For example: 250x125 screws advance 0.125" in one revolution and require eight turns for one inch of travel. A 250x125 screw has 2 starts and a 0.062" pitch.

$$0.062" \text{ PITCH} \times \text{TWO STARTS} = 0.125" \text{ LEAD}$$

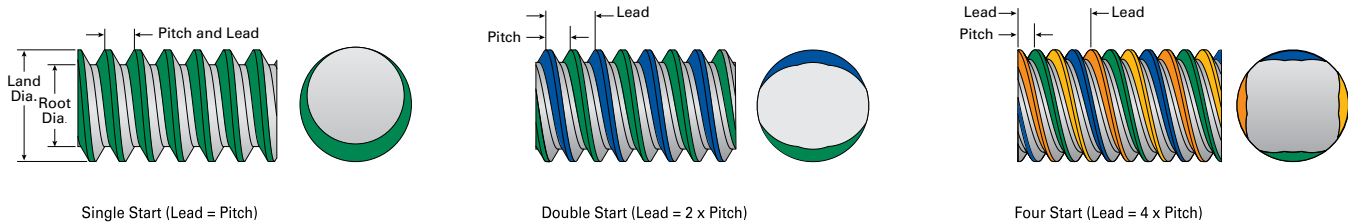
Lead Accuracy - Lead accuracy is the difference between the actual distance traveled versus the theoretical distance traveled based on lead. For example: A screw with a 0.5 inch lead and 0.004 inch per foot lead accuracy rotated 24 times, theoretically moves the nut 12 inches. (24 Revolutions \times .500 inches per revolution = 12.000 inches of travel) With a lead accuracy of .0004"/inch, actual travel could be from 11.996 to 12.004 inches.



Helix EZZE Mounts™ and Custom ACME screws

GLOSSARY AND TECHNICAL DATA (continued)

Screw Starts - The number of independent threads on the screw shaft; example one, two or four.



Matched Lead - When multiple screws are used in unison to move a load with precise synchronicity, screws of similar lead accuracy can be factory selected and supplied as sets. Consult factory for matched lead set tolerances.

Straightness - Although Helix precision lead screws are manufactured from straight, cylindrical material, internal stresses may cause the material to bend or yield.

When ordering random lengths or cut material without end machining, straightening is recommended. Handling or machining of screws can also cause the material to bend or yield. Before, during and after machining, additional straightening is required. When ordering screws with machined ends from Helix Linear Technologies, the following straightness tolerances can be expected:

Helix precision rolled and milled lead screws are straight within 0.010 inch/foot and will not exceed 0.030 inch in any 6-foot section when shipped from the factory.

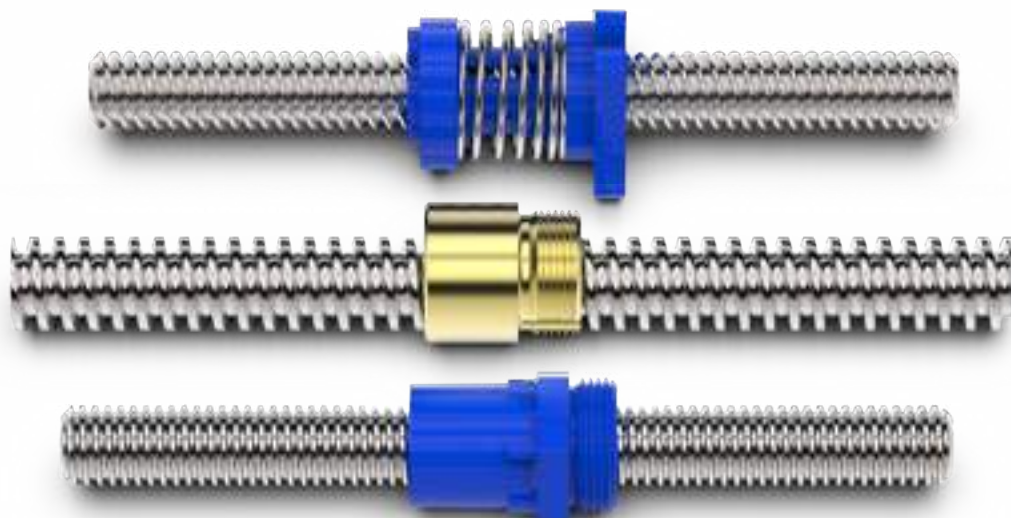
Helix precision ground lead screws are straight within 0.001 inch/foot when shipped from the factory. If tighter straightness tolerances are required, contact Helix customer service.

Life - Helix precision lead screws are manufactured from high quality materials with excellent dynamic properties. Because of the variable effects of friction, lubrication and cleanliness, a specific life cannot be predicted. Proper lubrication, regular maintenance, and operation within specified limits will extend the life of lead screws.

Efficiency - Efficiency of Helix precision lead screw assemblies range from 15% to 85%. These efficiencies are dependent upon nut material, lubrication, lead and thread form. The efficiencies for each assembly are listed on the following pages.

Back driving - Normally, lead screws are used to convert rotary motion into linear motion. Back driving is the result of the load pushing axially on the screw or nut to create rotary motion. Generally, a nut with efficiency greater than 50% will have a tendency to back drive. If a self-locking assembly is required, select a nut with efficiency below 35%.

CAUTION: Vibration can cause any lead screw assembly to creep or back drive. When using lead screws, applications should be analyzed to determine the necessity of a brake, especially when the possibility of injury may occur.

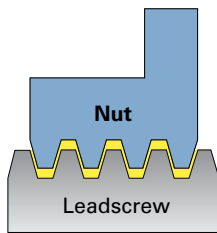


Helix stainless steel ACME screws

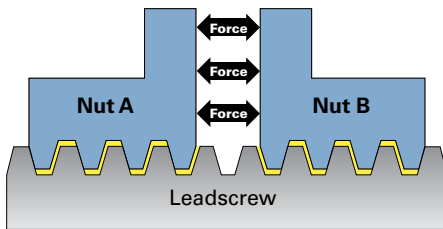
GLOSSARY AND TECHNICAL DATA (continued)

Backlash - Backlash (lash) is the relative axial clearance between a screw and nut without rotation of the screw or nut. Backlash information for Helix precision lead screws and nuts is listed within the data section of this catalog. Lash will always increase with use. Helix Linear Technologies has developed several unique ways to reduce or remove the lash between the screw and nut.

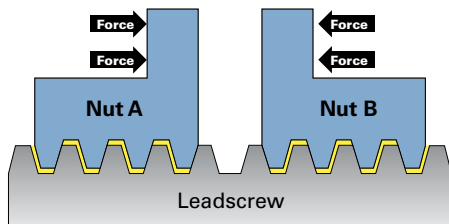
Standard Nut



Anti-backlash Nut In Tension



Anti-backlash Nut In Compression



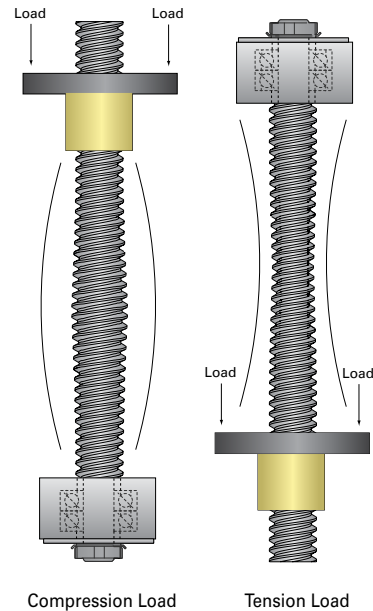
Static Load - The maximum thrust load – including shock – that should be applied to a non-moving nut assembly. Actual maximum static load may be reduced based on end machining and screw mounting hardware.

Dynamic Load - The maximum recommended thrust load which should be applied to the lead screw and nut assembly while in motion.

PV Load - Any material which carries a sliding load is limited by heat buildup caused by friction. The factors that affect heat generation rate in an application are the pressure on the nut in pounds per square inch of contact area and the surface velocity in feet per minute at the major diameter. The product of these factors provides a measure of the severity of an application.

Tension Load - A load that tends to “stretch” the screw.

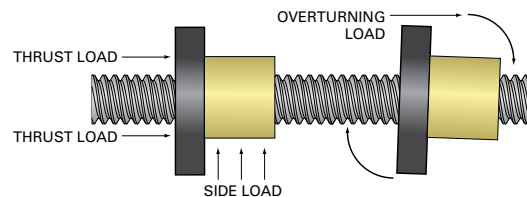
Compression Load - A load that tends to “squeeze” the screw.



Thrust Load - A load parallel to and concentric with the axis of the screw.

Overturning Load - A load that tends to rotate the nut radially around the longitudinal axis of the screw.

Side Load - A load that is applied radially to the nut.



GLOSSARY AND TECHNICAL DATA (continued)

EZZE-MOUNT™ bearing blocks contain precision anti-friction bearings and are designed to be used with acme ball screws and lead screws. Single and double bearing base mount and flange mount versions of EZZE-MOUNT™ bearing blocks are available.

Standard Ends - For each screw size, Helix has designed a family of standard machined ends applicable to a variety of bearing arrangements. The use of standard machined end designs offer quick deliveries. See pages 58-60 for details.

Land Diameter - Land diameter is the outside diameter of the screw. The difference between the land diameter and the bearing journal is the resulting bearing shoulder.

Root Diameter - The diameter of the screw measured at the bottom of the thread. This diameter is used for determining journal sizes. If the bearing journal diameter is larger than the root diameter, thread tracings may be visible. Generally, these tracings do not have an effect on bearing performance.

Journal - A smooth diameter machined on the end of the screw used as a mounting surface for bearings, couplings, pulleys, gears, etc.

Straightness - Although Helix screws are manufactured from straight, cylindrical material, internal stresses may cause the material to bend. When ordering specific lengths or cut material without end machining, straightening is recommended. Handling or machining of screws can also cause the material to bend. Before, during and after machining, additional straightening is required.

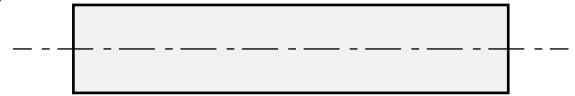
Concentricity - Concentricity refers to multiple diameters sharing the same center. For end machining, close concentricity allows all components to rotate around the same axis resulting in smooth operation and long operating life.



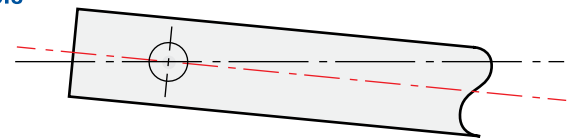
Custom machined ends

End Fixity - End fixity refers to the method by which the ends of the screw are supported. The degree of end fixity is related to the amount of restraint of the ends of the screw. The three basic types of end fixity are:

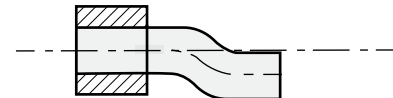
Free



Simple



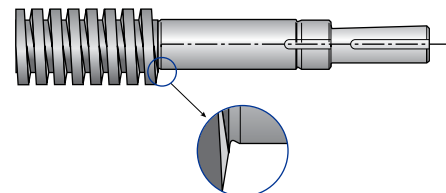
Fixed Shaft



Free	No support
Simple	Shaft restrained against radial and/or axial loads
Fixed	Shaft rigidly restrained against radial, axial and moment loads

Locknut Threads - Locknut threads are machined to allow the bearing retention on the screw shaft by means of a locknut. The thread used on standard machined ends follows American National Form NS Class 3. Precision ground locknuts are available on special order.

Undercuts and Radii - Whenever a shaft changes diameter, an undercut or a radius is machined into the transition to minimize stress concentration. Undercuts are preferred for bearing shoulders because they allow clearance for the corner of the bearing.



Approval Drawings - If custom ends or special dimensions are desired, we are happy to create an approval drawing for your review. These drawings will show all the critical dimensions with appropriate tolerance and require customer approval prior to manufacture.

GLOSSARY AND TECHNICAL DATA (continued)

Screw Inertia

Screw Size <i>inch (mm)</i>	Screw Inertia	
	<i>(oz-inch sec²/inch)</i>	<i>(g-cm²/cm)</i>
5/64 (2)	3.4×10^{-8}	9.5×10^{-4}
1/8 (3.2)	1.8×10^{-7}	5.0×10^{-3}
9/64 (3.2)	3.4×10^{-7}	9.5×10^{-3}
5/32 (3.97)	4.9×10^{-7}	1.4×10^{-2}
3/16 (4.76)	1.1×10^{-6}	3.1×10^{-2}
7/32 (5.55)	1.8×10^{-6}	5.0×10^{-2}
1/4 (6)	3×10^{-5}	8.3×10^{-2}
5/16 (8)	5×10^{-5}	1.4
3/8 (10)	1.5×10^{-5}	0.4
7/16 (11)	3.5×10^{-5}	1.0
1/2 (13)	5.2×10^{-5}	1.4
5/8 (16)	14.2×10^{-5}	3.9
3/4 (19)	30.5×10^{-5}	8.5
7/8 (8)	58×10^{-5}	16.1
15/16 (24)	73.0×10^{-5}	20.3

Dimensional Tolerances

Inch		Metric	
.X	± .030	L < 4	± 0.1
.XX	± .015	4 < L ≤ 16	± 0.15
.XXX	± .005	16 < L ≤ 63	± 0.2
		63 < L ≤ 250	± 0.3

Grease Compatibility Chart

Nut Type	Grease	Lubrication Coatings	
		Helix H10X [®]	HC1 Ceramic Coating [®]
RFA/RTA	Yes	Yes	Yes
KFA/KTA	No	Yes	Yes
NFA/NTA	Yes	Yes	Yes
GFA/GTA	No	Yes	Yes

The nut materials we use offer long wear-life for a wide variety of conditions. However, very high loads and/or speeds can accelerate nut wear. Special materials may be required for these situations. We offer the following guidelines for continuous duty linear traversing speeds for optimum life:

Anti-Backlash Life

Series	w/o H10X PTFE Coating <i>inch (cm)</i>	with H10X PTFE Coating <i>inch (cm)</i>
RFA/RTA	40 to 60 million (100 to 150 million)	150 to 200 million (250 to 315 million)
GFD/GTD	80 to 100 million (200 to 250 million)	180 to 230 million (450 to 580 million)
KFA/KTA	100 to 125 million (250 to 315 million)	200 to 250 million (500 to 635 million)
NFA/NTA	N/A, Typical Backlash .003 to .010 (.076 to .25)	N/A, Typical Backlash .003 to .010 (.076 to .25)

Anti-backlash life is defined as the nut's ability to compensate for wear while maintaining its zero backlash properties. Above life data is based on 30% of dynamic load rating. Life will vary with loading, operating environment and duty cycle. The longer screw leads generally provide longer life.

Materials and Properties

Lead Screw

Material	Surface Finish
304 Stainless Steel (options available)	Better than 16 micro-inches (0.4 μm)

Nuts

Material	Tensile Strength	Coefficient of Expansion
Polyacetal with Lubricating Additive	9,700 psi	6.0×10^{-5} in/in/°F

Other materials available.

Assembly

Standard Operating Temperature Range	Coefficient of Friction Polyacetal Nut to Screw
32 - 200° F* (0 - 93° C)*	Static = .08 .08** Dynamic = .15 .09**

*Very high or low temperatures may cause significant changes in the nut fit or drag torque. Please call Helix Linear Technologies for optional temperature range materials.

** With Helix H10X PTFE Coating

Traverse Speed

Lead	Traverse Speed	Lead	Traverse Speed
1/10 - 1/2-in	4-in/sec.	1 - 12 mm	100 mm/sec.
1/2 - 1-in	10-in/sec.	12 - 25 mm	250 mm/sec.
1 - 2 1/2-in	30-in/sec.	25 - 60 mm	760 mm/sec.

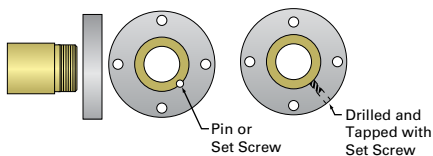
DESIGN CONSIDERATIONS

Mounting and Pinning of Flanges

The preferred method of locking a flange to a nut is a pin or set screw parallel to the screw which intersects the flange/nut mounting thread. Because of the dissimilarity of materials, the hole may need to be milled, not drilled.

Alternatively, the flange may be drilled and tapped radially for a set screw. After assembly of the flange to the nut, spot drill the nut threads through the flange and install a dog point set screw from the flange O.D. into the nut O.D. threads. Avoid getting metal chips in the nut when drilling.

Commercially available thread adhesives may be used for light load applications. Follow the manufacturers' recommendations to ensure a satisfactory bond. Avoid getting the adhesive onto the lead screw thread.



Diameter	Description	Qty.
.25 to .625	1/8 x 1/4 Slotted Spring Pin	1
.75 to 1.0	#10- 24 x 1/4 Set Screw	1

Lubrication

Proper lubrication must be provided to achieve satisfactory service life. Helix Linear produces both "wet" and dry lubricants for lead screws. Helix PTFE dry coating is excellent for food, medical and semiconductor applications. Helix acme screw lubricant (E-100 spray lube or PAG-1 grease) is recommended for applications using precision lead screws without PTFE coating.

Lubrication intervals are determined by the application. It is required that screw assemblies are lubricated often enough to maintain a film of lubricant on the screw.



Helix offers a complete line of linear lubricants (see page 48)

Torque

The required motor torque to drive a lead screw assembly is the sum of three components: inertial torque, drag torque and torque-to-move load. It must be noted that this is the torque necessary to drive the lead screw assembly alone. Additional torque when driving frictional bearings, motor shafts, moving components and drag due to general assembly misalignment must also be considered.

Inertial Torque

$$T_j = I \alpha$$

Where:

- I = screw inertia
- α = angular acceleration

Drag Torque - Helix anti-backlash assemblies are typically supplied with drag torque of 1 to 7 oz.-in. The magnitude of the drag torque is dependent on the standard factory settings or settings specified by the customer. Generally, the higher the preset force, the better the anti-backlash characteristics.

Torque-to-move

$$T_L = \frac{\text{Load x Lead}}{2\pi \times \text{Efficiency}}$$

Back driving - Back driving is the ability of a screw to be turned by a thrust load applied to the nut. Generally, back driving will not occur when the screw lead is less than 1/3 the diameter for uncoated screws or 1/4 the diameter for Helix PTFE coated screws. For higher leads where back driving is likely, the torque required for holding a load is:

$$T_L = \frac{\text{Load x Lead x Backdrive Efficiency}}{2\pi}$$

Temperature

With proper lubrication, Helix Lead screws with bronze nuts operate efficiently between 15°F and 350°F, and plastic nuts between 15°F and 175°F.

Optional Surface Coatings

Consult Helix engineers for specific surface coatings for anti-corrosion and lubrication.

CUSTOM LEAD SCREW ASSEMBLIES

Custom Nuts

At Helix, we mold and machine a wide array of lead screw nuts and actuator components from standard polymers such as PEEK, Torlon®, Acetal, Polypropylene, Turcite®, and custom engineered polymers that incorporate fillers like PTFE, PFPE, silicone, carbon fibers, graphite, glass fibers and molybdenum disulfide. Should cost or design constraints require a more integrated package, our engineering staff can help you simplify your design by combining several different components into a molded nut.

Custom Machining

We offer extensive machining services on our lead screws and nuts. Journals, keyways, flats, centers, snap ring grooves and counterbores are common dimensions for us to machine on the ends of lead screws. Simply e-mail us your sketch, drawing, or 3D model and we will provide a quotation in 24 hours.

Custom Screws

At Helix Linear Technologies, we manufacture the most precise lead screws in the world. We have perfected the thread-rolling process over four decades and today offer the widest range of thread rolling capacity globally. We have manufactured hundreds of custom screw diameters and leads for our customers who require a size that is not in our catalog. We are also the experts in thread-rolling non-standard materials and produce screws from titanium, aluminum, high-carbon steel, 300 and 400 series stainless steels, plastics and special chemistry alloys.



Custom metal and plastic nuts as small as 1.5 mm diameter



Custom screws as small as 1.5 mm diameter

	ACME THREADED BARS	TRAPEZOIDAL THREADED BARS	SCREW THREADS	SPECIALTY FORMS
Diameters	0.059" - 4.00"	1mm - 100mm	up to 4" (100mm)	up to 4" (100mm)
Stock Lengths	3, 6, 12 foot lengths		N/A	
Special Order	Custom lengths up to 30 Ft. Full Thread, Double End and Single End Parts			
Material	Carbon Steels, Alloy Steels, Alloy Heat Treated Steels, Stainless Steel, Aluminum, Titanium, Exotic Metals		Carbon Steels, Alloy Steels, Alloy Heat Treated Steels, Stainless Steels, Aluminum, Brass, Titanium, Exotic Metals	
Thread Profiles	Helix™ 40° Acme, ASME Standard Acme, Stub Acme, Modified Stub Acme, Speedy® High-Lead, and Special Profiles made to order	ISO/DIN 30° Trapezoidal, Speedy® High-Lead, and Special Profiles made to order	UN/ISO 60° Threads and Special Threads made to order	American Worm, Module Worm, Modified Buttress, Straight Knurling, Diamond Knurling
Class of Fit	2C, 2G, 3C, 3G, 4C, 4G	7e, 8e, 8c, Modified	2A, 3A, 7e, 8e	N/A
Thread Direction	Right Hand, Left Hand			
Thread Starts	Single, Multiple			N/A



LEAD SCREW SELECTION

The selection of the correct lead screw and nut for a particular application involves four interrelated factors. Before attempting to determine the lead screw and nut combination, the following values must be known:

- Axial load measured in pounds or newtons
- Speed measured in inches or millimeters per minute
- Length between bearings measured in inches or millimeters
- End fixity type

Load - The loads that need to be considered are the static loads, dynamic loads, reaction forces and any external forces affecting the screw.

Speed - The travel rate (linear speed) is the rpm at which the screw or nut is rotating multiplied by the lead of the screw.

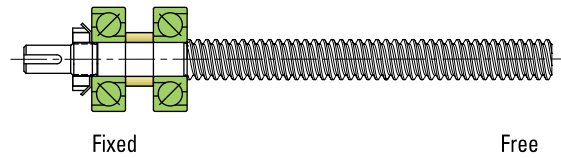
Length - The unsupported length of the screw.

End Fixity - End fixity refers to the method by which the ends of the screw are supported. The degree of end fixity is related to the amount of restraint of the ends of the screw. Here are four basic types of end fixity:

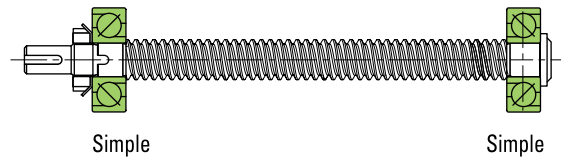
Simple End fixity can be provided through a single bearing support.

Multiple or Spaced Pairs of bearings are more rigid than a "Simple" support, but because of their compliance are not truly "Fixed".

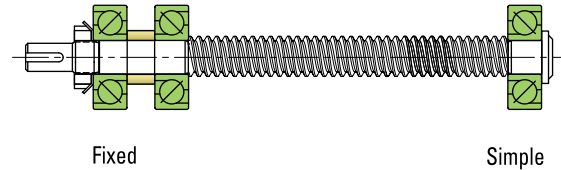
A. Fixed/Free



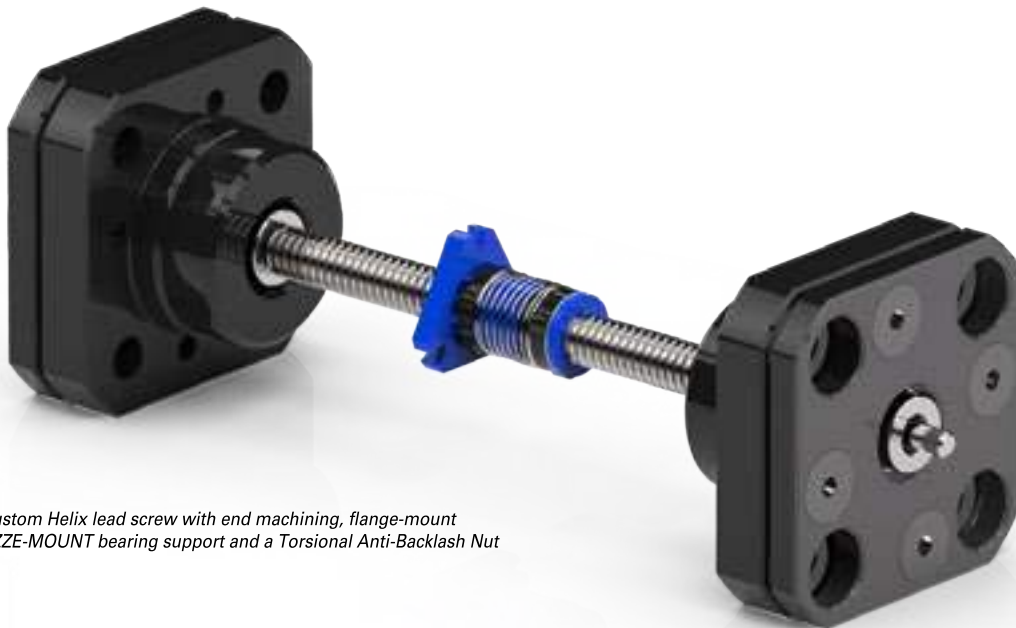
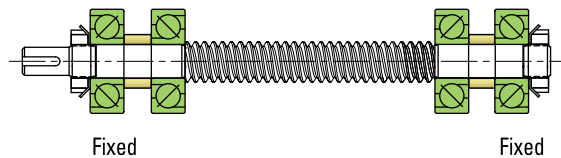
B. Simple/Simple



C. Fixed/Simple



D. Fixed/Fixed



Custom Helix lead screw with end machining, flange-mount EZZE-MOUNT bearing support and a Torsional Anti-Backlash Nut

LEAD SCREW SELECTION (continued)

CRITICAL SPEED

Once the load, speed, length and end fixity are identified, the next factor to consider is the critical speed. The speed that excites the natural frequency of the screw is referred to as the critical speed. Resonance at the natural frequency of the screw will occur regardless of the screw orientation (vertical, horizontal etc.) or if the system is designed so the nut rotates about the screw. The critical speed will vary with the diameter, unsupported length, end fixity and rpm. Since critical speed can also be affected by shaft straightness and assembly alignment, it is recommended that the maximum speed be limited to 80% of the calculated critical speed. The theoretical formula to calculate critical speed in rpm is:

WHERE:

$$N = \frac{C_s \times 4.76 \times 10^6 \times d}{L^2}$$

- N = Critical Speed (rpm)
- d = Root Diameter of Screw (inch)
- L = Length Between Bearing Supports (inch)
- C_s = 0.36 for one end fixed, one end free
- 1.00 for both ends simple
- 1.47 for one end fixed, one end simple
- 2.23 for both ends fixed

The Critical Speed Charts on pages 16-17 are provided to quickly determine the minimum screw size applicable for Helix EZZE-MOUNT™ designs.

If the selected lead screw does not meet critical speed criteria, consider the following options:

- a) Increase screw lead and reduce rpm
- b) Change end fixity (e.g. simple to fixed)
- c) Increase screw diameter

SCREW INERTIA

Screw Size in (mm)	Screw Inertia (oz-in sec ² /in)	Screw Size in (mm)	Screw Inertia (oz-in sec ² /in)
1/8 (3.2)	1.8 x 10 ⁻⁷	3/8 (10)	1.5 x 10 ⁻⁵
9/64 (3.5)	3.4 x 10 ⁻⁷	7/16 (11)	3.5 x 10 ⁻⁵
5/32 (3.97)	4.9 x 10 ⁻⁷	1/2 (13)	5.2 x 10 ⁻⁵
3/16 (4.76)	1.1 x 10 ⁻⁶	5/8 (16)	14.2 x 10 ⁻⁵
7/32 (5.55)	1.8 x 10 ⁻⁶	3/4 (19)	30.5 x 10 ⁻⁵
1/4 (6)	0.3 x 10 ⁻⁵	7/8 (22)	58.0 x 10 ⁻⁵
5/16 (8)	5.0 x 10 ⁻⁵	15/16 (24)	73.0 x 10 ⁻⁵

COLUMN STRENGTH

When a screw is loaded in compression (see compression load definition on page 8), its limit of elastic stability can be exceeded and the screw will fail through bending or buckling.

The theoretical formula to calculate the column strength in pounds is:

$$P_{cr} = \frac{14.03 \times 10^6 \times F_c \times d^4}{L^2}$$

WHERE:

- P_{cr} = Maximum Load (lb.)
- F_c = End Fixity Factor
 - 0.25 for one end fixed, one end free
 - 1.00 for both ends supported
 - 2.00 for one end fixed, one end simple
 - 4.00 for both ends rigid
- d = Root Diameter of Screw (inch)
- L = Distance between nut and load carrying bearing (inch)

If the selected screw does not meet compression load criteria, consider the following options:

- a) Change end fixity (e.g. simple to fixed)
- b) Design to use screw in tension
- c) Increase screw diameter

PV Value - For plastic nuts, the PV value needs to be checked (see the PV load definition on page 8). The operating load values for the plastic nuts are based on a pressure of 1,450 lb. per square inch. Any loads less than the operating load can be evaluated by using the following:

$$P = \frac{\text{Actual Operating Load}}{\text{Chart Operating Load}} \times 1450$$

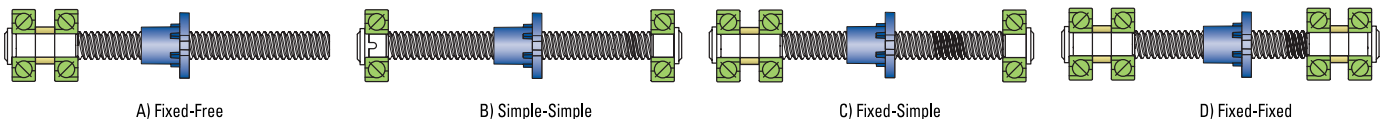
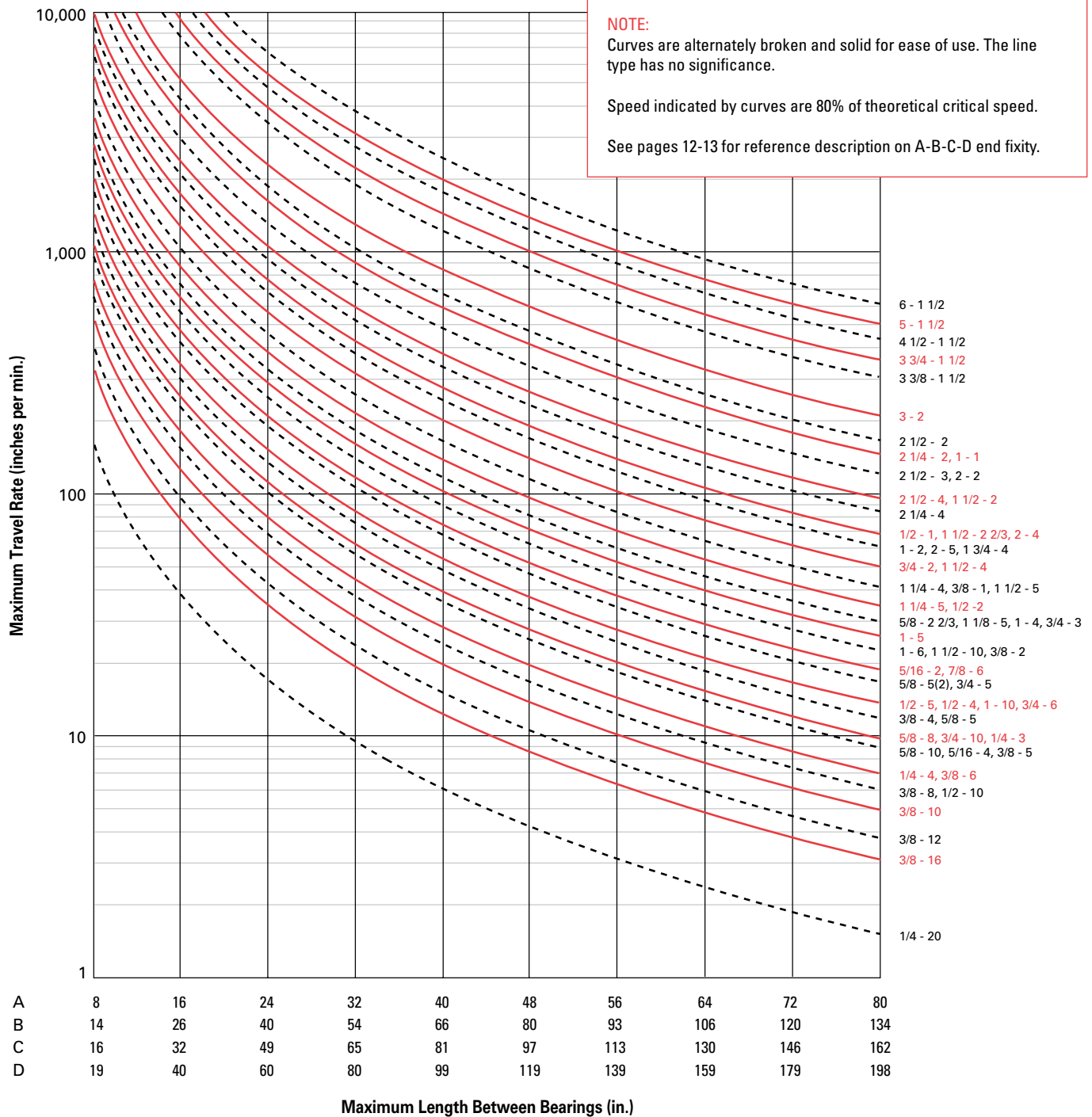
V is the relative speed between the nut and the screw in feet per minute. V can be calculated by using the following:

$$V = \frac{\text{Outside Dia. of the Screw (in)} \times \pi \times \text{Operating Speed (rpm)}}{12}$$

It is recommended that P x V be limited to values less than 2,700.

CRITICAL SPEED: ACME INCH SCREWS

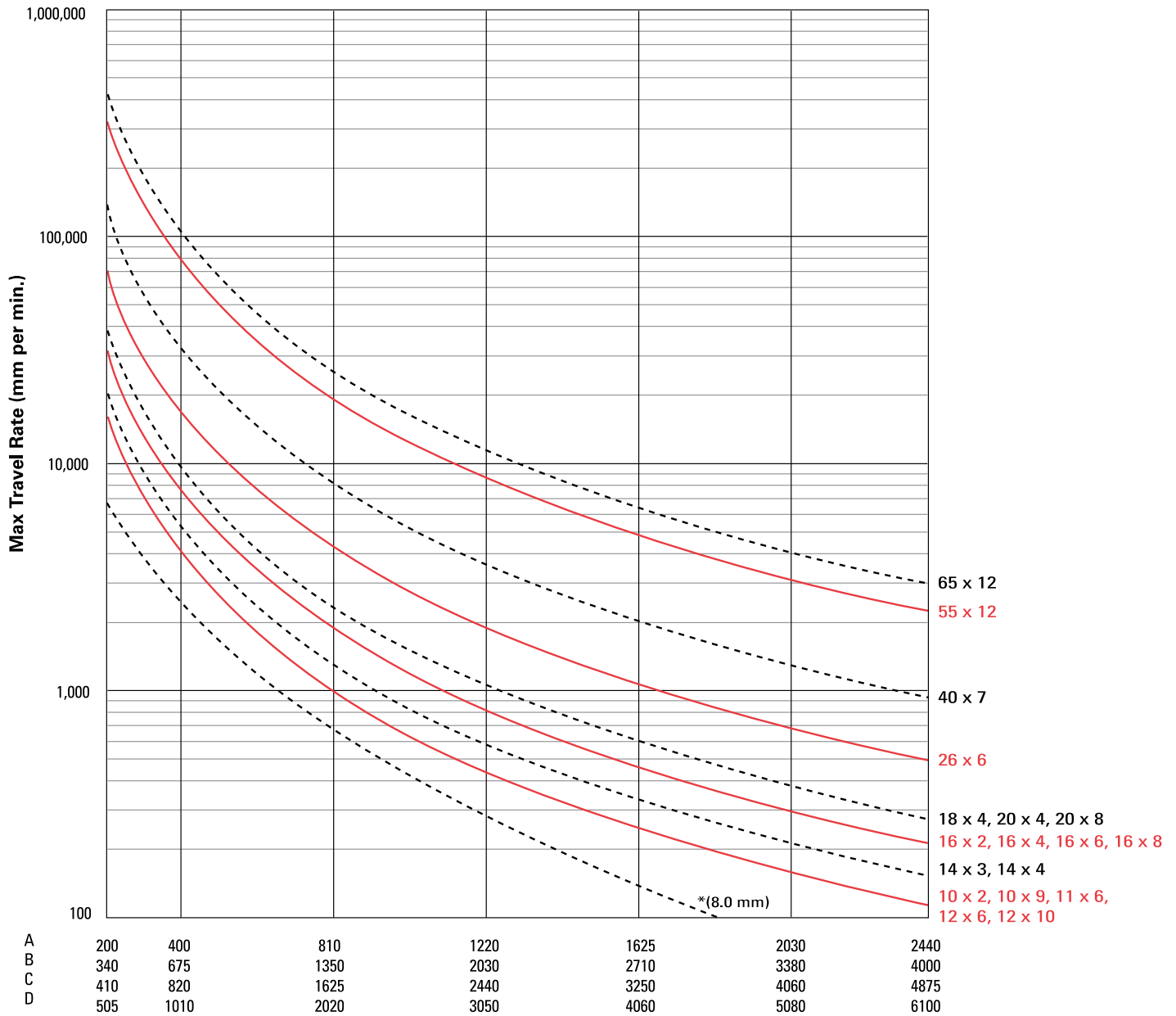
TO USE THIS CHART: Determine maximum travel rate required. Determine screw length L. Find point at which travel rate and screw length intersect and select a screw above and to the right of that point.



CRITICAL SPEED: METRIC SCREWS

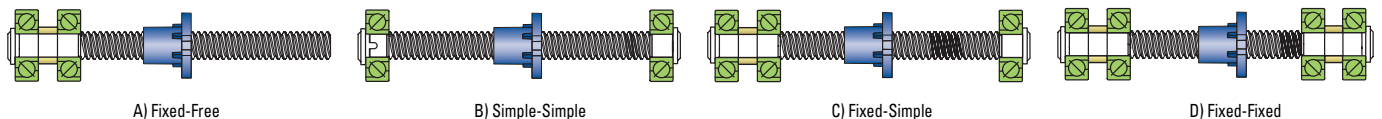
Curves are alternately broken and solid for ease of use. The line type has no significance. **NOTE:** Maximum Speed is limited to 80% of the calculated Critical Speed. See pages 12-13 for reference description on A-B-C-D end fixity.

Metric to Inch Conversion: 1 Newton = .224 lbf 1mm = 0.039 in 1 N m = 8.85 in-lb



Maximum Length Between Bearings (mm)

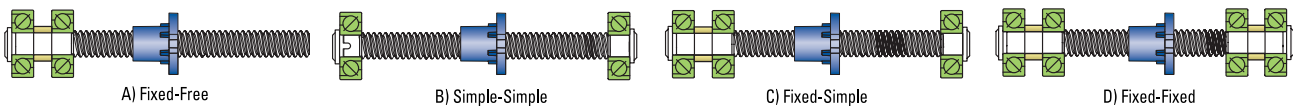
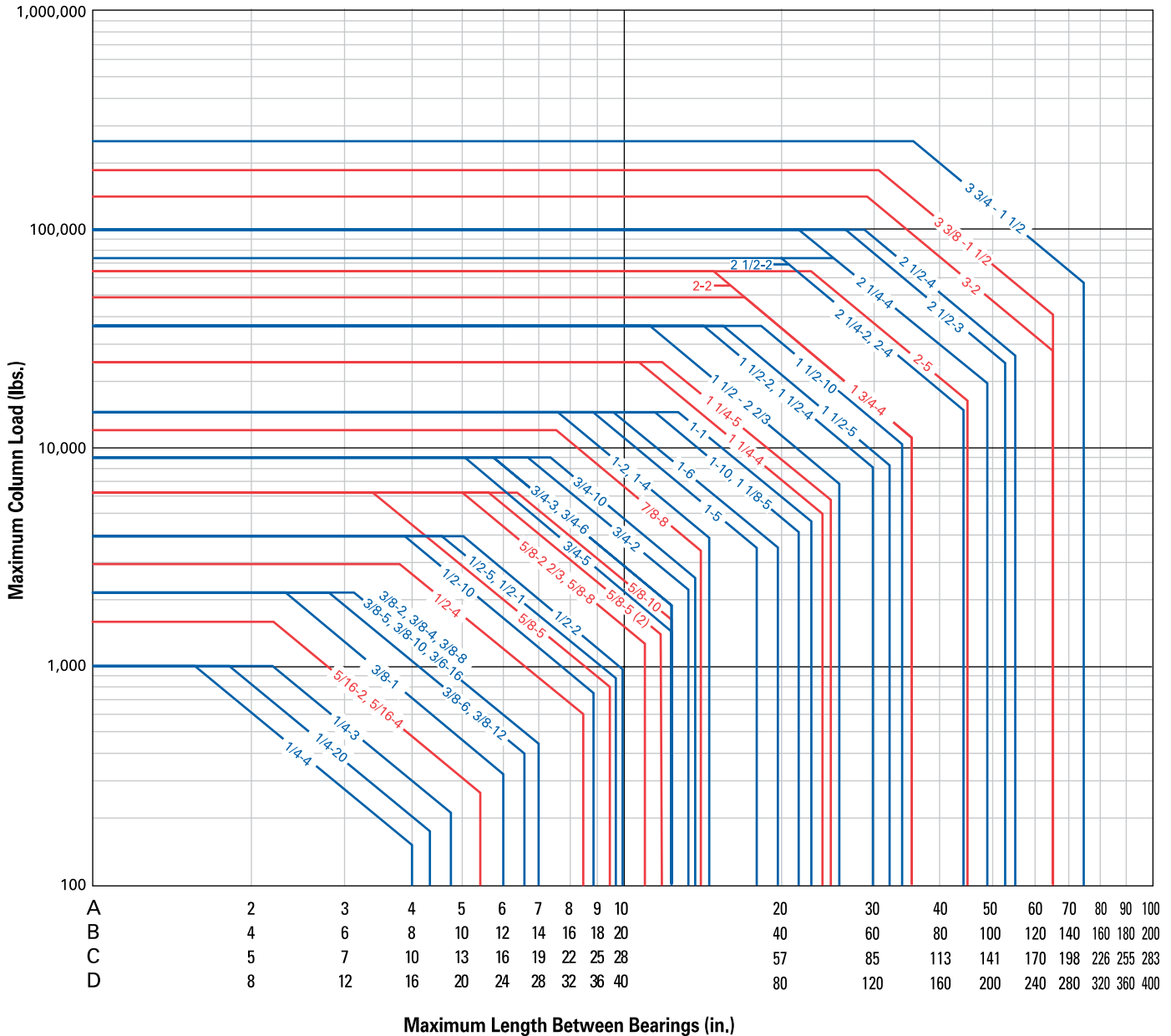
*8 x 1.5, 8 x 4, 8 x 8



COLUMN STRENGTH: ACME INCH SCREWS

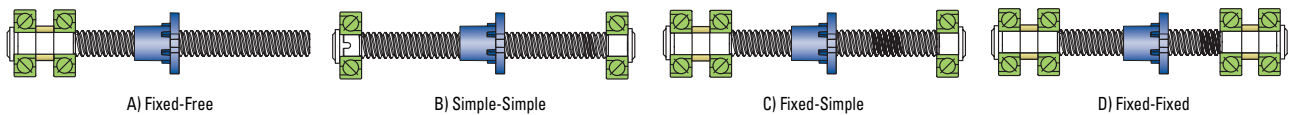
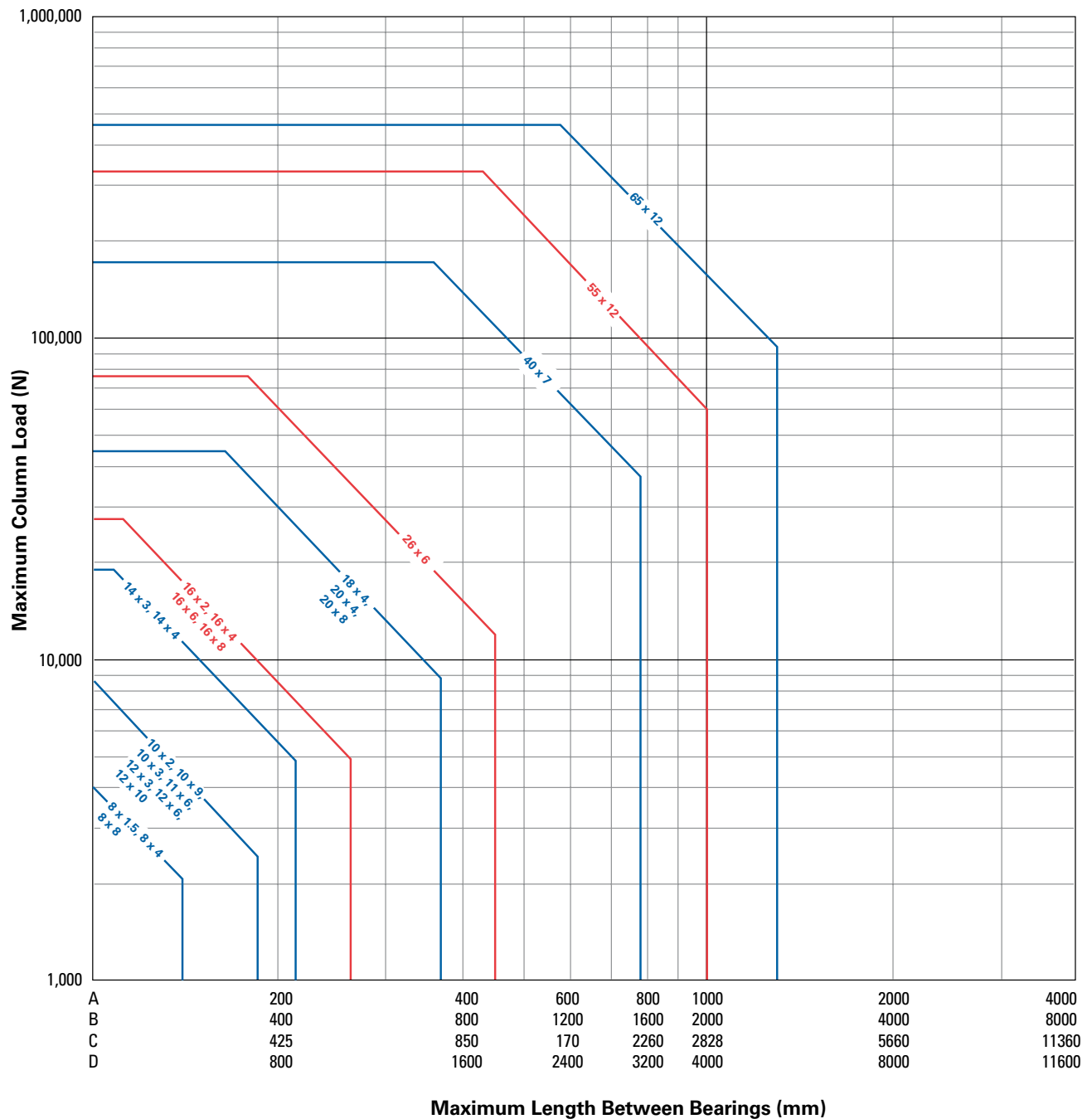
TO USE THIS CHART: Find a point at which the maximum length between bearing support and acme nut intersects the maximum load. Be sure the screw selected is above and to the right of that point.

Acme Screws are limited by both Maximum Static Load and Slenderness Ratio. See pages 8-9 for reference description on A-B-C-D end fixity.



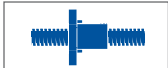
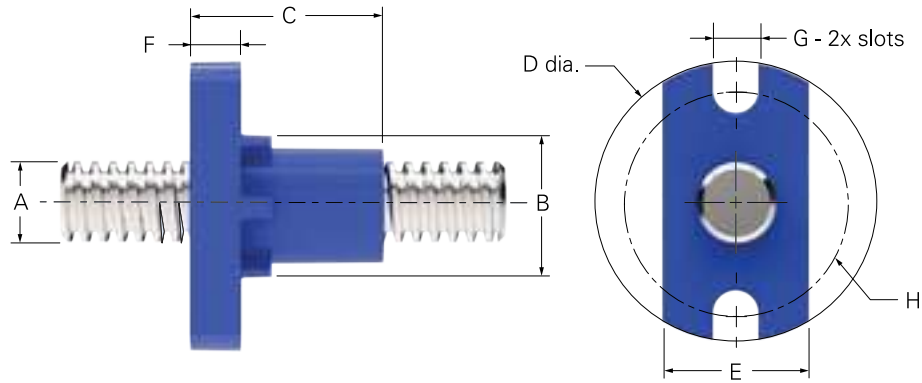
COLUMN STRENGTH: METRIC SCREWS

Metric Screws are limited by both Maximum Static Load and Slenderness Ratio. See pages 12-13 for reference description on A-B-C-D end fixity. **Metric to Inch Conversion:** 1 Newton = .224 lbf 1mm = 0.039 in 1 N m = 8.85 in lb



NFA - STANDARD FREEWHEELING NUT [2-HOLE FLANGED]

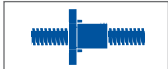
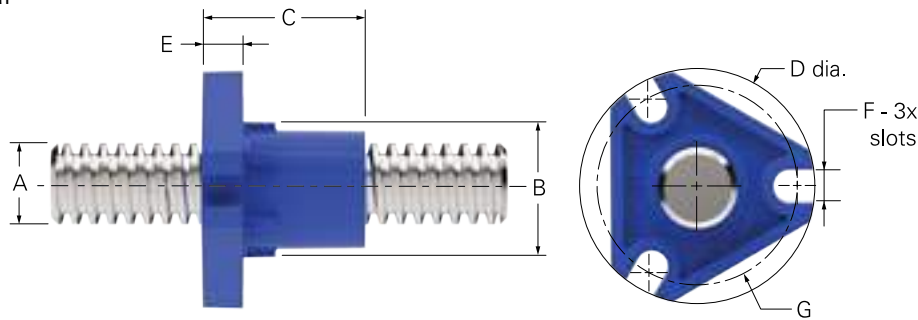
Nut Material: Helital™



A Screw Dia. inch (mm)	B Nut Dia. inch (mm)	C Nut Length inch (mm)	D Flange Dia. inch (mm)	E Flange Height inch (mm)	F Flange Thickness inch (mm)	G Slot Width inch (mm)	H Bolt Circle Dia. inch (mm)	Dynamic Load lbs (Kg)	Drag Torque (max) oz-in (N-m)
5/64 (2)	0.400 (10.2)	0.500 (12.7)	0.750 (19.0)	0.400 (10.2)	0.130 (3.3)	0.120 (3.1)	0.600 (15.3)	35 (16)	Freewheeling
1/8 (3)									
3/16 (4)									
7/32 (5)									

NFA - STANDARD FREEWHEELING NUT [3-HOLE FLANGED]

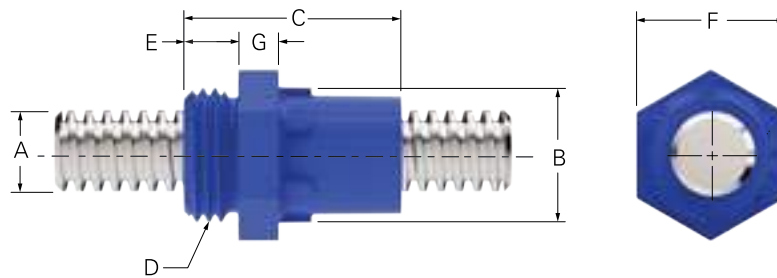
Nut Material: Helital™



A Screw Dia. inch (mm)	B Nut Dia. inch (mm)	C Nut Length inch (mm)	D Flange Dia. inch (mm)	E Flange Thickness inch (mm)	F Slot Width inch (mm)	G Bolt Circle Dia. inch (mm)	Dynamic Load lbs (Kg)	Drag Torque oz-in (N-m)
1/4 (6)	0.500 (12.7)	0.625 (15.8)	1.00 (25.4)	0.188 (4.8)	0.144 (3.7)	0.750 (19)	75 (35)	Freewheeling
5/16 (8)	0.625 (15.8)	0.750 (19.1)	1.125 (28.5)	0.188 (4.8)	0.144 (3.7)	0.875 (22.2)	75 (35)	Freewheeling
3/8 (10)								
7/16 (11)	0.750 (19.1)	1.125 (28.5)	1.500 (38.1)	0.250 (6.35)	0.203 (5.2)	1.125 (28.5)	150 (68)	Freewheeling
1/2 (13)								
9/16 (14)	1.125 (28.5)	1.250 (31.7)	1.750 (44.4)	0.250 (6.35)	0.221 (5.6)	1.438 (36.5)	150 (68) 225 (100) 350 (160)	Freewheeling
5/8 (16)								
11/16 (18)								
3/4 (19)								

NTA - STANDARD FREEWHEELING NUT [THREADED]

Nut Material: Helital™



A Screw Dia. inch (mm)	B Nut Dia. inch (mm)	C Nut Length inch (mm)	D Thread Size inch (mm)	E Thread Length inch (mm)	F Hex Across Flats inch (mm)	G Hex Thickness inch (mm)	Dynamic Load lbs (Kg)	Drag Torque (max) oz-in (N-m)
5/64 (2)	0.400 (10.2)	0.500 (12.7)	3/8-24 UNF	0.188 (4.8)	0.437 (11)	0.130 (12.7)	35 (16)	Freewheeling
1/8 (3)								
3/16 (4)								
7/32 (5)	0.500 (12.7)	0.625 (15.8)	9/16"-18 UNF	0.250 (6.3)	0.625 (15.8)	0.180 (4.8)	115 (52)	
1/4 (6)								
5/16 (8)	0.625 (15.8)	0.750 (19)	5/8"-18 UNF	0.250 (6.3)	0.687 (17.4)	0.180 (4.8)	125 (57)	
3/8 (10)								
7/16 (11)	0.750 (19)	1.125 (28.6)	15/16"-16 UN	0.375 (9.5)	1.00 (25.4)	0.250 (6.4)	200 (91)	
1/2 (13)								
9/16 (14)	1.125 (28.6)	1.250 (31.7)	1-1/16-16 UN	0.375 (9.5)	1-1/8 (28.5)	0.250 (6.4)	350 (159)	
5/8 (16)								
11/16 (18)								
3/4 (19)								
7/8 (22)	1.5 (38)	1.375 (35)	1-3/8"-16 UN	0.375 (9.5)	1-7/16 (36.5)	0.310 (7.9)	530	
1 (25.4)								

PART NUMBER CONFIGURATOR

NTA 025062 - RA / 1K / 4N / 6.0 / TS

NUT STYLE
NTA = Threaded NFA = Flanged

DIAMETER CODE
Example:
025 = 1/4" Diameter
(see pages 50-57)
for Diameter Codes
+

LEAD CODE
Example:
062 = 0.0625" Lead
(see pages 50-57)
for Lead Codes

END CONFIGURATION
End Machining (see pages 58-60)
1 = Type 1
2 = Type 2
3 = Type 3
4 = Type 4

SHAFT EXTENSION
K = Shaft Extension
L = Shaft Extension without Keyway
N = No Shaft Extension

MODIFIER LIST
T = PTFE Coating (Optional)
S or M Required
S = Standard, no additional description required
M = Modified, additional description required

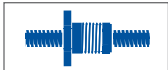
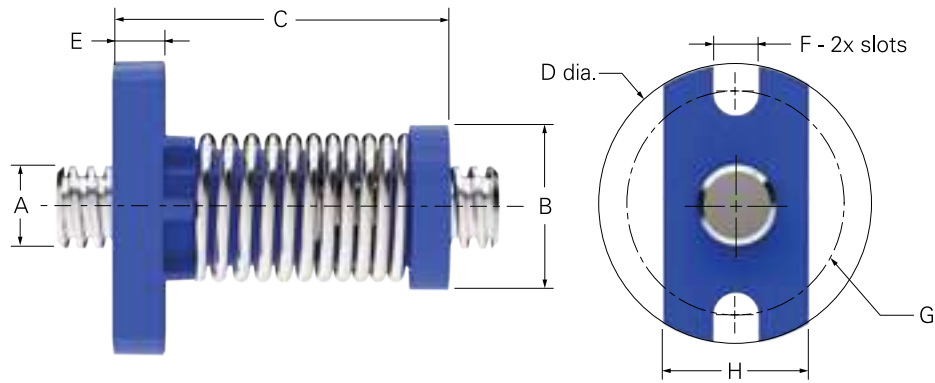
OVERALL LENGTH (OAL)
Length in inches, two place decimal.
Omit this code if ordering nut only.

SECOND END CONFIGURATION
Refer to the First End Configuration.
Both Ends must be specified.
NOTE: Omit this code if ordering nut only.

NOTE: * Not all threads/materials are available for all sizes.

AFA - AXIAL ANTI-BACKLASH NUT [2-HOLE FLANGED]

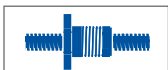
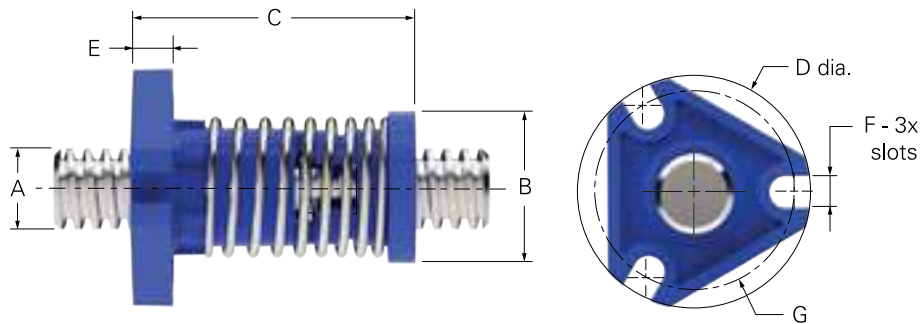
Nut Material: Helital™



A Screw Dia. inch (mm)	B Nut Dia. inch (mm)	C Nut Length inch (mm)	D Flange Dia. inch (mm)	E Flange Thickness inch (mm)	F Slot Width inch (mm)	G Bolt Circle Dia. inch (mm)	H Flange Height inch (mm)	Dynamic Load lbs (Kg)	Drag Torque (max) oz-in (N-m)
5/64 (2)	0.420 (10.2)	0.945 (24)	0.750 (0.02)	0.130 (0.003)	0.120 (0.003)	0.600 (0.015)	0.130 (3.3)	35 (16)	3 (.113)
1/8 (3)									
3/16 (4)									

AFA - AXIAL ANTI-BACKLASH NUT [3-HOLE FLANGED]

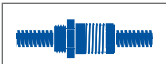
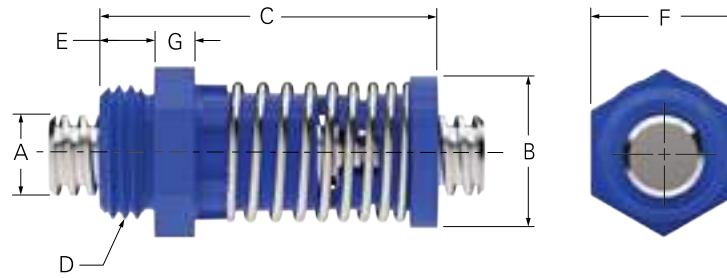
Nut Material: Helital™



A Screw Dia. inch (mm)	B Nut Dia. inch (mm)	C Nut Length inch (mm)	D Flange Dia. inch (mm)	E Flange Thickness inch (mm)	F Slot Width inch (mm)	G Bolt Circle Dia. inch (mm)	Dynamic Load lbs (Kg)	Drag Torque (max) oz-in (N-m)
7/32 (5)	0.563 (14.3)	1.100 (28)	1.00 (25.4)	0.188 (4.8)	0.144 (3.7)	0.750 (19)	75 (35)	4 (.03)
1/4 (6)								
5/16 (8)	0.688 (17.4)	1.398 (35.5)	1.125 (28.5)	0.188 (4.8)	0.144 (3.7)	0.875 (22.2)	75 (35)	5 (.04)
3/8 (10)								
7/16 (11)	0.875 (22)	2.00 (50.8)	1.50 (38.1)	0.250 (6.35)	0.203 (5.2)	1.125 (28.5)	150 (68)	9 (.06)
1/2 (13)								
9/16 (14)	1.125 (28.5)	2.34 (59.4)	1.750 (44.4)	0.250 (6.35)	0.221 (5.6)	1.438 (36.5)	150 (68) 225 (100) 350 (160)	12 (.113)
5/8 (16)								
11/16 (18)								
3/4 (19)								
7/8 (22)	1.5 (38)	2.675	2.250	0.313	0.257	1.875	530-600	16 (.113)
15/16 (24)								

ATA - AXIAL ANTI-BACKLASH NUT [THREADED]

Nut Material: Helital™



A Screw Dia. inch (mm)	B Nut Dia. inch (mm)	C Nut Length inch (mm)	D Thread Size inch (mm)	E Thread Length inch (mm)	F Hex Across Flats inch (mm)	G Hex Thickness inch (mm)	Dynamic Load lbs (Kg)	Drag Torque (max) inch (mm) oz-in (N-m)
5/64 (2)	0.420 (10.2)	0.945 (24)	3/8-24 UNF	0.188 (4.8)	0.437 (11)	0.130 (3.3)	35 (16)	4 (.03)
1/8 (3)								
3/16 (4)								
7/32 (5)	0.563 (14.3)	1.100 (28)	9/16"-18 UNF	0.250 (6.3)	0.625 (15.8)	0.180 (4.8)	75 (35)	4 (.03)
1/4 (6)								
5/16 (8)	0.688 (17.4)	1.398 (35.5)	5/8"-18 UNF	0.250 (6.3)	0.687 (17.4)	0.180 (4.8)	75 (35)	5 (.04)
3/8 (10)								
7/16 (11)	0.875 (22)	2.00 (50.8)	15/16"-16 UN	0.375 (9.5)	1.00 (25.4)	0.250 (6.4)	150 (68)	9 (.06)
1/2 (13)								
9/16 (14)	1.125 (28.5)	2.34 (59.4)	1-1/16-16 UN	0.375 (9.5)	1-1/8 (28.5)	0.250 (6.4)	150 (68) 225 (100) 350 (160)	12 (.084)
5/8 (16)								
11/16 (18)								
3/4 (19)								
7/8 (22)	1.5 (38)	2.675 (68)	1-3/8"-16 UN	0.375 (9.5)	1-7/16 (36.5)	0.310 (7.9)	530 (240)	16 (.113)
15/16 (24)								

PART NUMBER CONFIGURATOR

ATA 025062 - RA / 1K / 4N / 6.0 / TS

NUT STYLE

ATA = Threaded AFA = Flanged

DIAMETER CODE

Example:
025 = 1/4" Diameter
(see pages 50-57)
for Diameter Codes

+

LEAD CODE

Example:
062 = 0.0625" Lead
(see pages 50-57)
for Lead Codes

R - Right Hand Thread
L - Left Hand Thread

A = Alloy Steel, Rolled*
S = Stainless Steel, Rolled*

END CONFIGURATION

End Machining (see pages 58-60) Shaft Extension (see pages 58-60)

1 = Type 1
2 = Type 2
3 = Type 3
4 = Type 4
K = Shaft Extension
L = Shaft Extension without Keyway
N = No Shaft Extension

MODIFIER LIST

T = PTFE Coating (Optional)

S or M Required

S = Standard, no additional description required
M = Modified, additional description required

OVERALL LENGTH (OAL)

Length in inches, two place decimal.
Omit this code if ordering nut only.

SECOND END CONFIGURATION

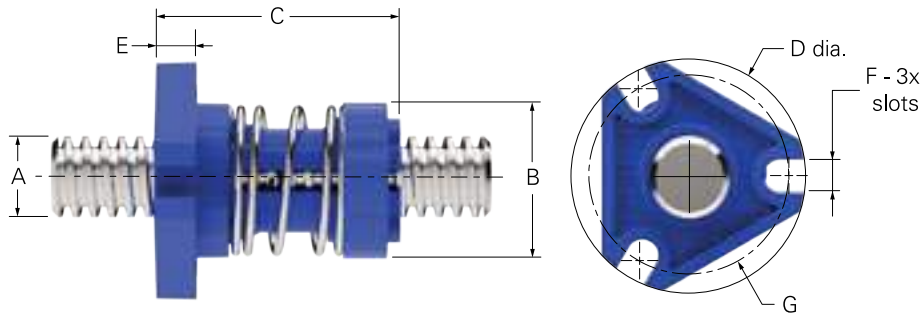
Refer to the First End Configuration.
Both Ends must be specified.

NOTE: Omit this code if ordering nut only.

NOTE: * Not all threads/materials are available for all sizes.

RFA - RADIAL ANTI-BACKLASH NUT [3-HOLE FLANGED]

Nut Material: Helital™



A Screw Dia. inch (mm)	B Nut Dia. inch (mm)	C Nut Length inch (mm)	D Flange Dia. inch (mm)	E Flange Thickness inch (mm)	F Slot Width inch (mm)	G Bolt Circle Dia. inch (mm)	Dynamic Load lbs (Kg)	Drag Torque (max) oz-in (N-m)
1/4 (6)	0.610 (15.4)	0.94 (23.8)	1.00 (25.4)	0.188 (4.8)	0.144 (3.7)	0.750 (19)	75 (35)	0.25-3 (.002-.021)
5/16 (8)	0.780 (19.7)	1.16 (29.5)	1.13 (28.6)	0.188 (4.8)	0.144 (3.7)	0.875 (22.2)	75 (35)	1-5 (.007-.03)
3/8 (10)								
7/16 (11)	0.930 (23.6)	1.440 (36.5)	1.50 (38.1)	0.250 (6.35)	0.203 (5.2)	1.125 (28.5)	150 (68)	3-7 (.02-.05)
1/2 (13)								
5/8 (16)	1.275 (32.4)	1.75 (44.4)	1.75 (44.4)	0.250 (6.3)	0.221 (5.6)	1.438 (36.5)	35 lbs (16)	4-8 (0.028-0.055)
3/4 (19)								
9/16 (14)	1.27 (32.4)	1.80 (45.7)	1.750 (44.4)	0.250 (6.35)	0.221 (5.6)	1.438 (36.5)	150 (68) 225 (100) 350 (160)	4-8 (.028-.055)
5/8 (16)								
11/16 (18)								
3/4 (19)								

PART NUMBER CONFIGURATOR

RFA 025062 - RA / 1K / 4N / 6.0 / TS

NUT STYLE

RTA = Threaded RFA = Flanged

DIAMETER CODE

Example:
025 = 1/4" Diameter
(see pages 50-57)
for Diameter Codes

+

LEAD CODE

Example:
062 = 0.0625" Lead
(see pages 50-57)
for Lead Codes

R - Right Hand Thread

L - Left Hand Thread

A = Alloy Steel, Rolled*

S = Stainless Steel, Rolled*

END CONFIGURATION

End Machining (see pages 58-60) Shaft Extension (see pages 58-60)

1 = Type 1

2 = Type 2

3 = Type 3

4 = Type 4

K = Shaft Extension

L = Shaft Extension without Keyway

N = No Shaft Extension

MODIFIER LIST

T = PTFE Coating (Optional)

S or M Required

S = Standard, no additional description required

M = Modified, additional description required

OVERALL LENGTH (OAL)

Length in inches, two place decimal.
Omit this code if ordering nut only.

SECOND END CONFIGURATION

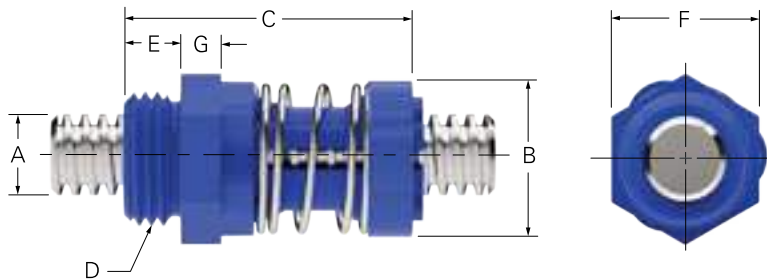
Refer to the First End Configuration.
Both Ends must be specified.

NOTE: Omit this code if ordering nut only.

NOTE: * Not all threads/materials are available for all sizes.

RTA - RADIAL ANTI-BACKLASH NUT [THREADED]

Nut Material: Helital™



A Screw Dia. inch (mm)	B Nut Dia. inch (mm)	C Nut Length inch (mm)	D Thread Size inch (mm)	E Thread Length inch (mm)	F Hex Across Flats inch (mm)	G Hex Thickness inch (mm)	Dynamic Load lbs (Kg)	Drag Torque (max) inch (mm)
1/4 (6)	0.610 (15.4)	0.94 (23.8)	9/16-18 UNF	0.250 (6.4)	0.625 (16)	0.180 (4.8)	75 (35)	0.25-3 (.002-.021)
5/16 (8)	0.780 (19.7)	1.16 (29.5)	15/16-16 UN	0.380 (9.5)	1.00 (25.4)	0.180 (4.8)	75 (35)	1-5 (.007-.03)
3/8 (10)								
7/16 (11)	0.930 (23.6)	1.440 (36.5)	15/16-16 UN	0.380 (9.5)	1.00 (25.4)	0.250 (6.4)	150 (68)	3-7 (.02-.05)
1/2 (13)								
5/8 (16)	1.275 (32.4)	2.13 (54.1)	1-1/16-16 UN	.37 (9.4)	1.12 (28.4)	.25 (6.3)	35 lbs (16)	4-8 (0.028- 0.055)
3/4 (19)								
9/16 (14)	1.27 (32.4)	1.80 (45.7)	1-1/16-16 UN	0.380 (9.5)	1.125 (28.6)		150 (68) 225 (100) 350 (160)	4-8 (.028-.055)
5/8 (16)								
11/16 (18)								
3/4 (19)								

PART NUMBER CONFIGURATOR

RTA 025062 - RA / 1K / 4N / 6.0 / TS

NUT STYLE

RTA = Threaded RFA = Flanged

DIAMETER CODE

Example:
025 = 1/4" Diameter
(see pages 50-57)
for Diameter Codes

+

LEAD CODE

Example:
062 = 0.0625" Lead
(see pages 50-57)
for Lead Codes

R - Right Hand Thread
L - Left Hand Thread

A = Alloy Steel, Rolled*
S = Stainless Steel, Rolled*

END CONFIGURATION

End Machining (see pages 58-60)
1 = Type 1
2 = Type 2
3 = Type 3
4 = Type 4

Shaft Extension (see pages 58-60)
K = Shaft Extension
L = Shaft Extension without Keyway
N = No Shaft Extension

MODIFIER LIST

T = PTFE Coating (Optional)
S or M Required
S = Standard, no additional description required
M = Modified, additional description required

OVERALL LENGTH (OAL)

Length in inches, two place decimal.
Omit this code if ordering nut only.

SECOND END CONFIGURATION

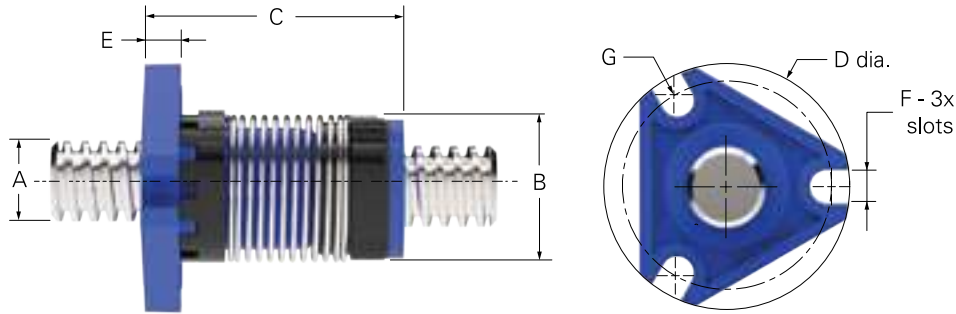
Refer to the First End Configuration.
Both Ends must be specified.

NOTE: Omit this code if ordering nut only.

NOTE: * Not all threads/materials are available for all sizes.

KFA - TORSIONAL ANTI-BACKLASH NUT [3-HOLE FLANGED]

Nut Material: Helital™



A Screw Dia. inch (mm)	B Nut Dia. inch (mm)	C Nut Length inch (mm)	D Flange Dia. inch (mm)	E Flange Thickness inch (mm)	F Slot Width inch (mm)	G Bolt Circle Dia. inch (mm)	Dynamic Load lbs (Kg)	Drag Torque (max) oz-in (N-m)
1/4 (6)	.70 (17.8)	1.6 (40.6)	1.12 (28.6)	.18 (4.8)	.144 (3.7)	.875 (22.2)	20 (9)	3 (.025)
5/16 (8)	.87 (22.1)	1.8 (45.7)	1.50 (38.1)	.25 (6.4)	.203 (5.2)	1.125 (28.6)	30 (13)	3 (.025)
3/8 (10)	.87 (22.1)	1.8 (45.7)	1.50 (38.1)	.25 (6.4)	.203 (5.2)	1.125 (28.6)	30 (13)	3 (.025)
7/16 (11)	1.06 (26.9)	2.1(53.3)	1.75 (44.5)	.25 (6.4)	.220 (5.6)	1.406 (35.7)	50 (34)	6 (.040)
1/2 (13)	1.06 (26.9)	2.1 (63.5)	1.75 (44.5)	.25 (6.4)	.220 (5.6)	1.406 (35.7)	75 (41)	6 (.040)
9/16 (14)	1.30 (33.0)	2.5 (63.5)	1.75 (44.5)	.31 (8.0)	.220 (5.6)	1.750 (44.5)	90 (68)	6 (.040)
5/8 (16)	1.30 (33.0)	2.5 (71.1)	1.75 (44.5)	.31 (8.0)	.220 (5.6)	1.750 (44.5)	150 (113)	6 (.040)
3/4 (19)	1.63 (41.4)	2.8 (71.1)	2.38 (60.5)	.31 (8.0)	.220 (5.6)	2.000 (50.8)	250 (113)	7 (.050)

PART NUMBER CONFIGURATOR

KFA 025062 - RA / 1K / 4N / 6.0 / TS

NUT STYLE

DIAMETER CODE

Example:
025 = 1/4" Diameter
(see pages 50-57)
for Diameter Codes

LEAD CODE

Example:
062 = 0.0625" Lead
(see pages 50-57)
for Lead Codes

R - Right Hand Thread

L - Left Hand Thread

A = Alloy Steel, Rolled*

S = Stainless Steel, Rolled*

END CONFIGURATION

End Machining (see pages 58-60)

1 = Type 1

2 = Type 2

3 = Type 3

4 = Type 4

Shaft Extension (see pages 58-60)

K = Shaft Extension

L = Shaft Extension without Keyway

N = No Shaft Extension

MODIFIER LIST

T = PTFE Coating (Optional)

S or M Required

S = Standard, no additional description required

M = Modified, additional description required

OVERALL LENGTH (OAL)

Length in inches, two place decimal.

Omit this code if ordering nut only.

SECOND END CONFIGURATION

Refer to the First End Configuration.

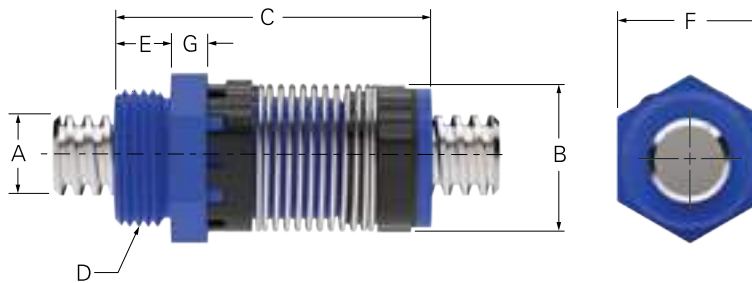
Both Ends must be specified.

NOTE: Omit this code if ordering nut only.

NOTE: * Not all threads/materials are available for all sizes.

KTA - TORSIONAL ANTI-BACKLASH NUT [THREADED]

Nut Material: Helital™



A Screw Dia. inch (mm)	B Nut Dia. inch (mm)	C Nut Length inch (mm)	D Thread Size inch (mm)	E Thread Length inch (mm)	F Hex Across Flats inch (mm)	G Hex Thickness inch (mm)	Dynamic Load lbs (Kg)	Drag Torque (max) oz-in (N-m)
1/4 (6)	.70 (17.8)	1.6 (40.6)	9/16-18	.25 (6.4)	.69 (17.5)	.18 (4.8)	20 (9)	3 (.025)
5/16 (8)	.87 (22.1)	1.8 (45.7)	3/4-20	.37 (9.4)	.88 (22.35)	.25 (6.4)	30 (13)	3 (.025)
3/8 (10)	.87 (22.1)	1.8 (45.7)	3/4-20	.37 (9.4)	.88 (22.35)	.25 (6.4)	30 (13)	3 (.025)
7/16 (11)	1.06 (26.9)	2.1 (53.3)	15/16-16	.37 (9.4)	1.00 (25.4)	.25 (6.4)	50 (34)	6 (.040)
1/2 (13)	1.06 (26.9)	2.1 (63.5)	1 1/8-16	.37 (9.4)	1.00 (25.4)	.25 (6.4)	75 (41)	6 (.040)
9/16 (14)	1.30 (33.0)	2.5 (63.5)	1 1/8-16	.37 (9.4)	1.25 (31.7)	.31 (8.0)	90 (68)	6 (.040)
5/8 (16)	1.30 (33.0)	2.5 (71.1)	1 1/8-16	.37 (9.4)	1.25 (31.7)	.31 (8.0)	150 (113)	6 (.040)
3/4 (19)	1.63 (41.4)	2.8 (71.1)	1 3/8-16	.37 (9.4)	1.56 (39.6)	.32 (8.0)	250 (113)	7 (.050)

PART NUMBER CONFIGURATOR

KTA 025062 - RA / 1K / 4N / 6.0 / TS

NUT STYLE

KTA = Threaded KFA = Flanged

DIAMETER CODE

Example:
025 = 1/4" Diameter
(see pages 50-57)
for Diameter Codes

+

LEAD CODE

Example:
062 = 0.0625" Lead
(see pages 50-57)
for Lead Codes

R - Right Hand Thread

L - Left Hand Thread

A = Alloy Steel, Rolled*

S = Stainless Steel, Rolled*

END CONFIGURATION

End Machining (see pages 58-60)

1 = Type 1

2 = Type 2

3 = Type 3

4 = Type 4

Shaft Extension (see pages 58-60)

K = Shaft Extension

L = Shaft Extension without Keyway

N = No Shaft Extension

MODIFIER LIST

T = PTFE Coating (Optional)

S or M Required

S = Standard, no additional description required

M = Modified, additional description required

OVERALL LENGTH (OAL)

Length in inches, two place decimal.

Omit this code if ordering nut only.

SECOND END CONFIGURATION

Refer to the First End Configuration.

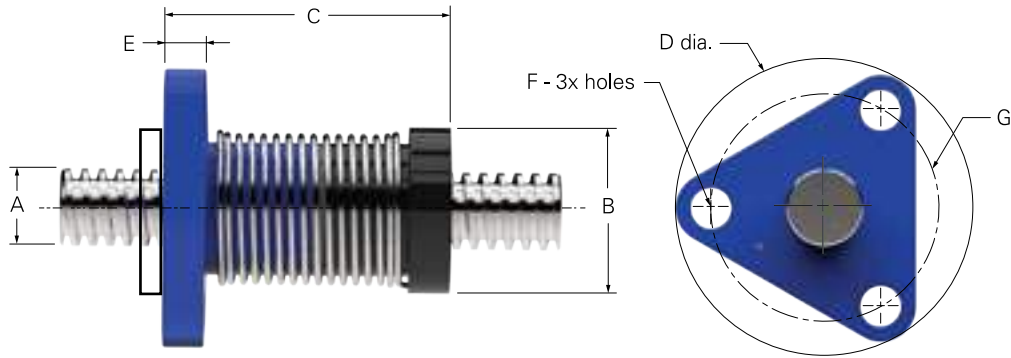
Both Ends must be specified.

NOTE: Omit this code if ordering nut only.

NOTE: * Not all threads/materials are available for all sizes.

GFD - TORSIONAL ANTI-BACKLASH NUT (3-HOLE FLANGED)

Nut Material: Delrin AF



A Screw Dia. inch (mm)	B Nut Diameter inch (mm)	C Nut Length inch (mm)	D Flange Diameter inch (mm)	E Flange Thickness inch (mm)	F Mount Hole inch (mm)	G Bolt Circle Diameter inch (mm)	H Boss Length inch (mm)	Dynamic Load lbs (Kg)	Drag Torque max oz-in (N-m)
1/4 (6)	0.52 (13.2)	1.09 (27.7)	1.00 (25.4)	0.016 (3.9)	0.147 (3.7)	0.75 (19.1)	0.08 (2)	10 (4.5)	0.5-2 (0.004-0.14)
5/16 (8)	0.80 (20.3)	1.73 (44)	1.50 (38.1)	0.20 (5.1)	0.20 (5.08)	1.125 (28.6)	0.06 (1.5)	20 (9.1)	1-3 (0.007-0.02)
3/8 (10)	0.80 (20.3)	1.73 (44)	1.50 (38.1)	0.20 (5.1)	0.20 (5.1)	1.125 (28.6)	0.06 (1.5)	20 (9.1)	1-3 (0.007-0.02)
7/16 (11)	0.90 (22.9)	1.80 (46)	1.62 (41.2)	0.23 (5.8)	0.23 (5.08)	1.25 (31.8)	0.06 (1.5)	30 (13.6)	1-3 (0.007-0.02)

PART NUMBER CONFIGURATOR

GFA 025062 - RA / 1K / 4N / 6.0 / TS

NUT STYLE

GTA = Threaded GFA = Flanged

DIAMETER CODE

Example:
025 = 1/4" Diameter
(see pages 50-57)
for Diameter Codes

LEAD CODE

Example:
062 = 0.0625" Lead
(see pages 50-57)
for Lead Codes

R - Right Hand Thread
L - Left Hand Thread

A = Alloy Steel, Rolled*
S = Stainless Steel, Rolled*

END CONFIGURATION

End Machining (see pages 58-60) Shaft Extension (see pages 58-60)
1 = Type 1 K = Shaft Extension
2 = Type 2 L = Shaft Extension without Keyway
3 = Type 3 N = No Shaft Extension
4 = Type 4

MODIFIER LIST

T = PTFE Coating (Optional)
S or M Required
S = Standard, no additional description required
M = Modified, additional description required

OVERALL LENGTH (OAL)

Length in inches, two place decimal.
Omit this code if ordering nut only.

SECOND END CONFIGURATION

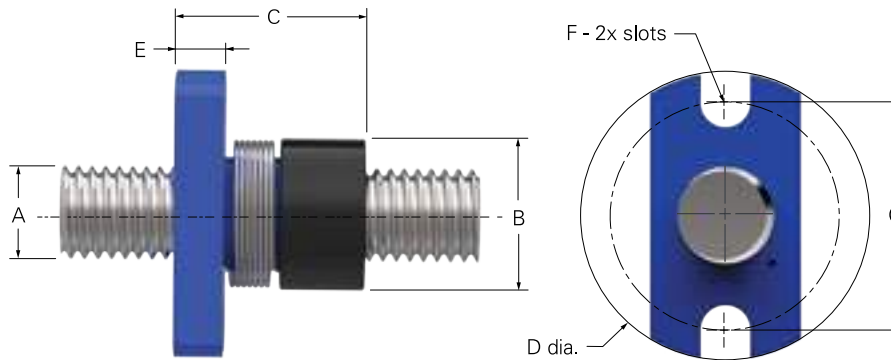
Refer to the First End Configuration.
Both Ends must be specified.

NOTE: Omit this code if ordering nut only.

NOTE: * Not all threads/materials are available for all sizes.

GFD - TORSIONAL ANTI-BACKLASH NUT (ROUND FLANGED)

Nut Material: Delrin AF



A Screw Diameter inch (mm)	B Nut Diameter inch (mm)	C Nut Length inch (mm)	D Flange Diameter inch (mm)	E Flange Thickness inch (mm)	F Slot Width inch (mm)	G Bolt Circle inch (mm)	H Boss Length inch (mm)	Dynamic Load lbs (Kg)	Drag Torque (max) oz-in (N-m)
1/2 (13)	1.06 (26.9)	2.09 (53.1)	1.75 (44.5)	0.22 (5.6)	0.22 (5.6)	1.41 (35.7)	0.07 (1.8)	100 (45.4)	2-6 (0.014-0.04)
5/8 (16)	1.38 (35.1)	2.29 (58.2)	2.13 (54)	0.22 (5.6)	0.22 (5.6)	1.75 (44.5)	0.08 (2)	125 (56.8)	2-6 (0.014-0.04)
3/4 (19)	1.56 (39.6)	2.69 (68.4)	2.38 (60.3)	0.22 (5.6)	0.22 (5.6)	2.00 (50.8)	0.09 (2.3)	150 (68.2)	3-7 (0.02-0.05)

PART NUMBER CONFIGURATOR

GFA 025062 - RA / 1K / 4N / 6.0 / TS

NUT STYLE
GTA = Threaded GFA = Flanged

DIAMETER CODE
Example:
025 = 1/4" Diameter
(see pages 50-57)
for Diameter Codes
+

LEAD CODE
Example:
062 = 0.0625" Lead
(see pages 50-57)
for Lead Codes

END CONFIGURATION
End Machining (see pages 58-60)
1 = Type 1
2 = Type 2
3 = Type 3
4 = Type 4

Shaft Extension (see pages 58-60)
K = Shaft Extension
L = Shaft Extension without Keyway
N = No Shaft Extension

MODIFIER LIST
T = PTFE Coating (Optional)
S or M Required
S = Standard, no additional description required
M = Modified, additional description required

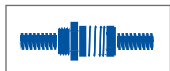
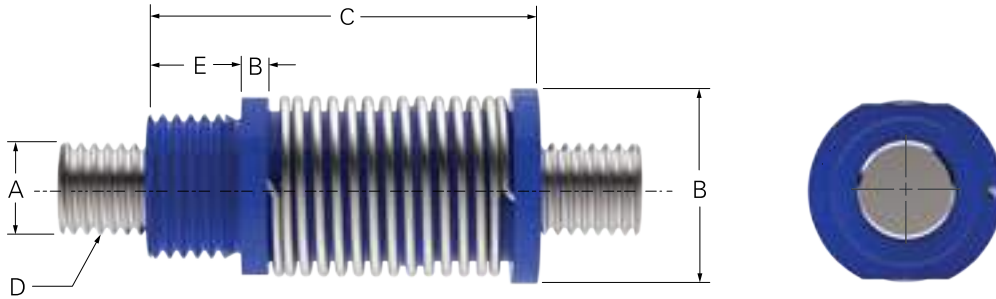
OVERALL LENGTH (OAL)
Length in inches, two place decimal.
Omit this code if ordering nut only.

SECOND END CONFIGURATION
Refer to the First End Configuration.
Both Ends must be specified.
NOTE: Omit this code if ordering nut only.

NOTE: * Not all threads/materials are available for all sizes.

GTD - TORSIONAL ANTI-BACKLASH NUT [THREADED]

Nut Material: Delrin AF



A Screw Dia. inch (mm)	B Nut Dia. inch (mm)	C Nut Length inch (mm)	D Thread inch (mm)	E Thread Length inch (mm)	Dynamic Load lbs (Kg)	Drag Torque (max) oz-in (N-m)
1/8 (3)	0.50 (12.7)	0.68 (17.3)	3/8-24	0.19 (4.8)	5 (2.3)	0.5 (0.004)
0.132 (3.3)	0.50 (12.7)	0.68 (17.3)	3/8-24	0.19 (4.8)	5 (2.3)	0.5 (0.004)
9/64 (3.6)	0.50 (12.7)	0.68 (17.3)	3/8-24	0.19 (4.8)	5 (2.3)	0.5 (0.004)
5/32 (4)	0.50 (12.7)	0.68 (17.3)	3/8-24	0.19 (4.8)	5 (2.3)	0.5 (0.004)
3/16 (5)	0.50 (12.7)	0.68 (17.3)	3/8-24	0.19 (4.8)	5 (2.3)	0.5 (0.004)
7/32 (5.6)	0.50 (12.7)	0.68 (17.3)	3/8-24	0.19 (4.8)	5 (2.3)	0.5 (0.004)
1/4 (6)	0.52 (13.2)	1.1 (28)	7/16-20	0.25 (6.4)	10 (4.5)	0.5-2 (0.014-0.04)
5/16 (8)	0.80 (20.3)	1.8 (45)	3/4-20	0.38 (9.5)	20 (9.1)	1-3 (0.007-0.02)
3/8 (10)	0.80 (20.3)	1.8 (45)	3/4-20	0.38 (9.5)	20 (9.1)	1-3 (0.007-0.02)
7/16 (11)	0.90 (22.9)	1.8 (45)	13/16-16	0.38 (9.5)	30 (13.6)	1-3 (0.007-0.02)
1/2 (13)	1.06 (26.9)	2.1 (54)	15/16-16	0.38 (9.5)	100 (45.5)	2-6 (0.014-0.04)
5/8 (16)	1.38 (34.9)	2.3 (59)	1 1/8-16	0.38 (9.5)	125 (56.8)	2-6 (0.014-0.04)
3/4 (19)	1.56 (39.6)	2.7 (67)	1 3/8-16	0.50 (12.7)	150 (68.2)	3-7 (0.02-0.05)

PART NUMBER CONFIGURATOR

GTA 025062 - RA / 1K / 4N / 6.0 / TS

NUT STYLE

GTA = Threaded GFA = Flanged

R - Right Hand Thread
L - Left Hand Thread

A = Alloy Steel, Rolled*
S = Stainless Steel, Rolled*

END CONFIGURATION

End Machining (see pages 58-60)
1 = Type 1
2 = Type 2
3 = Type 3
4 = Type 4

Shaft Extension (see pages 58-60)
K = Shaft Extension
L = Shaft Extension without Keyway
N = No Shaft Extension

MODIFIER LIST

T = PTFE Coating (Optional)
S or M Required
S = Standard, no additional description required
M = Modified, additional description required

OVERALL LENGTH (OAL)

Length in inches, two place decimal.
Omit this code if ordering nut only.

SECOND END CONFIGURATION

Refer to the First End Configuration.
Both Ends must be specified.
NOTE: Omit this code if ordering nut only.

DIAMETER CODE

Example:
025 = 1/4" Diameter
(see pages 50-57)
for Diameter Codes

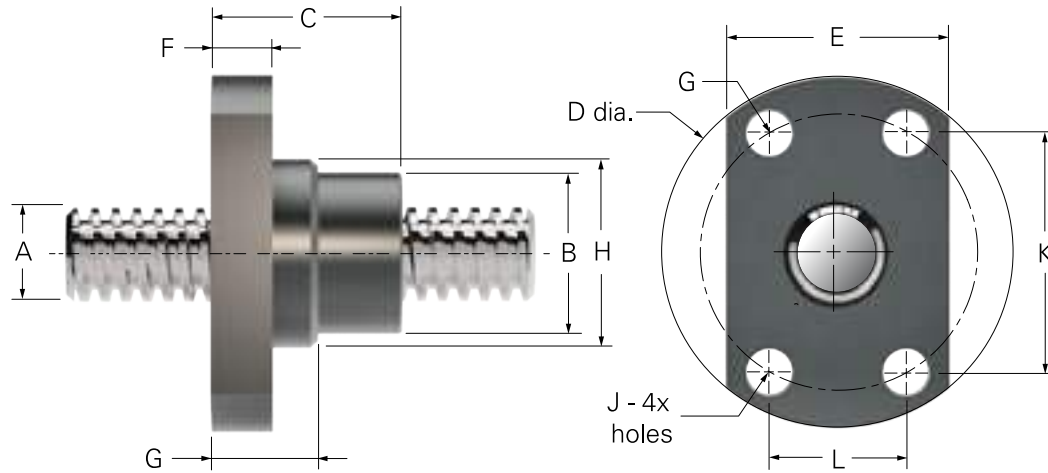
LEAD CODE

Example:
062 = 0.0625" Lead
(see pages 50-57)
for Lead Codes

NOTE: * Not all threads/materials are available for all sizes.

BNR - BALL NUT REPLACEMENT

Nut Material: TPS Heavy Load Resin



A	B	C	D	E	F	G	H	J	K	L	Dynamic Load	Drag Torque
Screw Dia. inch (mm)	Nut Dia. inch (mm)	Nut Length inch (mm)	Flange Dia. inch (mm)	Flange Height inch (mm)	Flange Thickness inch (mm)	Shoulder Height inch (mm)	Shoulder Dia. inch (mm)	Mounting Hole Dia. inch (mm)	Mounting Hole Width inch (mm)	Mounting Hole Height inch (mm)	lbs (Kg)	(max) oz-in (N-m)
0.240 (6)	0.610 (13.0)	0.630 (15.9)	0.940 (24)	0.625 (16)	0.240 (6.0)	0.420 (11)	0.69 (12)	0.130 (3.3)	0.610 (16.0)	0.350 (9.0)	115 (52)	Free-wheeling
0.315 (8)	0.510 (13.0)	0.787 (20)	1.1 (28)	0.743 (18.9)	0.240 (6.0)	0.420 (11)	0.628 (16)	0.136 (3.5)	0.750 (20)	0.430 (11.0)	125 (57)	Free-wheeling
0.394 (10)	0.640 (16.2)	0.750 (20)	1.412 (36)	0.910 (23)	0.240 (6.0)	0.420 (10.7)	0.746 (19)	0.182 (4.6)	0.960 (24.3)	0.550 (14.0)	125 (57)	Free-wheeling
0.472 (12)	0.790 (20)	1.13 (29)	1.570 (40)	1.02 (26)	0.310 (8.0)	0.550 (14.0)	0.943 (24)	0.180 (4.6)	1.1 (28)	0.630 (16)	201 (91)	Free-wheeling

PART NUMBER CONFIGURATOR

BNR 025062 - RA / 1K / 4N / 6.0 / TS

NUT STYLE

BNR = Threaded HUR (see opposite page)

DIAMETER CODE

Example:
025 = 1/4" Diameter
(see pages 50-57)
for Diameter Codes

LEAD CODE

Example:
062 = 0.0625" Lead
(see pages 50-57)
for Lead Codes

R - Right Hand Thread
L - Left Hand Thread

A = Alloy Steel, Rolled*
S = Stainless Steel, Rolled*

END CONFIGURATION

End Machining (see pages 58-60) Shaft Extension (see pages 58-60)

1 = Type 1
2 = Type 2
3 = Type 3
4 = Type 4
K = Shaft Extension
L = Shaft Extension without Keyway
N = No Shaft Extension

MODIFIER LIST

T = PTFE Coating (Optional)
S or M Required
S = Standard, no additional description required
M = Modified, additional description required

OVERALL LENGTH (OAL)

Length in inches, two place decimal.
Omit this code if ordering nut only.

SECOND END CONFIGURATION

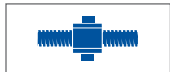
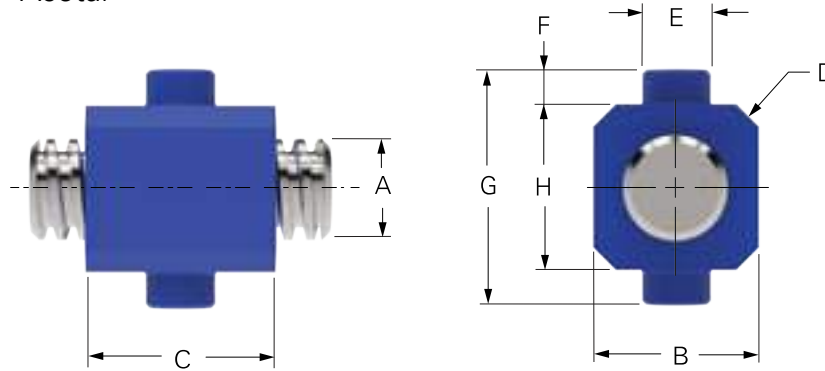
Refer to the First End Configuration.
Both Ends must be specified.

NOTE: Omit this code if ordering nut only.

NOTE: * Not all threads/materials are available for all sizes.

TMA - TRUNNION MOUNTING NUT [PLASTIC]

Nut Material: Helix GP Acetal



A Screw Dia. inch (mm)	B Nut Height inch (mm)	C Nut Length inch (mm)	D Chamfer Width inch (mm)	E Trunnion Dia. inch (mm)	F Trunnion Height inch (mm)	G Width Over Pins inch (mm)	H Nut Body Width inch (mm)	Dynamic Load lbs (Kg)	Drag Torque (max) oz-in (N-m)
0.125 (4)	0.220	0.250	0.03	0.125	0.050	0.320	0.220	35 (16)	Freewheeling
0.187 (5)	0.300	0.350	0.04	0.157	0.075	0.450	0.300	55 (25)	Freewheeling
0.250 (6)	0.438	0.500	0.06	0.188	0.100	0.638	0.438	115 (52)	Freewheeling
0.312 (8)	0.438	0.500	0.06	0.188	0.100	0.638	0.438	120 (54)	Freewheeling
0.375 (10)	0.563	0.625	0.08	0.225	0.150	0.863	0.563	125 (57)	Freewheeling
0.500 (12)	0.688	0.750	0.10	0.275	0.188	1.063	0.688	200 (90)	Freewheeling

PART NUMBER CONFIGURATOR

TMA 025062 - RA / 1K / 4N / 6.0 / TS

NUT STYLE

TMA = Plastic TMB = Bronze Nut

DIAMETER CODE

Example:
025 = 1/4" Diameter
(see pages 50-57)
for Diameter Codes

+

LEAD CODE

Example:
062 = 0.0625" Lead
(see pages 50-57)
for Lead Codes

R - Right Hand Thread
L - Left Hand Thread

A = Alloy Steel, Rolled*
S = Stainless Steel, Rolled*

END CONFIGURATION

End Machining (see pages 58-60) Shaft Extension (see pages 58-60)
1 = Type 1 K = Shaft Extension
2 = Type 2 L = Shaft Extension without Keyway
3 = Type 3 N = No Shaft Extension
4 = Type 4

MODIFIER LIST

T = PTFE Coating (Optional)
S or M Required
S = Standard, no additional description required
M = Modified, additional description required

OVERALL LENGTH (OAL)

Length in inches, two place decimal.
Omit this code if ordering nut only.

SECOND END CONFIGURATION

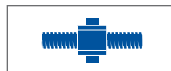
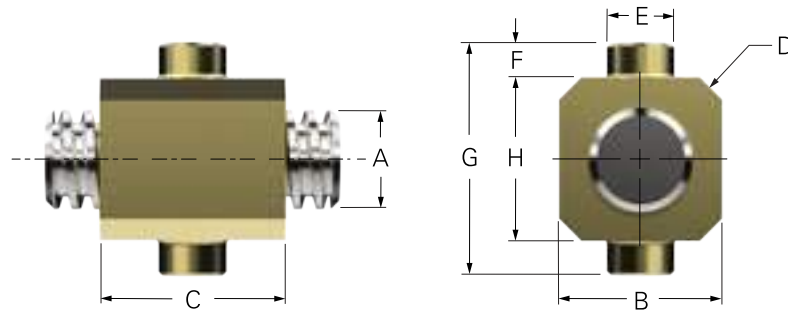
Refer to the First End Configuration.
Both Ends must be specified.

NOTE: Omit this code if ordering nut only.

NOTE: * Not all threads/materials are available for all sizes.

TMB - TRUNNION MOUNTING NUT [BRONZE]

Nut Material: Helix Bronze™



A Screw Dia. inch (mm)	B Nut Height inch (mm)	C Nut Length inch (mm)	D Chamfer Width inch (mm)	E Trunnion Dia. inch (mm)	F Trunnion Height inch (mm)	G Width Over Pins inch (mm)	H Nut Body Width inch (mm)	Dynamic Load lbs (Kg)	Drag Torque (max) oz-in (N-m)
0.125 (4)	0.220	0.250	0.03	0.125	0.050	0.320	0.220	150 (68)	Freewheeling
0.187 (5)	0.300	0.350	0.04	0.157	0.075	0.450	0.300	250 (113)	Freewheeling
0.250 (6)	0.438	0.500	0.06	0.188	0.100	0.638	0.438	550 (249)	Freewheeling
0.312 (8)	0.438	0.500	0.06	0.188	0.100	0.638	0.438	701 (318)	Freewheeling
0.375 (10)	0.563	0.625	0.08	0.225	0.150	0.863	0.563	773 (351)	Freewheeling
0.500 (12)	0.688	0.750	0.10	0.275	0.188	1.063	0.688	1115 (506)	Freewheeling

PART NUMBER CONFIGURATOR

TMB 025062 - RA / 1K / 4N / 6.0 / TS

NUT STYLE
TMA = Plastic TMB = Bronze Nut

DIAMETER CODE
Example:
025 = 1/4" Diameter
(see pages 50-57)
for Diameter Codes
+

LEAD CODE
Example:
062 = 0.0625" Lead
(see pages 50-57)
for Lead Codes

END CONFIGURATION
End Machining (see pages 58-60)
1 = Type 1
2 = Type 2
3 = Type 3
4 = Type 4

Shaft Extension (see pages 58-60)
K = Shaft Extension
L = Shaft Extension without Keyway
N = No Shaft Extension

MODIFIER LIST
T = PTFE Coating (Optional)
S or M Required
S = Standard, no additional description required
M = Modified, additional description required

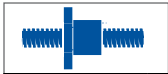
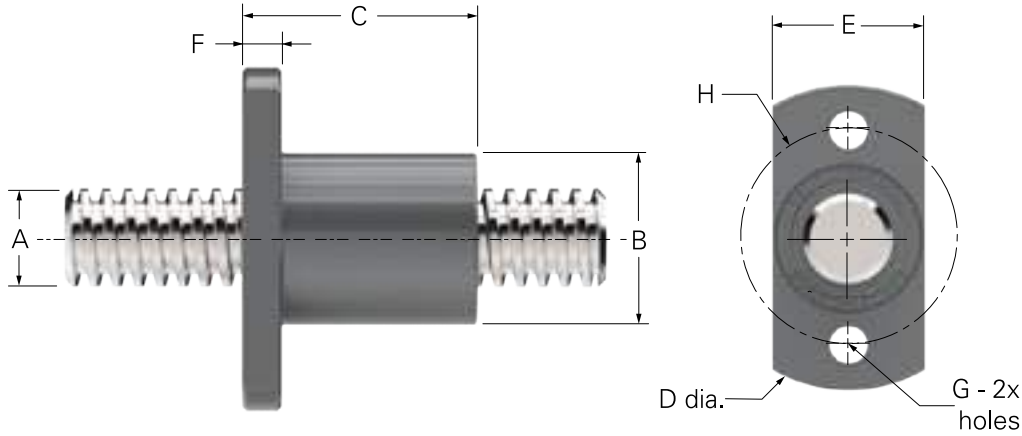
OVERALL LENGTH (OAL)
Length in inches, two place decimal.
Omit this code if ordering nut only.

SECOND END CONFIGURATION
Refer to the First End Configuration.
Both Ends must be specified.
NOTE: Omit this code if ordering nut only.

NOTE: * Not all threads/materials are available for all sizes.

HLC - HEAVY LOAD NUT [COMPACT FLANGED]

Nut Material: TPS Heavy Load Resin



A Screw Dia. inch (mm)	B Nut Dia. inch (mm)	C Nut Length inch (mm)	D Flange Dia. inch (mm)	E Flange Height inch (mm)	F Flange Thickness inch (mm)	G Mounting Hole Dia. inch (mm)	H Bolt Circle Dia. inch (mm)	Dynamic Load lbs (Kg)	Drag Torque (max) oz-in (N-m)
0.315 (8)	0.591 (15)	0.787 (20)	1.181 (30)	0.591 (15)	0.197 (5)	0.169 (4.3)	0.866 (22)	210	Freewheeling
0.394 (10)	0.787 (20)	0.945 (24)	1.417 (36)	0.787 (20)	0.197 (5)	0.169 (4.3)	1.024 (26)	278	Freewheeling
0.472 (12)	0.866 (22)	1.181 (30)	1.732 (44)	0.866 (22)	0.197 (5)	0.213 (5.4)	1.220 (31)	428	Freewheeling
1/2 (14)	0.866 (22)	1.181 (30)	1.732 (44)	0.866 (22)	0.197 (5)	0.213 (5.4)	1.220 (31)	536	Freewheeling
5/8 (16)	1.102 (28)	1.378 (35)	2.001 (51)	1.102 (28)	0.236 (6)	0.260 (6.6)	1.496 (38)	686	Freewheeling
11/16 (18)	1.260 (32)	1.575 (40)	2.205 (56)	1.260 (32)	0.236 (6)	0.260 (6.6)	1.654 (42)	954	Freewheeling
3/4 (20)	1.206 (32)	1.575 (40)	2.205 (56)	1.206 (32)	0.236 (6)	0.260 (6.6)	1.654 (42)	1071	Freewheeling

PART NUMBER CONFIGURATOR

HLC 025062 - RA / 1K / 4N / 6.0 / TS

NUT STYLE

DIAMETER CODE

Example:
025 = 1/4" Diameter
(see pages 50-57)
for Diameter Codes

LEAD CODE

Example:
062 = 0.0625" Lead
(see pages 50-57)
for Lead Codes

R - Right Hand Thread
L - Left Hand Thread

A = Alloy Steel, Rolled*
S = Stainless Steel, Rolled*

END CONFIGURATION

End Machining (see pages 58-60)
1 = Type 1
2 = Type 2
3 = Type 3
4 = Type 4

Shaft Extension (see pages 58-60)
K = Shaft Extension
L = Shaft Extension without Keyway
N = No Shaft Extension

MODIFIER LIST

T = PTFE Coating (Optional)
ZZZZS or M Required
S = Standard, no additional description required
M = Modified, additional description required

OVERALL LENGTH (OAL)

Length in inches, two place decimal.
Omit this code if ordering nut only.

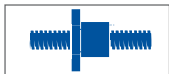
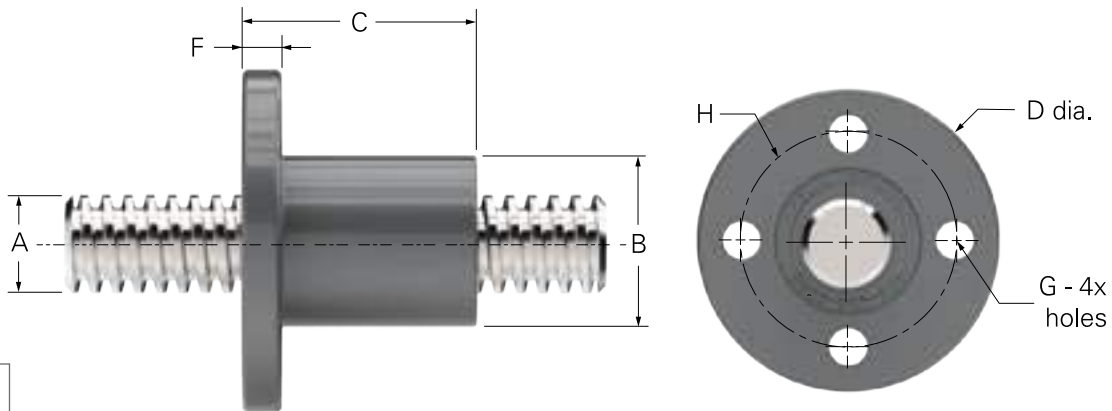
SECOND END CONFIGURATION

Refer to the First End Configuration.
Both Ends must be specified.
NOTE: Omit this code if ordering nut only.

NOTE: * Not all threads/materials are available for all sizes.

HLR - HEAVY LOAD NUT [ROUND FLANGED]

Nut Material: TPS Heavy Load Resin



A Screw Dia. inch (mm)	B Nut Dia. inch (mm)	C Nut Length inch (mm)	D Flange Dia. inch (mm)	F Flange Thickness inch (mm)	G Mounting Hole Dia. inch (mm)	H Bolt Circle Dia. inch (mm)	Dynamic Load lbs (Kg)	Drag Torque (max) oz-in (N-m)
0.315 (8)	0.591 (15)	0.787 (20)	1.181 (30)	0.197 (5)	0.169 (4.3)	0.866 (22)	210	Freewheeling
0.394 (10)	0.787 (20)	0.945 (24)	1.417 (36)	0.197 (5)	0.169 (4.3)	1.024 (26)	278	Freewheeling
0.472 (12)	0.866 (22)	1.181 (30)	1.732 (44)	0.197 (5)	0.213 (5.4)	1.220 (31)	428	Freewheeling
1/2 (14)	0.866 (22)	1.181 (30)	1.732 (44)	0.197 (5)	0.213 (5.4)	1.220 (31)	536	Freewheeling
5/8 (16)	1.102 (28)	1.378 (35)	2.001 (51)	0.236 (6)	0.260 (6.6)	1.496 (38)	686	Freewheeling
11/16 (18)	1.260 (32)	1.575 (40)	2.205 (56)	0.236 (6)	0.260 (6.6)	1.654 (42)	954	Freewheeling
3/4 (20)	1.206 (32)	1.575 (40)	2.205 (56)	0.236 (6)	0.260 (6.6)	1.654 (42)	1071	Freewheeling

PART NUMBER CONFIGURATOR

HLR 025062 - RA / 1K / 4N / 6.0 / TS

NUT STYLE

DIAMETER CODE

Example:
025 = 1/4" Diameter
(see pages 50-57)
for Diameter Codes

+

LEAD CODE

Example:
062 = 0.0625" Lead
(see pages 50-57)
for Lead Codes

R - Right Hand Thread
L - Left Hand Thread

A = Alloy Steel, Rolled*
S = Stainless Steel, Rolled*

END CONFIGURATION

End Machining (see pages 58-60) Shaft Extension (see pages 58-60)
1 = Type 1 K = Shaft Extension
2 = Type 2 L = Shaft Extension without Keyway
3 = Type 3 N = No Shaft Extension
4 = Type 4

MODIFIER LIST

T = PTFE Coating (Optional)
S or M Required
S = Standard, no additional description required
M = Modified, additional description required

OVERALL LENGTH (OAL)

Length in inches, two place decimal.
Omit this code if ordering nut only.

SECOND END CONFIGURATION

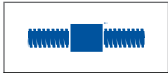
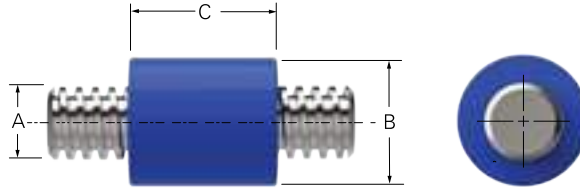
Refer to the First End Configuration.
Both Ends must be specified.

NOTE: Omit this code if ordering nut only.

NOTE: * Not all threads/materials are available for all sizes.

SNA - SLEEVE NUT

Nut Material: Helix GP Acetal



A Screw Dia. inch (mm)	B Nut Dia. inch (mm)	C Nut Length inch (mm)	Dynamic Load lbs (Kg)	Static Load lbs (Kg)	Drag Torque (max) oz-in (N-m)
0.187 (4.8)	0.500	0.500	38	125	Freewheeling
0.250 (6.4)	0.500	0.500	150	250	Freewheeling
0.375 (9.5)	0.750	0.750	350	560	Freewheeling
0.500 (13)	0.875	1.000	625	1,000	Freewheeling
0.625 (15.9)	1.125	1.250	955	1,570	Freewheeling
0.750 (19.1)	1.250	1.500	1,450	2,260	Freewheeling
0.875 (22.2)	1.500	1.750	1,950	3,100	Freewheeling
1.00 (25.4)	1.750	2.000	2,600	4,100	Freewheeling
1.125 (28.5)	1.875	2.250	3,200	5,050	Freewheeling
1.250 (31.7)	2.000	2.500	3,950	6,300	Freewheeling
1.375 (34.9)	2.250	2.750	4,660	7,600	Freewheeling
1.500 (38.1)	2.500	3.000	5,660	9,100	Freewheeling
1.750 (44.4)	2.750	3.500	7,660	12,600	Freewheeling
2.00 (50.8)	3.250	4.000	10,100	16,300	Freewheeling

PART NUMBER CONFIGURATOR

SNA 025062 - RA / 1K / 4N / 6.0 / TS

NUT STYLE

- R - Right Hand Thread
- L - Left Hand Thread
- A = Alloy Steel, Rolled*
- S = Stainless Steel, Rolled*

MODIFIER LIST

- T = PTFE Coating (Optional)
- S or M Required
- S = Standard, no additional description required
- M = Modified, additional description required

DIAMETER CODE

Example:
025 = 1/4" Diameter
(see pages 50-57)
for Diameter Codes

+

LEAD CODE

Example:
062 = 0.0625" Lead
(see pages 50-57)
for Lead Codes

END CONFIGURATION

- End Machining (see pages 58-60)
- 1 = Type 1
- 2 = Type 2
- 3 = Type 3
- 4 = Type 4
- Shaft Extension (see pages 58-60)
- K = Shaft Extension
- L = Shaft Extension without Keyway
- N = No Shaft Extension

OVERALL LENGTH (OAL)

Length in inches, two place decimal.
Omit this code if ordering nut only.

SECOND END CONFIGURATION

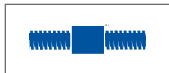
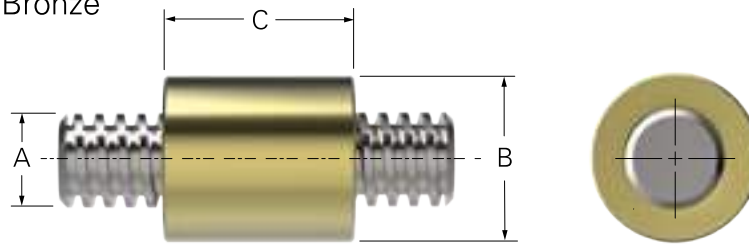
Refer to the First End Configuration.
Both Ends must be specified.

NOTE: Omit this code if ordering nut only.

NOTE: * Not all threads/materials are available for all sizes.

SNB - SLEEVE NUT

Nut Material: Helix Bronze™



A Screw Dia. inch (mm)	B Nut Dia. inch (mm)	C Nut Length inch (mm)	Dynamic Load lbs (Kg)	Static Load lbs (Kg)	Drag Torque (max) oz-in (N-m)
0.187 (4.8)	0.500	0.500	75	500	Freewheeling
0.250 (6.4)	0.500	0.500	300	1,000	Freewheeling
0.375 (9.5)	0.750	0.750	700	2,250	Freewheeling
0.550 (14)	0.875	1.000	1,250	4,000	Freewheeling
0.625 (15.9)	1.125	1.250	1,900	6,250	Freewheeling
0.750 (19.1)	1.250	1.500	2,800	9,000	Freewheeling
0.875 (22.2)	1.500	1.750	3,800	12,250	Freewheeling
1.00 (25.4)	1.750	2.000	5,000	16,000	Freewheeling
1.125 (28.5)	1.875	2.250	6,200	20,000	Freewheeling
1.250 (31.7)	2.000	2.500	7,800	25,000	Freewheeling
1.375 (34.9)	2.250	2.750	9,300	30,000	Freewheeling
1.500 (38.1)	2.500	3.000	11,300	36,000	Freewheeling
1.750 (44.4)	2.750	3.500	15,300	50,000	Freewheeling
2.00 (50.8)	3.250	4.000	20,000	65,000	Freewheeling

PART NUMBER CONFIGURATOR

SNB 025062 - RA / 1K / 4N / 6.0 / TS

NUT STYLE

R - Right Hand Thread
L - Left Hand Thread

A = Alloy Steel, Rolled*
S = Stainless Steel, Rolled*

DIAMETER CODE

Example:
025 = 1/4" Diameter
(see pages 50-57)
for Diameter Codes

LEAD CODE

Example:
062 = 0.0625" Lead
(see pages 50-57)
for Lead Codes

END CONFIGURATION

End Machining (see pages 58-60)
1 = Type 1
2 = Type 2
3 = Type 3
4 = Type 4

Shaft Extension (see pages 58-60)
K = Shaft Extension
L = Shaft Extension without Keyway
N = No Shaft Extension

MODIFIER LIST

T = PTFE Coating (Optional)
S or M Required
S = Standard, no additional description required
M = Modified, additional description required

OVERALL LENGTH (OAL)

Length in inches, two place decimal.
Omit this code if ordering nut only.

SECOND END CONFIGURATION

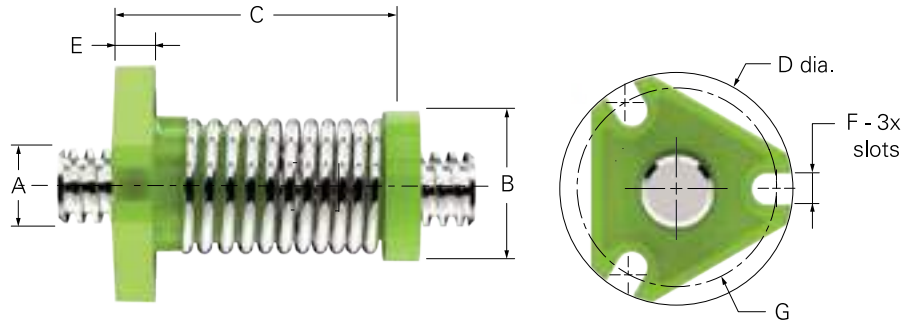
Refer to the First End Configuration.
Both Ends must be specified.

NOTE: Omit this code if ordering nut only.

NOTE: * Not all threads/materials are available for all sizes.

HAFA - ANTI-BACKLASH HURRICANE NUT [3-HOLE FLANGED] PATENT PENDING

Nut Material: Helital™ and Teflon



A Screw Dia. inch (mm)	B Nut Dia. inch (mm)	C Nut Length inch (mm)	D Flange Dia. inch (mm)	E Flange Thickness inch (mm)	F Slot Width inch (mm)	G Bolt Circle Dia. inch (mm)	Dynamic Load lbs (Kg)	Drag Torque (max) oz-in (N-m)
1/4 (6)	0.563 (14.3)	1.100 (28)	1.00 (25.4)	0.188 (4.8)	0.144 (3.7)	0.750 (19)	75 (35)	4 (.03)
5/16 (8)	0.688 (17.4)	1.398 (35.5)	1.125 (28.5)	0.188 (4.8)	0.144 (3.7)	0.875 (22.2)	75 (35)	5 (.04)
3/8 (10)								
7/16 (11)	0.875 (22)	2.00 (50.8)	1.50 (38.1)	0.250 (6.35)	0.203 (5.2)	1.125 (28.5)	150 (68)	9 (.06)
1/2 (13)								
7/8 (22)	1.5 (38)	2.675	2.250	0.313	0.257	1.875	530-600	16 (.113)
15/16 (24)								

PART NUMBER CONFIGURATOR

HAFA 025062 - RA / 1K / 4N / 6.0 / TS

NUT STYLE

HAFA

025062

- RA

/ 1K

/ 4N

/ 6.0

/ TS

DIAMETER CODE

Example:
025 = 1/4" Diameter
(see pages 50-57)
for Diameter Codes

LEAD CODE

Example:
062 = 0.0625" Lead
(see pages 50-57)
for Lead Codes

R - Right Hand Thread
L - Left Hand Thread

A = Alloy Steel, Rolled*
S = Stainless Steel, Rolled*

END CONFIGURATION

End Machining (see pages 58-60)
1 = Type 1
2 = Type 2
3 = Type 3
4 = Type 4

Shaft Extension (see pages 58-60)
K = Shaft Extension
L = Shaft Extension without Keyway
N = No Shaft Extension

MODIFIER LIST

T = PTFE Coating (Optional)
S or M Required
S = Standard, no additional description required
M = Modified, additional description required

OVERALL LENGTH (OAL)

Length in inches, two place decimal.
Omit this code if ordering nut only.

SECOND END CONFIGURATION

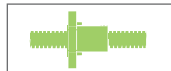
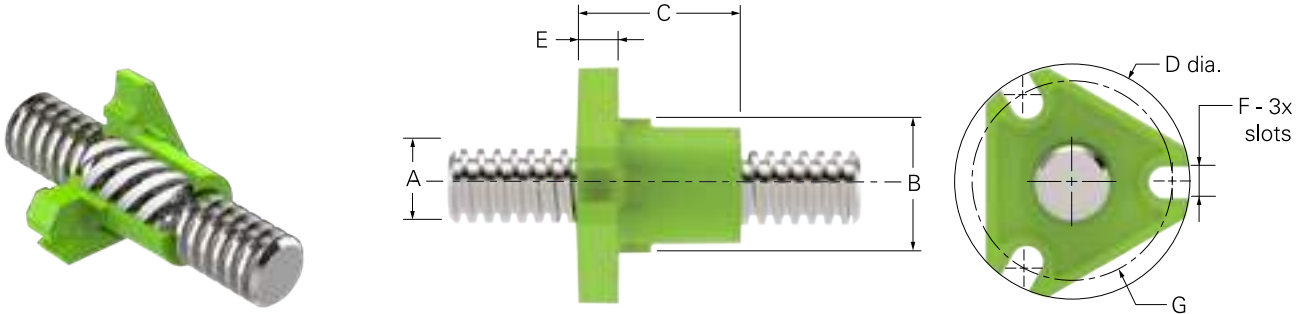
Refer to the First End Configuration.
Both Ends must be specified.

NOTE: Omit this code if ordering nut only.

NOTE: * Not all threads/materials are available for all sizes.

HNFA - STANDARD FREEWHEELING HURRICANE NUT [3-HOLE FLANGED] PATENT PENDING

Nut Material: Helital™ and Teflon



A Screw Dia. inch (mm)	B Nut Dia. inch (mm)	C Nut Length inch (mm)	D Flange Dia. inch (mm)	E Flange Thickness inch (mm)	F Slot Width inch (mm)	G Bolt Circle Dia. inch (mm)	Dynamic Load lbs (Kg)	Drag Torque oz-in (N-m)
1/4 (6)	0.500 (12.7)	0.625 (15.8)	1.00 (25.4)	0.188 (4.8)	0.144 (3.7)	0.750 (19)	75 (35)	Freewheeling
5/16 (8)	0.625 (15.8)	0.750 (19.1)	1.125 (28.5)	0.188 (4.8)	0.144 (3.7)	0.875 (22.2)	75 (35)	Freewheeling
3/8 (10)								
7/16 (11)	0.750 (19.1)	1.125 (28.5)	1.500 (38.1)	0.250 (6.35)	0.203 (5.2)	1.125 (28.5)	150 (68)	Freewheeling
1/2 (13)								
9/16 (14)	1.125 (28.5)	1.250 (31.7)	1.750 (44.4)	0.250 (6.35)	0.221 (5.6)	1.438 (36.5)	150 (68) 225 (100) 350 (160)	Freewheeling
5/8 (16)								
11/16 (18)								
3/4 (19)								

PART NUMBER CONFIGURATOR

HNFA 025062 - RA / 1K / 4N / 6.0 / TS

NUT STYLE

DIAMETER CODE

Example:
025 = 1/4" Diameter
(see pages 50-57)
for Diameter Codes

+

LEAD CODE

Example:
062 = 0.0625" Lead
(see pages 50-57)
for Lead Codes

R - Right Hand Thread
L - Left Hand Thread

A = Alloy Steel, Rolled*
S = Stainless Steel, Rolled*

END CONFIGURATION

End Machining (see pages 58-60) Shaft Extension (see pages 58-60)
1 = Type 1 K = Shaft Extension
2 = Type 2 L = Shaft Extension without Keyway
3 = Type 3 N = No Shaft Extension
4 = Type 4

MODIFIER LIST

T = PTFE Coating (Optional)
S or M Required
S = Standard, no additional description required
M = Modified, additional description required

OVERALL LENGTH (OAL)

Length in inches, two place decimal.
Omit this code if ordering nut only.

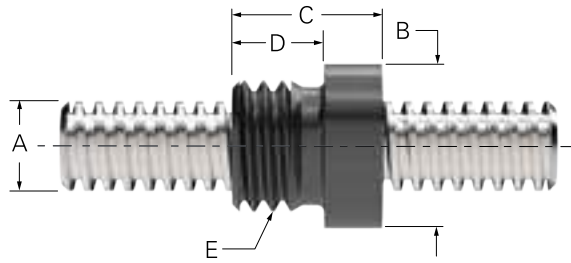
SECOND END CONFIGURATION

Refer to the First End Configuration.
Both Ends must be specified.
NOTE: Omit this code if ordering nut only.

NOTE: * Not all threads/materials are available for all sizes.

NPA - POWER·AC™ - PLASTIC ACME NUT

Nut Material: Helix GP Acetal



A Screw Dia. inch (mm)	B Nut Dia. inch (mm)	C Nut Length inch (mm)	D Thread Length inch (mm)	E Thread Size inch (mm)	Dynamic Load lbs (Kg)	Drag Torque (max) oz-in (N-m)
0.250 (6)	0.680	0.620	0.380	.562-18	156	1.58
0.312 (8)	0.680	0.620	0.380	.562-18	205	1.58
0.375 (10)	0.680	0.620	0.380	.562-18	351	1.62
0.500 (11,12,14)	1.120	0.750	0.500	.937-16	625	3.13
0.625 (16)	1.120	1.000	0.500	.937-16	975	1.45
0.750 (18, 20)	1.120	1.125	0.500	1.00-18	1,406	1.89
0.875 (22)	1.120	1.125	0.500	1.375-16	1,914	1.09
1.000 (24,26)	1.500	1.500	0.500	1.375-16	2,500	2.00
1.125 (30)	2.120	1.500	0.500	1.967-18	3,100	1.17
1.250	2.120	1.750	0.812	1.967-18	3,900	1.47
1.500	2.120	2.300	0.812	1.967-18	5,650	2.99
1.750 (40)	2.750	2.500	0.880	2.548-18	7,650	2.62
2.000	2.750	2.750	0.880	2.548-18	10,000	2.62

PART NUMBER CONFIGURATOR

NPA 025062 - RA / 1K / 4N / 6.0 / TS

NUT STYLE

- R - Right Hand Thread
- L - Left Hand Thread
- A = Alloy Steel, Rolled*
- S = Stainless Steel, Rolled*

DIAMETER CODE

Example:
025 = 1/4" Diameter
(see pages 50-57)
for Diameter Codes

LEAD CODE

Example:
062 = 0.0625" Lead
(see pages 50-57)
for Lead Codes

END CONFIGURATION

- End Machining (see pages 58-60)
- 1 = Type 1
- 2 = Type 2
- 3 = Type 3
- 4 = Type 4
- Shaft Extension (see pages 58-60)
- K = Shaft Extension
- L = Shaft Extension without Keyway
- N = No Shaft Extension

MODIFIER LIST

- T = PTFE Coating (Optional)
- S or M Required
- S = Standard, no additional description required
- M = Modified, additional description required

OVERALL LENGTH (OAL)

Length in inches, two place decimal.
Omit this code if ordering nut only.

SECOND END CONFIGURATION

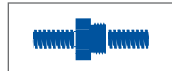
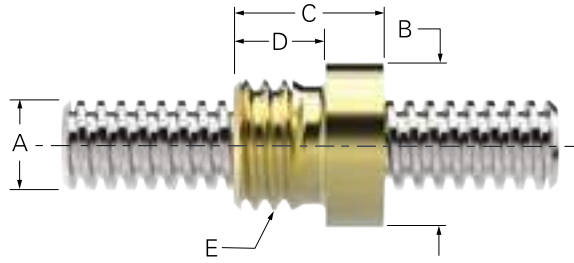
Refer to the First End Configuration.
Both Ends must be specified.

NOTE: Omit this code if ordering nut only.

NOTE: * Not all threads/materials are available for all sizes.

NPB - POWER•AC™ - BRONZE ACME NUT

Nut Material: Helix Bronze™



A Screw Dia. inch (mm)	B Nut Dia. inch (mm)	C Nut Length inch (mm)	D Thread Length inch (mm)	E Thread Size inch (mm)	Dynamic Load lbs (Kg)	Drag Torque (max) oz-in (N-m)
0.250 (6)	0.680	0.620	0.380	.562-18	312	1.17
0.312 (8)	0.680	0.620	0.380	.562-18	510	0.94
0.375 (10)	0.680	0.620	0.380	.562-18	703	1.71
0.500 (11,12,14)	1.120	0.750	0.500	.937-16	1,250	1.83
0.625 (16)	1.120	1.000	0.500	.937-16	1,953	2.06
0.750 (18, 20)	1.120	1.125	0.500	1.00-18	2,812	2.06
0.875 (22)	1.120	1.125	0.500	1.375-16	3,828	1.32
1.000 (24,26)	1.500	1.500	0.500	1.375-16	5,000	1.50
1.125 (30)	2.120	1.500	0.500	1.967-18	6,330	1.59
1.250	2.120	1.750	0.812	1.967-18	7,812	1.47
1.500	2.120	2.300	0.812	1.967-18	11,250	2.39
1.750 (40)	2.750	2.500	0.880	2.548-18	15,312	2.45
2.000	2.750	2.750	0.880	2.548-18	20,000	2.65

PART NUMBER CONFIGURATOR

NPB 025062 - RA / 1K / 4N / 6.0 / TS

NUT STYLE

DIAMETER CODE

Example:
025 = 1/4" Diameter
(see pages 50-57)
for Diameter Codes

LEAD CODE

Example:
062 = 0.0625" Lead
(see pages 50-57)
for Lead Codes

R - Right Hand Thread
L - Left Hand Thread

A = Alloy Steel, Rolled*
S = Stainless Steel, Rolled*

END CONFIGURATION

End Machining (see pages 58-60)
1 = Type 1
2 = Type 2
3 = Type 3
4 = Type 4

Shaft Extension (see pages 58-60)
K = Shaft Extension
L = Shaft Extension without Keyway
N = No Shaft Extension

MODIFIER LIST

T = PTFE Coating (Optional)
S or M Required
S = Standard, no additional description required
M = Modified, additional description required

OVERALL LENGTH (OAL)

Length in inches, two place decimal.
Omit this code if ordering nut only.

SECOND END CONFIGURATION

Refer to the First End Configuration.
Both Ends must be specified.

NOTE: Omit this code if ordering nut only.

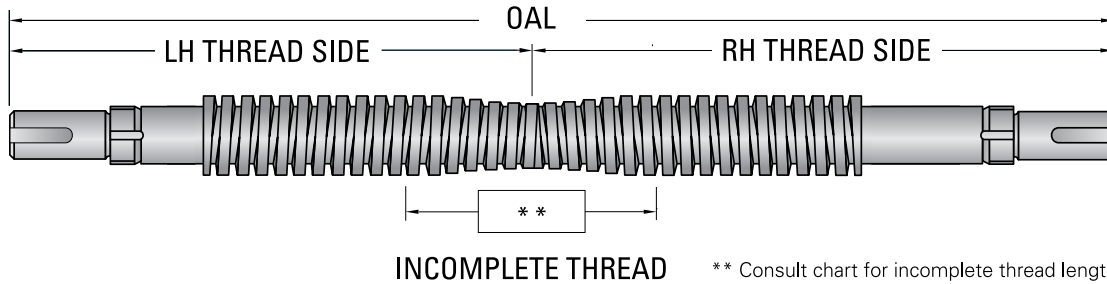
NOTE: * Not all threads/materials are available for all sizes.

TWIN-LEAD SCREW ASSEMBLIES

Twin-lead Acme screws offer dual opposing motion using a single drive system. These one-piece high performance acme screws are made from high alloy steel that has a black oxide coating applied for protection and can be assembled with Helix PowerAc™ Acme nuts, flanges and EZZE-MOUNT™ bearing supports to form cost effective systems. Twin-lead Acme screws can be used in molding machines, packaging equipment, food processing machinery, robotics, material handling equipment, tire manufacturing and assembly applications.

Twin-Lead screws stocked for delivery without machined ends are listed in the chart below. To order a twin-lead cut to a custom length and/or with machined ends, select a size from the chart below, determine OAL, LH and RH thread length, nut, flange and, if required, EZZE-MOUNT bearing support.

Consult the Twin-Lead Reference Number System on page 45 to complete your part number.



Screw Diameter (inch)	Max Overall Length (inch)	Max Usable LH/RH Thread (inch)	Incomplete Overlapping Thread Length (Inch)
0.078	4.00	1.75	0.500
0.125	12.00	5.50	1.00
0.218	24.00	11.5	1.00
0.250	24.00	11.5	1.00
0.312	24.00	11.5	1.00
0.375	36.00	17.00	0.750
0.500	36.00	17.00	1.00
0.625	36.00	17.00	1.50
0.750	72.00	34.50	2.00
0.875	72.00	34.50	2.00
1.000	72.00	34.50	2.00
1.250	144.00	70.25	2.00
1.500	144.00	70.25	2.50
1.750	144.00	70.50	3.00
2.00	144.00	70.50	3.00

Screw Diameter (mm)	Max Overall Length (mm)	Max Usable LH/RH Thread (mm)	Incomplete Overlapping Thread Length (mm)
2.00	100.00	44.00	12.00
4.00	300.00	135.00	25.00
6.00	600.00	288.00	25.00
8.00	900.00	430.00	19.00
10.00	900.00	430.00	25.40
11.00	900.00	430.00	25.40
12.00	900.00	430.00	25.40
14.00	900.00	430.00	25.40
16.00	900.00	430.00	38.00
18.00	1800.00	875.00	50.00
20.00	1800.00	875.00	50.00
26.00	1800.00	875.00	50.00
40.00	3600.00	1775.00	50.00
55.00	3600.00	1775.00	50.00
65.00	3600.00	1775.00	50.00

See the Twin-Lead Screw Assemblies Reference Number System on page 45 to configure a part number.

TWIN-LEAD SCREW ASSEMBLIES

Reference Number System

NFA 025 025 - TA / EK / 4N / 33.50 / 16.75 / 16.75 / FS

NUT STYLE

- NTA - Standard Freewheeling (threaded)
- NFA - Standard Freewheeling (flanged)
- ATA - Axial Anti-backlash (threaded)
- AFA - Axial Anti-backlash (flanged)
- RTA - Radial Anti-backlash (threaded)
- RFA - Radial Anti-backlash (flanged)
- KTA - Torsional Anti-backlash (threaded)
- KFA - Torsional Anti-backlash (flanged)
- GTA - Torsional Anti-backlash (threaded)
- GFA - Torsional Anti-backlash (flanged)
- TMA - Trunnion Mounting (plastic)
- TMB - Trunnion Mounting (bronze)
- HLC - Compact Heavy Load
- HLR - Round Heavy Load
- CNA - Cylindrical Sleeve (plastic)
- CNB - Cylindrical Sleeve (bronze)
- BNR - Ball Nut Replacement
- NPA - PowerAC - ACME (plastic)
- NPB - PowerAC - ACME (bronze)

SCREW DIAMETER CODE

(see pages 50-57)

SCREW LEAD CODE

(see pages 50-57)

SECOND END CONFIGURATION (RH thread)

Refer to the First End Configuration section on the Left.

Note: Both Ends must be specified.

OVER-ALL-LENGTH (OAL)

Length in inches, 2 place decimal

Note: See figure on page 44

LEFT HAND THREAD

Length in inches, 2 place decimal

Note: See figure on page 44

RIGHT HAND THREAD

Length in inches, 2 place decimal

Note: See figure on page 44

MODIFIER LIST

F = Round Flange

S or M Required

S = Standard, no additional description required

M = Modified, additional description required

T = PTFE coating

MATERIAL

TA

T = Twin Lead

- A = Alloy Steel, Rolled
- C = Alloy Steel, Ground
- L = Aluminum, Rolled
- S = Stainless, Rolled
- U = Stainless, Ground

Note: Not all materials are available for all sizes.

FIRST END CONFIGURATION (LH thread)

Note: Both Ends must be specified.

Single Bearing Supports are used in conjunction with Type 1N end machining.

Double Bearing Supports are used in conjunction with Type 3K, 3L, or 3N end machining.

Flanged Fixed Bearing Mounts are used in conjunction with Type 5 end machining.

EK

EK = Universal Double Bearing Support, with Keyway

EZZE-MOUNT™ / End Machining

(see pages 58-71)

- 1 = Type 1
- 2 = Type 2
- 3 = Type 3
- 4 = Type 4
- 5 = Type 5

B = Universal Double Bearing Support End Cap Facing Screw Thread

C = Universal Single Bearing Support

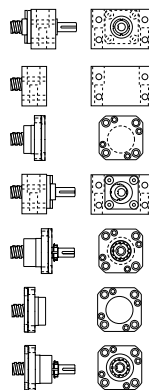
D = Flanged Single Bearing Support Flange Facing Screw Thread

E = Universal Double Bearing Support End Cap Facing Away From Screw Thread

F = Flanged Double Bearing Support Flange Facing Screw Thread

G = Flanged Single Bearing Support Flange Facing Away From Screw Thread

H = Flanged Double Bearing Support Flange Facing Away From Screw Thread



Shaft Extension

(see pages 58-60)

K = Shaft Extension with Keyway

L = Shaft Extension without Keyway

N = No Shaft

Q = Handwheel

R = Flanged Fixed Bearing Support Flange Facing Screw Thread

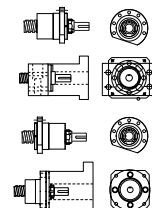
U = Universal Double Bearing Support with Motor Mount

V = Flanged Fixed Bearing Support Flange Facing Away From Screw Thread

Y = Flanged Double Bearing Support with Motor Mount

00 = No End Machining (Screw will be cut to desired length).

XX = Custom Machining (Print or specified data must be provided).



STANDARD HELIX COMPONENTS AND SERVICES



Acme Screw Assemblies



End Machining



EZZE-MOUNT™ Bearing Mounts

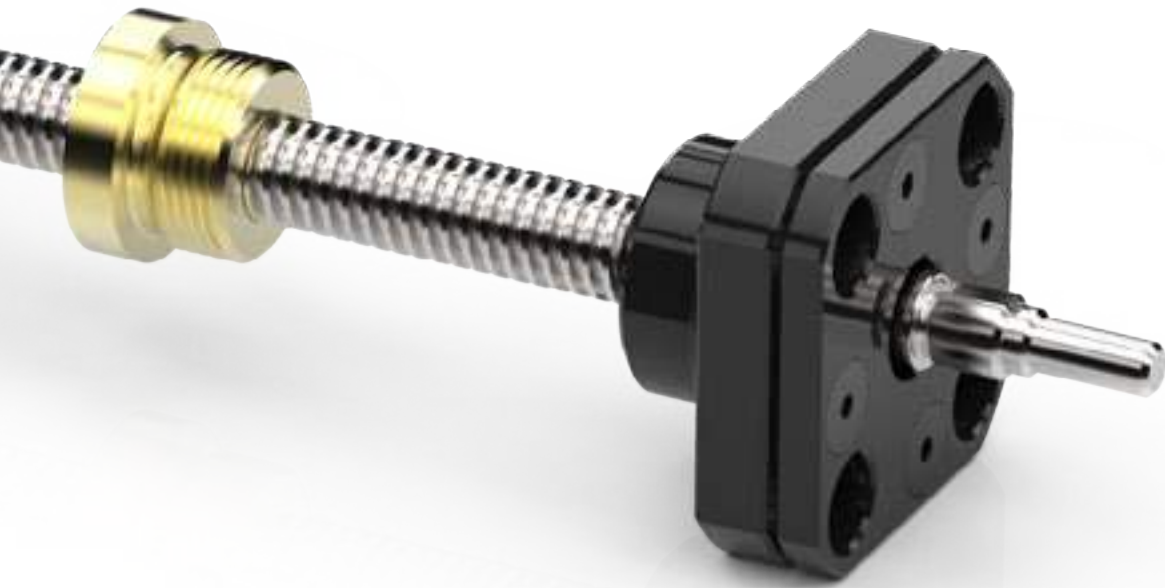


EZZE-MOUNT™ Motor Mounts



HELIX ACME SCREW AND NUT ASSEMBLIES

Helix assemblies offer turn key solutions that only require a power source (hand operation or motor). All of the elements are available for quick delivery from shelf stock. Component and assembly drawings are available from CAD drawings that can be configured online. Contact our sales engineers for assistance.



Helix Acme screws are used in a variety of life science applications

LUBRICANTS

PROLONG ACME SCREW ASSEMBLY RELIABILITY AND LIFE

Proper lubrication is the key to continued performance and reliability of Acme screw assemblies. Use E-100 spray and PAG-1 grease lubricants to maximize life of your Acme screw assembly.



BENEFITS

- Shear Stability
- High Temperature Resistant
- Corrosion Protection
- Separation Resistant
- Extreme Pressure Properties
- Shelf Stable
- Water Resistant

Product Name	NLGI Grade Number	Penetration (worked)	Dropping Point	Gelling Agent	Net Contents per Unit	cst @40°C	Oil Viscosity cst @100°C	Temp. Range	Quantity	Part No.	Total Weight
PAG-1 Grease	2	285	550°C	Calcium	1 lb	96	113	15°F to 400°F	1	NLU-1001	1.25 lb
									Case of 12	NLU-2001	18 lb
E-100 Spray	2	285	550°C	Calcium	12 oz	96	113	15°F to 400°F	1	NLU-1002	1 lb
									Case of 12	NLU-2002	15 lb

Greases for All Purpose Applications

Part Number	Volume	Temp Range (C)
APG-2G	2 gram Packet	-54 to 125
APG-50G	50 gram Jar	



Applications: A lithium soap thickened, light viscosity, synthetic hydrocarbon grease for instruments and bearings. This All-Purpose grease is excellent for wide temperature performance.

Greases for Medical Grade Applications

Part Number	Volume	Temp Range (C)
MLG-4G	4 gram Packet	-65 to 250
MLG-100G	100 gram Jar	



Applications: A PTFE thickened, high viscosity, completely fluorinated grease for use in high temperature applications exposed to aggressive chemicals. This Medical Grade grease possesses excellent thermo-oxidative stability and low vapor pressure characteristics.

Greases for Semiconductor/Static Dissipative Applications

Part Number	Volume	Temp Range (C)
SSG-3.5G	3.5 gram Pipette	-65 to 250
SSG-50G	50 gram Jar	



Applications: A PTFE thickened, heavy viscosity. Perfluoropolyether grease intended for high vacuum and clean room applications, spacecraft and semiconductor or manufacturing equipment. Benefits include very low vapor pressure.

Greases for Military and Aerospace Applications

Part Number	Volume	Temp Range (C)
MAG-4G	4 gram Packet	-65 to 200
MAG-100G	100 gram Jar	



Applications: A PTFE Thickened, medium viscosity, completely fluorinated grease intended for components where wide temperature and low torque are critical. Meets MIL-RRF-27617F, Type IV specifications for aircraft ANO instrument; fuel and oxidizer resistant.

ACME SCREW ASSEMBLIES

Reference Number System

105 — RA / EK / 4N / 41.87 / 20105 / FS

ACME SCREW

Thread Form Codes

- 025 = 1/4"-3
- 024 = 1/4"-4
- 026 = 1/4"-16
- 020 = 1/4"-20
- 022 = 5/16"-2
- 028 = 5/16"-4
- 031 = 3/8"-1
- 037 = 3/8"-2
- 034 = 3/8"-4
- 035 = 3/8"-5
- 036 = 3/8"-6
- 038 = 3/8"-8
- 030 = 3/8"-10
- 032 = 3/8"-12
- 033 = 3/8"-16
- 051 = 1/2"-1
- 052 = 1/2"-2
- 054 = 1/2"-4
- 055 = 1/2"-5
- 050 = 1/2"-10
- 063 = 5/8"- 2-2/3
- 065 = 5/8"- 5
- 062 = 5/8"- 5 (2)
- 068 = 5/8"- 8
- 060 = 5/8"- 10
- 072 = 3/4"- 2
- 073 = 3/4"- 3
- 075 = 3/4"- 5
- 076 = 3/4"- 6
- 070 = 3/4"- 10
- 086 = 7/8"- 6
- 111 = 1"- 1
- 112 = 1"- 2
- 104 = 1"- 4
- 105 = 1"- 5
- 106 = 1"- 6
- 110 = 1"- 10
- 115 = 1-1/8"- 5
- 124 = 1-1/4"- 4
- 125 = 1-1/4"- 5
- 152 = 1-1/2"- 2
- 153 = 1-1/2"- 2-2/3
- 154 = 1-1/2"- 4
- 155 = 1-1/2"- 5
- 150 = 1-1/2"- 10
- 174 = 1-3/4"- 4
- 202 = 2"- 2
- 204 = 2"- 4
- 205 = 2"- 5
- 222 = 2-1/4"- 2
- 224 = 2-1/4"- 4
- 252 = 2-1/2"- 2
- 253 = 2-1/2"- 3
- 254 = 2-1/2"- 4
- 302 = 3"- 2

MATERIAL

- R** = Right Hand Thread
L = Left Hand Thread
- A** = Alloy Steel, Rolled
C = Alloy Steel, Ground
L = Aluminum, Rolled
S = Stainless, Rolled
U = Stainless, Ground

Note: Not all materials are available for all sizes.

FIRST END CONFIGURATION

Note: Both Ends must be specified.

Single Bearing Supports are used in conjunction with Type 1N end machining.

Double Bearing Supports are used in conjunction with Type 3K, 3L, or 3N end machining.

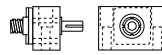
Flanged Fixed Bearing Mounts are used in conjunction with Type 5 end machining.

EZZE-MOUNT™ End Machining

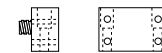
(see pages 58-71)

- 1 = Type 1
- 2 = Type 2
- 3 = Type 3
- 4 = Type 4
- 5 = Type 5

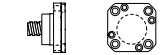
B = Universal Double Bearing Support End Cap Facing Screw Thread



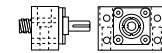
C = Universal Single Bearing Support



D = Flanged Single Bearing Support Flange Facing Screw Thread



E = Universal Double Bearing Support End Cap Facing Away From Screw Thread



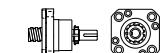
F = Flanged Double Bearing Support Flange Facing Screw Thread



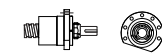
G = Flanged Single Bearing Support Flange Facing Away From Screw Thread



H = Flanged Double Bearing Support Flange Facing Away From Screw Thread



R = Flanged Fixed Bearing Support Flange Facing Screw Thread



EK EK = Universal Double Bearing Support, with Keyway

MODIFIER LIST

- S** or **M** Required
S = Standard, no additional description required
M = Modified, additional description required
T = PTFE coating

ACME NUT

Nut will be installed with flange or threaded end toward first end designation.
 (000000 = No Nut)

OVERALL LENGTH (OAL)

Length in inches, 2 place decimal

SECOND END CONFIGURATION

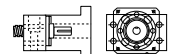
Refer to the First End Configuration section
Note: Both Ends must be specified.

Shaft Extension

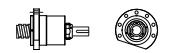
(see pages 58-60)

- N** = No Shaft
- Q** = Handwheel
- K** = Shaft Extension with Keyway
- L** = Shaft Extension without Keyway

U = Universal Double Bearing Support with Motor Mount



V = Flanged Fixed Bearing Support Flange Facing Away From Screw Thread



Y = Flanged Double Bearing Support with Motor Mount



00 = No End Machining (Screw will be cut to desired length).

XX = Custom Machining (Print or specified data must be provided)

SCREW SIZES

Nominal Diameter		Diameter Code	Lead		Lead Code	Pitch		Starts	End Machining Code		Available in Left Hand	Efficiency %*
Inch	mm		Inch	mm		Inch	mm		Type 1, 2, 3	Type 4		
5/64	2	008	0.001	0.02	016	0.000	0.02	1	Contact Factory for Special Applications	Yes	18	
			0.012	0.30	012	0.012	0.30	1		Yes	24	
			0.019	0.50	020	0.019	0.50	1		Yes	36	
			0.039	1.00	039	0.019	0.50	2		**	52	
			0.078	2.00	078	0.019	0.50	4		**	66	
1/8	3.2	012	0.012	0.30	012	0.012	0.30	1	2*	1*	Yes	23
			0.022	0.58	023	0.022	0.58	1	2*	1*	Yes	
			0.024	0.61	024	0.024	0.61	1	2*	1*	Yes	44
			0.025	0.64	025	0.025	0.64	1	2*	1*	Yes	45
			0.031	0.79	031	0.031	0.79	1	2*	1*	Yes	53
			0.039	1.00	039	0.039	1.00	1	2*	1*	Yes	57
			0.048	1.22	048	0.024	0.61	2	2*	1*	Yes	61
			0.062	1.59	062	0.031	0.79	2	2*	1*	**	67
			0.075	1.91	075	0.025	0.64	3	2*	1*	**	70
			0.078	2.00	078	0.039	1.00	2	2*	1*	**	72
			0.096	2.44	096	0.024	0.61	4	2*	1*	**	75
			0.125	3.18	125	0.031	0.79	4	2*	1*	**	80
			0.1575	4.00	157	0.039	1.00	4	2*	1*	**	81
			0.2000	5.08	200	0.025	0.64	8	2*	1*	**	82
0.2500	6.35	250	0.041	1.06	6	2*	1*	**	83			
0.140	3.5	RD014	0.031	0.79	031	0.031	0.79	1	2*	1*	**	48
			0.062	1.59	062	0.031	0.79	2	2*	1*	**	63
0.160	4	016	0.012	0.30	012	0.012	0.30	1	3	1	Yes	24
			0.024	0.61	024	0.024	0.61	1	2	1	Yes	43
			0.039	1.00	039	0.039	1.00	1	2	1	Yes	45
			0.048	1.22	048	0.024	0.61	2	2*	1*	Yes	59
			0.093	2.38	093	0.031	0.79	3	2	1	**	67
			0.096	2.44	096	0.024	0.61	4	2*	1*	**	69
			0.125	3.18	125	0.031	0.79	4	2	1	**	74
			0.250	6.35	250	0.031	0.79	8	3	1	**	83
			0.375	9.53	375	0.031	0.79	12	3	1	**	85
			0.393	10.00	393	0.049	1.25	8	3*	1*	**	85
0.500	12.70	500	0.031	0.79	16	3	1	**	86			

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** Left hand screws are available on request. Please contact factory.

SCREW SIZES (continued)

Nominal Diameter		Diameter Code	Lead		Lead Code	Pitch		Starts	End Machining Code		Available in Left Hand	Efficiency %*
<i>Inch</i>	<i>mm</i>		<i>Inch</i>	<i>mm</i>		<i>Inch</i>	<i>mm</i>		Type 1, 2, 3	Type 4		
3/16	4.8	018	0.024	0.61	024	0.024	0.61	1	4	2	Yes	36
			0.025	0.64	025	0.025	0.64	1	4	2	Yes	39
			0.031	0.79	031	0.031	0.79	1	4	2	Yes	42
			0.039	1.00	039	0.039	1.00	1	4*	2	Yes	47
			0.048	1.22	048	0.048	1.22	1	4*	2	Yes	51
			0.050	1.27	050	0.050	1.27	1	4*	2	Yes	58
			0.050	1.27	050	0.050	1.27	1	4*	2	**	58
			0.062	1.59	062	0.031	0.79	2	4	2	Yes	60
			0.078	2.00	078	0.039	1.00	2	4*	2	Yes	64
			0.096	2.44	096	0.048	1.22	2	4*	2	Yes	67
			0.100	2.54	100	0.050	1.27	2	4*	2	**	69
			0.108	2.75	108	0.054	1.38	2	4	2	**	70
			0.125	3.18	125	0.031	0.79	4	4	2	**	72
			0.157	4.00	157	0.039	1.00	4	4*	2	**	75
			0.187	4.76	187	0.023	0.60	8	4*	2	**	78
0.192	4.88	192	0.048	1.22	4	4*	2	**	80			
0.200	5.08	200	0.050	1.27	4	4*	2	Yes	82			
0.200	5	020	0.196	5.00	196	0.049	1.25	4	4*	2	**	82
0.220	5.5	022	0.019	0.50	020	0.019	0.50	1	4*	2	Yes	78
0.240	6	024	0.039	1.00	039	0.039	1.00	1	4*	2	**	40
			0.236	6.00	236	0.059	1.50	4	4	2	**	68
			0.472	12.00	472	0.059	1.50	8	4	2	**	85
			0.787	20.00	787	0.049	1.25	16	5	3	Yes	86

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SCREW SIZES (continued)

Nominal Diameter		Diameter Code	Lead		Lead Code	Pitch		Starts	End Machining Code		Available in Left Hand	Efficiency %*
Inch	mm		Inch	mm		Inch	mm		Type 1, 2, 3	Type 4		
1/4	6.4	025	0.024	0.61	024	0.024	0.61	1	5	3	Yes	28
			0.025	0.64	025	0.025	0.64	1	5	3	Yes	30
			0.031	0.79	031	0.031	0.79	1	5	3	Yes	34
			0.039	1.00	039	0.039	1.00	1	5*	3	Yes	40
			0.048	1.22	048	0.048	1.22	1	4	3*	Yes	45
			0.050	1.27	050	0.050	1.27	1	4	3*	Yes	46
			0.062	1.59	062	0.062	1.59	1	4	3*	Yes	46
			0.078	2.00	078	0.039	1.00	2	5*	3	Yes	59
			0.096	2.44	096	0.048	1.22	2	4	3*	Yes	61
			0.100	2.54	100	0.050	1.27	2	4	3*	**	62
			0.118	3.00	118	0.059	1.50	2	4	3*	**	68
			0.125	3.18	125	0.063	1.59	2	4	3*	**	67
			0.157	4.00	157	0.039	1.00	4	5*	3	**	69
			0.196	5.00	196	0.039	1.00	5	5*	3	**	72
			0.200	5.08	200	0.050	1.27	4	4	3*	**	65
			0.250	6.35	250	0.063	1.59	4	4	3*	**	79
			0.333	8.46	333	0.083	2.11	4	4	3*	**	82
			0.393	10.00	393	0.032	0.83	12	4	3*	**	78
0.400	10.16	400	0.080	2.03	5	4	3*	**	84			
0.500	12.70	500	0.071	1.81	7	4	3*	**	85			
0.500	12.70	500	0.083	2.12	6	4	3*	**	85			
1.000	25.40	999	0.100	2.54	10	4	3*	**	84			
0.280	7	027	0.019	0.50	020	0.019	0.50	1	6	4*	Yes	73
5/16	7.9	031	0.100	2.54	100	0.100	2.54	1	4	3	Yes	72
			0.200	5.08	200	0.100	2.54	2	4	3	**	72
			0.250	6.35	250	0.125	3.18	2	5	3	**	76
			0.500	12.70	500	0.125	3.18	4	5	3	**	83
0.320	8	032	0.012	0.30	012	0.012	0.30	1	6*	3	Yes	21
			0.024	0.61	024	0.024	0.61	1	6*	3	Yes	26
			0.059	1.50	059	0.059	1.50	1	6*	3	Yes	43
			0.157	4.00	157	0.078	2.00	2	6*	3	**	71
			0.295	7.50	295	0.049	1.25	6	6*	4*	**	74
			0.315	8.00	315	0.078	2.00	4	6*	4*	**	79
			0.393	10.00	393	0.098	2.50	4	6*/5	3	**	80
			0.472	12.00	472	0.094	2.40	5	6*	4*	**	83
			0.590	15.00	590	0.098	2.50	6	6*	4*	**	84
			0.787	20.00	787	0.157	4.00	5	6*	4*	**	86
			0.984	25.00	984	0.049	1.25	20	6	4*	**	88
1.181	30.00	M30	0.049	1.25	24	7	4	Yes	89			

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SCREW SIZES (continued)

Nominal Diameter		Diameter Code	Lead		Lead Code	Pitch		Starts	End Machining Code		Available in Left Hand	Efficiency %*
Inch	mm		Inch	mm		Inch	mm		Type 1, 2, 3	Type 4		
3/8	9.5	037	0.025	0.64	025	0.025	0.64	1	8	4	Yes	21
			0.039	1.00	039	0.039	1.00	1	8	4	Yes	28
			0.050	1.27	050	0.050	1.27	1	7	4	Yes	36
			0.062	1.59	062	0.062	1.59	1	7	4	Yes	41
			0.078	2.00	078	0.079	2.00	1	7*	4	Yes	47
			0.083	2.12	083	0.083	2.12	1	7*	4	Yes	48
			0.100	2.54	100	0.100	2.54	1	6	4*	Yes	53
			0.125	3.18	125	0.063	1.59	2	7	4	Yes	59
			0.157	4.00	157	0.079	2.00	2	7*	4	Yes	65
			0.166	4.23	166	0.083	2.12	2	7*	4	Yes	61
			0.197	5.00	196	0.039	1.00	5	8	4	**	69
			0.200	5.08	200	0.100	2.54	2	6	4*	**	69
			0.250	6.35	250	0.063	1.59	4	7	4	**	70
			0.250	6.35	--	0.125	3.18	2	7	4	**	70
			0.250	6.35	--	0.083	2.12	3	7*	4	**	70
			0.333	8.47	333	0.083	2.12	4	7*	4	**	78
			0.375	9.53	375	0.094	2.38	4	7*	4	**	79
			0.394	10.00	393	0.079	2.00	5	7*	4	**	79
			0.400	10.16	400	0.100	2.54	4	6	4*	**	79
			0.500	12.70	500	0.125	3.18	4	7	4	**	81
0.667	16.94	667	0.095	2.42	7	7	4	**	83			
0.750	19.05	750	0.125	3.18	6	7*	4	**	84			
1.000	25.40	999	0.200	5.08	5	6	4*	Yes	84			
1.500	38.10	M38	0.167	4.23	9	7*	4	**	83			

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SCREW SIZES (continued)

Nominal Diameter		Diameter Code	Lead		Lead Code	Pitch		Starts	End Machining Code		Available in Left Hand	Efficiency %*
Inch	mm		Inch	mm		Inch	mm		Type 1, 2, 3	Type 4		
0.390	10.0	039	0.039	1.00	039	0.039	1.00	1	8	4	Yes	79
			0.059	1.50	059	0.059	1.50	1	8*	4	Yes	38
			0.078	2.00	078	0.078	2.00	1	7	4	Yes	47
			0.118	3.00	118	0.059	1.50	2	8*	4	**	52
			0.1575	4.00	157	0.078	2.00	2	7	4	**	65
			0.3543	9.00	354	0.118	3.00	3	6	4*	**	73
			0.3937	10.00	393	0.049	1.25	8	8	4	**	79
			0.4724	12.00	472	0.118	3.00	4	7	4	Yes	80
			0.500	12.70	500	0.125	3.18	4	7	4	**	80
			0.590	15.00	590	0.118	3.00	5	7	4	**	81
			1.378	35.00	M35	0.049	1.25	28	8	4	Yes	82
1.968	50.00	M50	0.196	5.00	10	7	4	Yes	85			
0.430	11.0	043	0.236	6.00	236	0.118	3.00	2	7	4	**	70
0.450	11.5	RD043	0.500	12.70	500	0.125	3.18	4	8	4	**	80
7/16	11.1	043	0.250	6.35	250	0.125	3.18	2	8	4	Yes	70
			0.500	12.70	500	0.125	3.18	4	8	4	**	80
			1.201	30.50	M31	0.200	5.08	6	8	4	**	84
0.470	12.0	047	0.078	2.00	078	0.079	2.00	1	9	4	Yes	41
			0.118	3.00	118	0.118	3.00	1	7	4	Yes	49
			0.236	6.00	236	0.118	3.00	2	7	4	**	65
			0.393	10.00	393	0.098	2.50	4	8	4	**	76
			0.590	15.00	590	0.118	3.00	5	9	4	Yes	80
			0.984	25.00	984	0.196	5.00	5	9*	4	Yes	84
			1.574	40.00	M40	0.049	1.25	32	10	6	**	85
			1.771	45.00	M45	0.049	1.25	36	10	6	Yes	86
2.362	60.00	M60	0.197	5.00	12	9	4	Yes	88			
0.500	12.7	050	0.050	1.27	050	0.050	1.27	1	9	6	Yes	29
			0.100	2.54	100	0.100	2.54	1	9	6*	Yes	46
			0.125	3.18	125	0.125	3.18	1	9*	6*	Yes	51
			0.196	5.00	197	0.098	2.50	2	9	6	**	62
			0.200	5.08	200	0.100	2.54	2	9	6	**	63
			0.250	6.35	250	0.125	3.18	2	8	4	Yes	67
			0.400	10.16	400	0.100	2.54	4	10	6	**	76
			0.500	6.35	500	0.100	2.54	5	10	6	Yes	79
			0.800	20.32	800	0.100	2.54	8	10	6	**	83
			1.000	25.40	999	0.125	3.18	8	9	6	**	84
			1.402	35.60	M36	0.200	5.09	7	9	6	**	85

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SCREW SIZES (continued)

Nominal Diameter		Diameter Code	Lead		Lead Code	Pitch		Starts	End Machining Code		Available in Left Hand	Efficiency %*
Inch	mm		Inch	mm		Inch	mm		Type 1, 2, 3	Type 4		
0.550	14	055	0.118	3.00	118	0.118	3.00	1	10	6	Yes	48
			0.157	4.00	157	0.157	4.00	1	9	4	Yes	58
			0.3150	8.00	315	0.1575	4.00	2	9	6	**	71
			0.7087	18.00	708	0.1181	3.00	6	10	6	Yes	79
			0.7874	20.00	787	0.1969	5.00	4	9	4	**	82
			1.1811	30.00	M30	0.1969	5.00	6	10	6	Yes	85
			2.756	70.00	M70	0.197	5.00	14	10	6	Yes	88
9/16	14.3	056	1.598	40.60	M41	0.200	5.07	8	10	6	Yes	86
0.625	15.9	062	0.100	2.54	100	0.100	2.54	1	12	8	Yes	40
			0.125	6.35	125	0.125	3.18	1	10	6	Yes	45
			0.200	6.35	200	0.100	2.54	2	12	6	Yes	53
			0.250	6.35	250	0.125	3.18	2	10	6	**	63
			0.375	9.53	375	0.125	3.18	3	10	6	Yes	70
			0.500	12.70	500	0.125	3.18	4	10	6	**	76
			0.625	15.88	625	0.125	3.18	5	10	6	**	78
			2.000	50.80	M51	0.167	4.23	12	10	6	**	86
0.630	16	063	0.079	2.00	078	0.079	2.00	1	10	6	Yes	41
			0.158	4.00	157	0.158	4.00	1	10	6	Yes	58
			0.1969	5.00	196	0.09843	2.50	2	10	6	**	62
			0.236	6.00	236	0.118	3.00	2	10	6	Yes	55
			0.315	8.00	315	0.157	4.00	2	10	6	**	68
			0.7874	20.00	787	0.0984	2.50	8	12	6	Yes	82
			0.8268	21.00	826	0.1181	3.00	7	12	6	Yes	83
			0.9843	25.00	984	0.1969	5.00	5	10	6	**	84
			1.3780	35.00	M35	0.1969	5.00	7	12	6	**	85
			1.8000	45.72	M46	0.2000	5.08	9	12	8	**	86
			3.1496	80.00	M80	0.1969	5.00	16	12	8*	Yes	87
3.543	90.00	M90	0.197	5.00	18	12	8	**	88			
0.710	18	071	0.0787	2.00	078	0.07874	2.00	1	12	8	Yes	41
			0.158	4.00	157	0.158	4.00	1	12	8	Yes	58
			0.6299	16.00	629	0.1575	4.00	4	12	8	**	76
			0.9449	24.00	944	0.1181	3.00	8	15	8	Yes	84
			1.1811	30.00	M30	0.1969	5.00	6	12	8	**	85
			1.5748	40.00	M40	0.1969	5.00	8	12	8	Yes	86
			2.0000	50.80	M51	0.2000	5.08	10	12	8	**	86
			3.937	100.00	M00	0.197	5.00	20	15	10	Yes	88

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SCREW SIZES (continued)

Nominal Diameter		Diameter Code	Lead		Lead Code	Pitch		Starts	End Machining Code		Available in Left Hand	Efficiency %*
Inch	mm		Inch	mm		Inch	mm		Type 1, 2, 3	Type 4		
0.750	19.1	075	0.100	2.54	100	0.100	2.54	1	15	8	Yes	35
			0.167	4.23	166	0.167	4.23	1	12	8	Yes	47
			0.200	5.08	200	0.200	5.08	1	12	8	Yes	52
			0.250	6.35	250	0.125	3.18	2	12	8	**	57
			0.333	8.47	333	0.167	4.23	2	12	8	Yes	64
			0.500	12.70	500	0.125	3.18	4	12	8	**	73
0.790	20	079	0.158	4.00	157	0.158	4.00	1	12	8	Yes	37
			0.315	8.00	315	0.157	4.00	2	12	8	Yes	61
			0.4724	12.00	472	0.1575	4.00	3	15	8	**	72
			1.0630	27.00	M27	0.1181	3.00	9	17	10	**	82
			1.772	45.00	M45	0.197	5.00	9	15	10	**	84
0.870	22.0	087	0.1969	5.00	196	0.19685	5.00	1	15	10	Yes	50
0.870	22	087	0.7874	20.00	787	0.1575	4.00	5	17	10	**	78
			1.3780	35.00	M35	0.1969	5.00	7	17*	10	**	83
			1.969	50.00	M50	0.197	5.00	10	17	10	**	85
0.87	22.1	RD088	0.2000	5.08	200	0.10000	2.54	2	15	10	**	48
7/8	22.2	088	0.166	4.22	166	0.166	4.22	1	15	10	Yes	45
7/8	22.2	088	0.200	5.08	200	0.200	5.08	1	15	10	Yes	48
0.94	24	094	1.1811	30.00	M30	0.1181	3.00	10	20*	12	Yes	85
			1.5748	40.00	M40	0.1969	5.00	8	20*	12	**	83
			2.165	55.00	M55	0.197	5.00	11	20	12	**	86
1	25.4	100	0.100	2.54	100	0.100	2.54	1	20	12	Yes	24
			0.167	4.23	166	0.167	4.23	1	17	10	Yes	40
			0.200	5.08	200	0.200	5.08	1	17	10	Yes	44
			0.250	6.35	250	0.250	6.35	1	17	10	Yes	46
			0.500	12.70	500	0.250	6.35	2	17	10	Yes	63
			1.000	25.40	999	0.100	2.54	10	20	12	Yes	74
			3.000	76.20	M76	0.200	5.08	15	20	12	Yes	86
1.02	26		0.236	6.00		0.236	6.00	1	17	10	Yes	43
1 1/8	28.6		0.200	5.08		0.200	5.08	1	20	12	Yes	42
1.18	29.9	1.25	1.6000	40.64	1.6	0.40000	10.16	4	20	12	**	84
1 1/4	31.8		0.200	5.08		0.200	5.08	1	25	16	Yes	35
			0.250	6.35		0.250	6.35	1	20	12	Yes	45
			0.500	12.70		0.250	6.35	2	20	12	Yes	55

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SCREW SIZES (continued)

Nominal Diameter		Diameter Code	Lead		Lead Code	Pitch		Starts	End Machining Code		Available in Left Hand	Efficiency %*
Inch	mm		Inch	mm		Inch	mm		Type 1, 2, 3	Type 4		
1 1/2	38.1		0.100	2.54		0.100	2.54	1	30	19	Yes	25
			0.200	5.08		0.200	5.08	1	30	19	Yes	35
			0.250	6.35		0.250	6.35	1	30	19	Yes	40
			0.375	9.53		0.375	9.53	1	25	16	Yes	43
			0.500	12.70		0.250	6.35	2	30	19	Yes	56
			1.000	25.40		0.100	2.54	10	30	19	**	78
1.57	40		0.276	7.00		0.276	7.00	1	30	19	Yes	37
1 3/4	44.5		0.250	6.35		0.250	6.35	1	35	22	Yes	38
2	50.8		0.131	3.33		0.131	3.33	1	50	32	Yes	27
			0.200	5.08		0.200	5.08	1	40	24	Yes	30
			0.250	6.35		0.250	6.35	1	40	24	Yes	32
			0.500	12.70		0.500	12.70	1	35	22	Yes	46
2.17	55		0.472	12.00		0.472	12.00	1	30	19	Yes	37
2 1/4	57.2		0.250	6.35		0.250	6.35	1	45	28	Yes	31
			0.500	12.70		0.500	12.70	1	40	24	Yes	46
2 1/2	63.5		0.250	6.35		0.250	6.35	1	50	32	Yes	30
			0.333	8.47		0.333	8.47	1	50	32	Yes	34
			0.500	12.70		0.500	12.70	1	45	28	Yes	39

* Listed Efficiencies are theoretical values based on Helix H10X PTFE coated screws. Efficiencies for bronze nuts are approximately 8-10% lower.

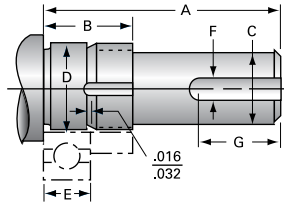
** Left hand screws are available on request. Please contact factory.

MACHINED ENDS Drawings and Codes

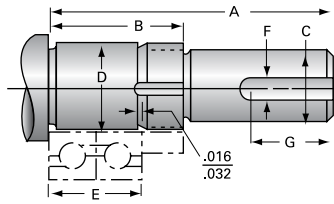
Specifying standard machined ends results in quicker deliveries. The machined ends shown below represent designs that are compatible with common application requirements for either simple or fixed bearing support. Included in the chart are

the locknut and lockwasher identification. These standard ends may be machined and ground to finish size. NOTE: A Type 1N end is required for single bearing EZZE-MOUNT™. A Type 3 K, L, or N end is required for double bearing EZZE-MOUNT.

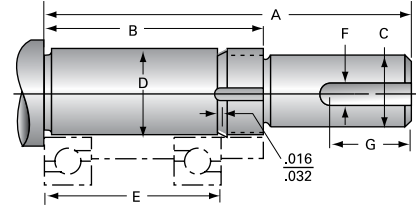
Type 1K (with keyway)
Type 1L (without keyway)



Type 2K (with keyway)
Type 2L (without keyway)



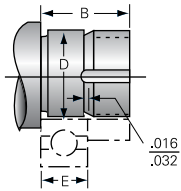
Type 3K (with keyway)
Type 3L (without keyway)



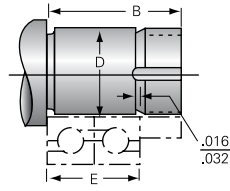
Machine End Code	TYPE 1 (K, L, N) Typical Journal for Single Bearing			TYPE 2 (K, L, N) Typical Journal for Duplexed Bearing			TYPE 3 (K, L, N) Typical Journal for Multiple Sets of Duplexed Bearing			Common Dimensions for TYPE 1, 2, 3 (K, L, N)					
	A	B	E	A	B	E	A	B	E	C	D	F	G	Lock nut	Lock washer
2	0.52	0.32	0.095	0.65	0.45	0.220	0.99	0.79	0.560	.059/.058	.0986/.0983	N/A	N/A	M2.5	N/A
3	0.56	0.33	0.095	0.69	0.46	0.220	1.03	0.80	0.560	.079/.092	.1183/.1180	N/A	N/A	M3	N/A
4	0.69	0.43	0.177	0.91	0.65	0.394	1.38	1.12	0.860	.098/.097	.1577/.1574	N/A	N/A	#6-32	N/A
5	0.88	0.55	0.236	1.09	0.78	0.472	1.56	1.26	0.944	.125/.124	.1970/.1967	N/A	N/A	#10-32	N/A
6	0.88	0.55	0.236	1.09	0.78	0.472	1.56	1.26	0.944	.125/.124	.2363/.2360	N/A	N/A	#10-32	N/A
7	1.12	0.65	0.276	1.41	0.93	0.552	1.94	1.48	1.104	.187/.186	.2757/.2754	0.063	0.34	¼-20	N/A
8	1.31	0.68	0.276	1.56	0.96	0.552	2	1.44	1.06	.250/.249	.3151/.3148	0.094	0.46	⅝-24	N/A
9	1.38	0.72	0.315	1.69	1.04	0.63	2.38	1.81	1.438	.250/.249	.3544/.3541	0.094	0.46	⅝-24	N/A
10	1.37	0.69	0.315	1.67	1	0.63	2.5	1.81	1.438	.312/.311	.3939/.3936	0.125	0.5	N-00	W-00
12	2.11	0.81	0.394	2.5	1.2	0.788	3.29	1.99	1.576	.406/.405	.4726/.4723	0.125	1	N-01	W-01
15	2.15	0.84	0.433	2.59	1.27	0.866	3.5	2.18	1.732	.500/.499	.5908/.5905	0.125	1	N-02	W-02
17	2.23	0.92	0.472	2.71	1.39	0.944	3.65	2.33	1.888	.500/.499	.6695/.6692	0.125	1	N-03	W-03
20	2.37	1.06	0.551	2.93	1.61	1.102	4.03	2.71	2.204	.625/.624	.7877/.7873	0.188	1	N-04	W-04
25	2.68	1.12	0.591	3.27	1.71	1.182	4.45	2.89	2.364	.750/.749	.9846/.9842	0.188	1	N-05	W-05
30	2.97	1.16	0.63	3.6	1.79	1.26	4.86	3.05	2.52	1.000/.999	1.1814/1.1810	0.25	1.25	N-06	W-06
35	3.33	1.23	0.669	4	1.9	1.338	5.34	3.24	2.676	1.250/1.249	1.3784/1.3779	0.25	1.63	N-07	W-07
40	3.65	1.46	0.906	4.55	2.37	1.812	6.37	4.18	3.624	1.375/1.374	1.5752/1.5747	0.313	1.5	N-08	W-08
45	3.73	1.54	0.984	4.71	2.52	1.968	6.68	4.49	3.936	1.375/1.374	1.7721/1.7716	0.313	1.5	N-09	W-09
50	4.56	1.68	1.063	5.62	2.75	2.126	7.75	4.87	4.252	1.750/1.749	1.9689/1.9684	0.375	2.3	N-10	W-10
60	5.56	1.88	1.221	6.78	3.1	2.442	9.22	5.54	4.884	2.250/2.249	2.3627/2.3621	0.5	2.75	N-12	W-12
65	6.71	1.96	1.299	7.99	3.24	2.598	10.59	5.84	5.197	2.375/2.374	2.5591/2.5585	0.625	3.7	N-13	W-13
75	7.68	2.18	1.457	9.14	3.64	2.914	11.33	6.56	5.828	2.750/2.749	2.9533/2.9527	0.625	3.7	AN-15	W-15
80	6.95	2.26	1.535	8.49	3.8	3.07	11.56	6.87	6.14	3.000/2.998	3.1501/3.1495	0.75	3.9	AN-16	W-16
95	9.6	2.6	1.772	11.37	4.37	3.544	14.92	7.92	7.088	3.500/3.499	3.7402/3.7394	0.875	6	AN-19	W-19
105	10.84	2.84	1.929	12.76	4.76	3.858	16.62	8.62	7.716	4.000/3.999	4.1345/4.1338	1	6.75	AN-21	W-21

MACHINED ENDS Drawings and Codes (continued)

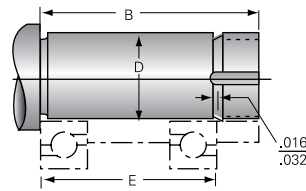
Type 1N



Type 2N



Type 3N



END TYPES

- 1K, 2K, 3K and 4K are designed with a shaft extension and keyway for square keys.
- 1L, 2L, 3L and 4L are designed with a shaft extension without a keyway.
- 1N, 2N, 3N and 4N are designed to be a non-driven support end.
- Double bearing supports use a Type 3N, 3L and 3K.
- Single bearing supports use Type 1N.

Where standard ends do not satisfy the application requirements, special ends may be machined to customer specifications. Please submit a print for a prompt and competitive quotation.

PRECISION LOCKNUTS

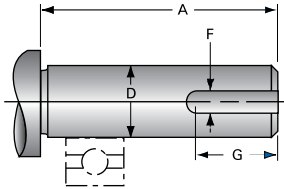
Helix offers precision ground locknuts for extreme applications requiring ground face and precision ground thread with extra thread engagement. These locknuts have radial thread set screws to ensure secure positioning. Please request a catalog.



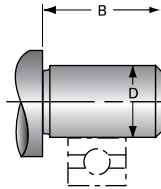
MACHINED ENDS Drawings and Codes (continued)

TYPE 4 (K, L, N) Typical Journal for Pillow Block

Type 4K (with keyway)
Type 4L (without keyway)

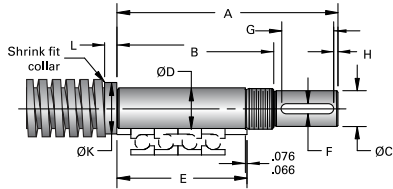


Type 4N

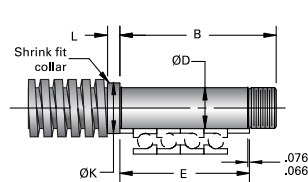


Machine End Code	A	B	D	F	G
1	.50	.20	.0986 / .0983	N/A	N/A
2	.75	.25	.1251 / .1248	N/A	N/A
3	1.13	.38	.1877 / .1874	N/A	N/A
4	1.38	.50	.2501 / .2498	.063	.63
6	1.50	.75	.3751 / .3748	.125	.75
8	2.63	1.00	.5000 / .4995	.125	1.50
10	2.63	1.25	.6250 / .6245	.188	1.50
12	2.72	1.50	.7500 / .7495	.188	1.50
16	2.84	1.50	1.0000 / .9995	.250	1.50
19	3.25	1.78	1.1875 / 1.1870	.250	1.75
22	4.44	2.06	1.3750 / 1.3745	.313	1.87
24	4.56	2.25	1.5000 / 1.4995	.313	3.00
28	4.94	2.63	1.7500 / 1.7495	.375	3.00
32	5.19	3.50	2.0000 / 1.9995	.500	3.00
39	7.25	3.66	2.4375 / 2.4365	.625	4.69
42	7.75	3.94	2.6250 / 2.6240	.625	4.75
48	8.25	4.50	3.0000 / 2.9990	.750	4.88
55	8.50	5.16	3.4375 / 3.4365	.875	5.00
60	9.38	5.63	3.7500 / 3.7490	1.000	5.38
67	12.13	6.28	4.1875 / 4.1865	1.000	7.00

Type 5K (with keyway)
Type 5L (without keyway)



Type 5N



Machine End Code	TYPE 5 (K, L) Typical Journal for EZRF Bearing Block (in)					Common Dimensions for TYPE 5 (K L N) (in)					
	A	C	F	G	H	B	D	E	K	L	LOCK NUT
12	4.61	.394/.393	0.118	1.02	0.08	3.35	.4728/.4723	2.717	0.71	0.31	SFZ 12 × 1
15	5.24	.472/.471	0.157	1.30	0.12	3.66	.5909/.5904	2.913	0.87	0.35	SFZ 15 × 1
17	5.55	.591/.590	0.197	1.30	0.12	3.98	.6696/.6692	3.150	0.94	0.35	SFZ 17 × 1
20	5.94	.669/.668	0.197	1.46	0.16	4.13	.7878/.7872	3.307	1.10	0.35	SFZ 20 × 1
25	6.69	.787/.786	0.236	1.61	0.20	4.69	.9846/.9841	3.740	1.26	0.39	SFZ 25 × 1.5
35	8.07	1.181/1.180	0.315	2.01	0.16	5.63	1.3784/1.3778	4.606	1.77	0.39	SFZ 35 × 1.5
40	8.50	1.378/1.377	0.394	2.01	0.16	6.02	1.5752/1.5746	5.000	1.97	0.47	SFZ 40 × 1.5
45	8.98	1.575/1.574	0.472	2.01	0.20	6.42	1.7721/1.7715	5.394	2.17	0.47	SFZ 45 × 1.5
55	10.43	1.969/1.968	0.551	2.52	0.24	7.24	2.1658/2.1651	6.063	2.56	0.55	SFZ 55 × 2
60	11.46	2.165/2.164	0.630	2.80	0.24	7.94	2.3627/2.3619	6.732	2.95	0.63	SFZ 60 × 2
70	13.15	2.362/2.361	0.709	3.58	0.28	8.74	2.7564/2.7556	7.402	3.35	0.71	SFZ 70 × 2
75	13.62	2.559/2.558	0.709	3.58	0.31	9.13	2.9532/2.9525	7.795	3.54	0.71	SFZ 75 × 2

EZZE-MOUNT™ / End Machining Glossary and Definitions

INTRODUCTION

Linear motion applications utilizing a ball screw or an Acme screw require this screw end machining matched with precision bearing mounts. Helix, Inc. offers both the bearing mounts and end machining as a complete assembly.

Helix can provide the following end machining services:

- Screws cut to precision lengths
- Annealing
- Straightening
- CNC turning and milling
- Grinding
- Assembly of bearing mounts
- Inspection
- Specialized material handling and packaging

GLOSSARY AND DEFINITIONS

EZZE-MOUNT™

EZZE-MOUNT bearing blocks contain precision anti-friction bearings and are designed to be used with both ball screws and Acme screws. Single and double bearing base mount and flange mount versions of EZZE-MOUNT bearing blocks are available.

STANDARD ENDS

For each screw size, Helix has designed a family of standard machined ends applicable to a variety of bearing arrangements. The use of standard machined end designs offers quick deliveries. See pages 58-60 for details.

LAND DIAMETER

The land diameter is the outside diameter of the screw. The difference between the land diameter and the bearing journal is the resulting bearing shoulder.

ROOT DIAMETER

The diameter of the screw measured at the bottom of the thread. This diameter is used for determining journal sizes. If the bearing journal diameter is larger than the root diameter, thread tracings may be visible. Generally, these tracings do not have an effect on bearing performance.

JOURNAL

A smooth diameter machined on the end of screw used as a mounting surface for bearings, couplings, pulleys, gears, etc.

STRAIGHTNESS

Although Helix PowerAc screws are manufactured from straight, cylindrical material, internal stresses may cause the material to bend. When ordering random lengths or cut material without end machining, straightening is recommended. Handling or machining of screws can also cause the material to bend. Before, during and after machining, additional straightening is required.



END FIXITY

End fixity refers to the method by which the ends of the screw are supported. The degree of end fixity is related to the amount of restraint of the ends of the screw.

The three basic types of end fixity are:

- Free** No support
- Simple** Shaft restrained against radial and/or axial loads
- Fixed** Shaft rigidly restrained against radial, axial and moment loads

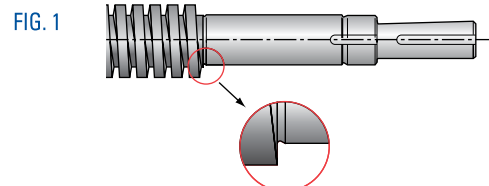
See pages 8 and 9 for a more detailed definition of end fixity.

LOCKNUT THREADS

Locknut threads are machined to allow the bearing retention on the screw shaft by means of a locknut. The thread used on standard machined ends follows American National Form NS Class 3. Precision ground locknuts are available from Helix on special order.

UNDERCUTS AND RADII

Whenever a shaft changes diameter, an undercut or a radius is machined into the transition to minimize stress concentration. Undercuts are preferred for bearing shoulders because they allow clearance for the corner of the bearing. (See FIG. 1)

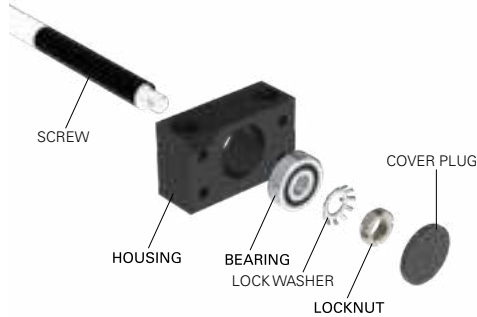


CONCENTRICITY

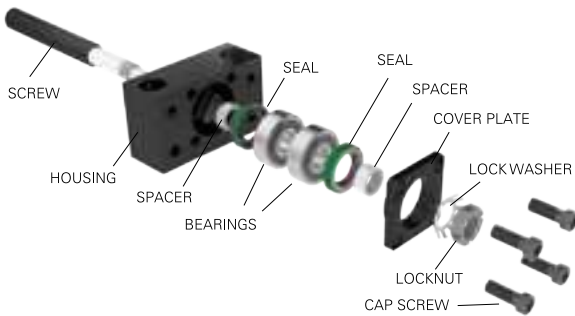
Concentricity refers to multiple diameters sharing the same center. For end machining, close concentricity allows all components to rotate around the same axis resulting in smooth operation and long operating life.

EZZE-MOUNT™ End Bearing Identification

EZM SINGLE BEARING



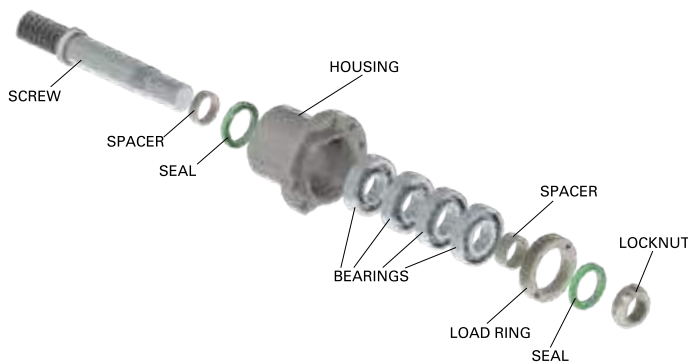
EZM DOUBLE BEARING



EZM Part #	Bearing	Locknut No.	Locknuts Max Axial Load Lb
EZM-1007* EZF-1007*	627-2RS1	1/4"-20	1800
EZM-1008* EZF-1008*	608-2RS1	5/16"-24	2300
EZM-1009* EZF-1009*	609-2RS1	5/16"-24	2300
EZM-3010* EZF-3010*	6000-2RS1	N-00	4100
EZM-3012 EZF-3012	7301	N-01	6900
EZM-3015 EZF-3015	7302	N-02	8100
EZM-3017 EZF-3017	7303	N-03	9900
EZM-2020 EZF-2020	7204	N-04	13200
EZM-3025 EZF-3025	7305	N-05	16200
EZM-2030 EZF-2030	7206	N-06	23700
EZM-3045	7309	N-09	26500
EZM-3060	7312	N-12	37000
EZM-3080	7316	AN-16	53700

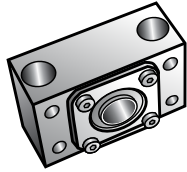
* Use (2) deep groove ball bearings, all others - use (2) angular contact (40 deg.) Universal ground ball bearings in back-to back configuration.

EZRF

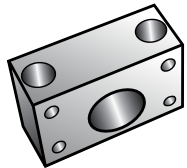


EZRF Part #	Bearing	Locknut No.	Locknuts Max Axial Load kN
EZRF-3012	7301	SFZ 12x1	40
EZRF-3015	7302	SFZ 15x1	60
EZRF-3017	7303	SFZ 17x1	80
EZRF-3020	7304	SFZ 20x1	90
EZRF-3025	7305	SFZ 25x1.5	130
EZRF-3035	7307	SFZ 35x1.5	190
EZRF-3040	7308	SFZ 40x1.5	210
EZRF-3045	7309	SFZ 45x1.5	240
EZRF-3055	7311	SFZ 55x2	340
EZRF-3060	7312	SFZ 60x2	380
EZRF-3070	7314	SFZ 70x2	490
EZRF-3075	7315	SFZ 75x2	520

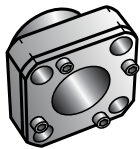
EZZE-MOUNT™ Screw Supports / End Codes



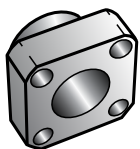
Universal Mount
Double Bearing



Universal Mount
Single Bearing



Flange Mount
Double Bearing

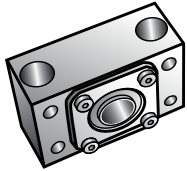


Flange Mount
Single Bearing

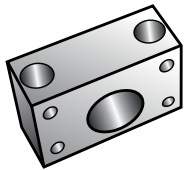
NOMINAL DIA-LEAD	END CODE TYPE		EZZE-MOUNT			
			UNIVERSAL MOUNTS		FLANGE MOUNTS	
	1,2,3	4	Double	Single	Double	Single
1/4 - 3	4	3*	—	—	—	—
1/4 - 4	4	3*	—	—	—	—
1/4 - 20	4	3*	—	—	—	—
5/16 - 2	5	2	—	—	—	—
5/16 - 4	5	2	—	—	—	—
3/8 - 1	6	4*	—	—	—	—
3/8 - 2	7	4	EZM-1007	EZM-4007	EZF-1007	EZF-4007
3/8 - 4	7	4	EZM-1007	EZM-4007	EZF-1007	EZF-4007
3/8 - 5	7*	4	EZM-1007	EZM-4007	EZF-1007	EZF-4007
3/8 - 6	7*	4	EZM-1007	EZM-4007	EZF-1007	EZF-4007
3/8 - 8	7	4	EZM-1007	EZM-4007	EZF-1007	EZF-4007
3/8 - 10	7	4	EZM-1007	EZM-4007	EZF-1007	EZF-4007
3/8 - 12	7*	4	EZM-1007	EZM-4007	EZF-1007	EZF-4007
3/8 - 16	7	4	EZM-1007	EZM-4007	EZF-1007	EZF-4007
1/2 - 1	9	6	EZM-1009	EZM-4009	EZF-1009	EZF-4009
1/2 - 2	10	6	EZM-3010	EZM-4010	EZF-3010	EZF-4010
1/2 - 4	8	4	EZM-1008	EZM-4008	EZF-1008	EZF-4008
1/2 - 5	9	6	EZM-1009	EZM-4009	EZF-1009	EZF-4009
1/2 - 10	9	6*	EZM-1009	EZM-4009	EZF-1009	EZF-4009
5/8 - 2 2/3	10	6	EZM-3010	EZM-4010	EZF-3010	EZF-4010
5/8 - 5	9	6	EZM-1009	EZM-4009	EZF-1009	EZF-4009
5/8 - 5(2)	12	6	EZM-3012	EZM-4012	EZF-3012	EZF-4012
5/8 - 8	10	6	EZM-3010	EZM-4010	EZF-3010	EZF-4010
5/8 - 10	12	8	EZM-3012	EZM-4012	EZF-3012	EZF-4012
3/4 - 2	12	8	EZM-3012	EZM-4012	EZF-3012	EZF-4012
3/4 - 3	12	8	EZM-3012	EZM-4012	EZF-3012	EZF-4012
3/4 - 5	12	8	EZM-3012	EZM-4012	EZF-3012	EZF-4012
3/4 - 6	12	8	EZM-3012	EZM-4012	EZF-3012	EZF-4012
3/4 - 10	15	8	EZM-3015	EZM-4015	EZF-3015	EZF-4015
7/8 - 6	15	10	EZM-3015	EZM-4015	EZF-3015	EZF-4015
1 - 1	20	12	EZM-2020	EZM-4020	EZF-2020	EZF-4020
1 - 2	17	10	EZM-3017	EZM-4017	EZF-3017	EZF-4017
1 - 4	17	10	EZM-3017	EZM-4017	EZF-3017	EZF-4017
1 - 5	17	10	EZM-3017	EZM-4017	EZF-3017	EZF-4017
1 - 6	17	10	EZM-3017	EZM-4017	EZF-3017	EZF-4017
1 - 10	20	12	EZM-2020	EZM-4020	EZF-2020	EZF-4020
1 1/8 - 5	20	12	EZM-2020	EZM-4020	EZF-2020	EZF-4020
1 1/4 - 4	20	12	EZM-2020	EZM-4020	EZF-2020	EZF-4020

* Some journals may show tracings of the thread

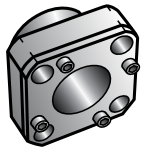
EZZE-MOUNT™ Screw Supports/End Codes (continued)



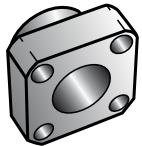
Universal Mount
Double Bearing



Universal Mount
Single Bearing



Flange Mount
Double Bearing



Flange Mount
Single Bearing

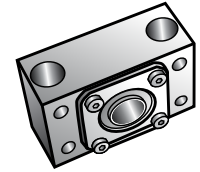
NOMINAL DIA-LEAD	END CODE TYPE		EZZE-MOUNT			
			UNIVERSAL MOUNTS		FLANGE MOUNTS	
	1,2,3	4	Double	Single	Double	Single
1¼ - 5	25	16	EZM-3025	EZM-4025	EZF-3025	EZF-4025
1½ - 2	30	19	EZM-2030	EZM-4030	EZF-2030	EZF-4030
1½ - 2¾	25	16	EZM-3025	EZM-4025	EZF-3025	EZF-4025
1½ - 4	30	19	EZM-2030	EZM-4030	EZF-2030	EZF-4030
1½ - 5	30	19	EZM-2030	EZM-4030	EZF-2030	EZF-4030
1½ - 10	30	19	EZM-2030	EZM-4030	EZF-2030	EZF-4030
1¾ - 4	35	19	EZM-2030	EZM-4030	EZF-2030	EZF-4030
2 - 2	35	19	EZM-2030	EZM-4030	EZF-2030	EZF-4030
2 - 4	40	22	EZM-2030	EZM-4030	EZF-2030	EZF-4030
2 - 5	40	28	EZM-2030	EZM-4030	EZF-2030	EZF-4030
2¼ - 2	40	24	EZM-3045	EZM-4045	EZF-3045	EZF-4045
2¼ - 4	45	28	EZM-3045	EZM-4045	EZF-3045	EZF-4045
2½ - 2	45	28	EZM-3045	EZM-4045	EZF-3045	EZF-4045
2½ - 3	50	32	EZM-3045	EZM-4045	EZF-3045	EZF-4045
2½ - 4	50	32	EZM-3045	EZM-4045	EZF-3045	EZF-4045
3 - 2	60	39	EZM-3060	EZM-4060	—	—
3¾ - 1½	65	39*	EZM-3060	EZM-4060	—	—
3¾ - 1½	75	48	—	—	—	—
4½ - 1½	95	55	—	—	—	—
5 - 1½	105	67	—	—	—	—
6 - 1½	—	—	—	—	—	—

* Some journals may show tracings of the thread

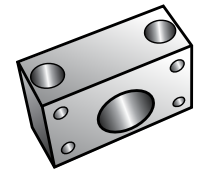
See pages 50-57 for screw dimensions. Note: When selecting the bearing support for an application with high axial loads, the capacities of the bearings and locknuts must be considered. See page 62.

EZZE-MOUNT™ Screw Supports/End Codes (continued)

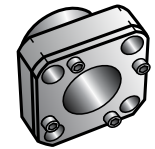
NOMINAL DIA-LEAD	END CODE TYPE		EZZE-MOUNT			
			UNIVERSAL MOUNTS		FLANGE MOUNTS	
	1,2,3	4	Double	Single	Double	Single
Tr 8 x 1.5	6	4	EZM-1006	EZM-4006	EZF-1006	EZF-4006
Tr 8 x 4	6	4	EZM-1006	EZM-4006	EZF-1006	EZF-4006
Tr 8 x 8	6	4	EZM-1006	EZM-4006	EZF-1006	EZF-4006
Tr 10 x 2	7	4	EZM-1007	EZM-4007	EZF-1007	EZF-4007
Tr 10x3 (1.5)	7	4	EZM-1007	EZM-4007	EZF-1007	EZF-4007
Tr 10 x 9	7	4	EZM-1007	EZM-4007	EZF-1007	EZF-4007
Tr 11 x 6	7	4	EZM-1007	EZM-4007	EZF-1007	EZF-4007
Tr 12x3	7	4	EZM-1007	EZM-4007	EZF-1007	EZF-4007
Tr 12 x 6	7	4	EZM-1007	EZM-4007	EZF-1007	EZF-4007
Tr 12 x 10	7	4	EZM-1007	EZM-4007	EZF-1007	EZF-4007
Tr 14 x 3	7	6	EZM-1007	EZM-4007	EZF-1007	EZF-4007
Tr 14 x 4	7	6	EZM-1007	EZM-4007	EZF-1007	EZF-4007
Tr 16 x 2	10	6	EZM-3010	EZM-4010	EZF-3010	EZF-4010
Tr 16x4	10	6	EZM-3010	EZM-4010	EZF-3010	EZF-4010
Tr 16 x 6	10	6	EZM-3010	EZM-4010	EZF-3010	EZF-4010
Tr 16 x 8	10	6	EZM-3010	EZM-4010	EZF-3010	EZF-4010
Tr 18 x 4	10	6	EZM-3010	EZM-4010	EZF-3010	EZF-4010
Tr 20x4	12	8	EZM-3012	EZM-4012	EZF-3012	EZF-4012
Tr 20 x 8	12	8	EZM-3012	EZM-4012	EZF-3012	EZF-4012
Tr 26x6	17	10	EZM-3017	EZM-4017	EZF-3017	EZF-4017
Tr 40x7	30	19	EZM-2030	EZM-4030	EZF-2030	EZF-4030
Tr 55x12	30	19	EZM-2030	EZM-4030	EZF-2030	EZF-4030
Tr 65x12	45	28	EZM-3045	EZM-4045	EZF-3045	EZF-4045



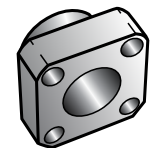
Universal Mount
Double Bearing



Universal Mount
Single Bearing



Flange Mount
Double Bearing

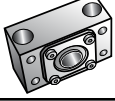


Flange Mount
Single Bearing

* Some journals may show tracings of the thread

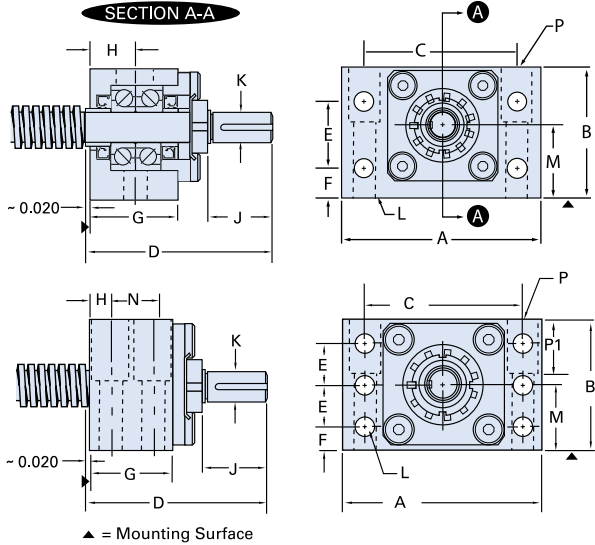
See pages 50-57 for screw dimensions. Note: When selecting the bearing support for an application with high axial loads, the capacities of the bearings and locknuts must be considered. See page 62.

EZZE-MOUNT™ Universal Mount Single and Double Bearing Support

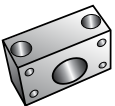


UNIVERSAL-MOUNT DOUBLE

Double Angular Contact Bearing, which should be used with Type 3 Standard Ends

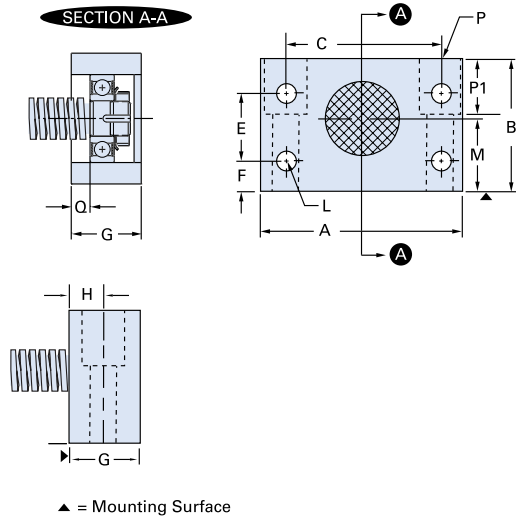


Double Part No.	A	B	C	D	E
EZM-1007	2.00	1.38	1.50	1.94	0.88
EZM-1008	2.00	1.38	1.50	2.00	0.88
EZM-1009	2.75	2.00	2.00	2.38	1.38
EZM-3010	2.75	2.00	2.00	2.50	1.38
EZM-3012	3.50	2.22	2.75	3.29	1.25
EZM-3015	3.50	2.52	2.75	3.50	1.25
EZM-3017	4.50	2.69	3.38	3.65	1.38
EZM-2020	5.00	3.03	3.75	4.03	1.50
EZM-3025	6.50	3.69	4.75	4.45	2.00
EZM-2030	6.50	3.69	4.75	4.86	2.00
EZM-3045	8.50	5.62	6.62	6.68	1.81
EZM-3060	10.00	7.50	8.00	9.22	2.50
EZM-3080	12.50	8.50	10.00	11.56	2.75



UNIVERSAL-MOUNT SINGLE

Single Radial Bearing, which should be used with Type 1 Standard Ends



Single Part No.	A	B	C	D	E
EZM-4007	2.00	1.38	1.50	—	0.88
EZM-4008	2.00	1.38	1.50	—	0.88
EZM-4009	2.75	2.00	2.00	—	1.38
EZM-4010	2.75	2.00	2.00	—	1.38
EZM-4012	3.50	2.22	2.75	—	1.25
EZM-4015	3.50	2.52	2.75	—	1.25
EZM-4017	4.50	2.69	3.38	—	1.38
EZM-4020	5.00	3.03	3.75	—	1.50
EZM-4025	6.50	3.69	4.75	—	2.00
EZM-4030	6.50	3.69	4.75	—	2.00
EZM-4045	8.50	5.62	6.62	—	1.81
EZM-4060	10.00	7.50	8.00	—	2.50

EZZE-MOUNT™ Universal Mount Single and Double Bearing Support

F	G	H	J	K Shaft Dia.	L Thru (4 or 6)	M	N	P				Q	End Code
								Bolt Size (2 or 4)	Thru	C'Bore	P1		
0.25	1.06	0.50	0.46	0.187 0.186	0.22(4)	0.687	—	¼ × 1½(2)	0.28	0.41	0.41	—	7
0.25	1.06	0.50	0.56	0.250 0.249	0.22(4)	0.687	—	¼ × 1½(2)	0.28	0.41	0.41	—	8
0.31	1.19	0.56	0.56	0.250 0.249	0.28(4)	1.000	—	⅝ × 2(2)	0.34	0.50	0.56	—	9
0.31	1.19	0.56	0.69	0.312 0.311	0.28(4)	1.000	—	⅝ × 2(2)	0.34	0.50	0.56	—	10
0.50	1.38	0.69	1.30	0.406 0.405	0.28(4)	1.187	—	¾ × 1¾(2)	0.41	0.62	1.00	—	12
0.80	1.38	0.69	1.30	0.500 0.499	0.28(4)	1.438	—	¾ × 2½(2)	0.41	0.62	1.00	—	15
0.62	1.69	0.84	1.30	0.500 0.499	0.41(4)	1.500	—	½ × 2¼(2)	0.53	0.88	1.25	—	17
0.75	1.72	0.86	1.30	0.625 0.624	0.47(4)	1.625	—	¾ × 2½(2)	0.66	1.00	1.50	—	20
0.88	1.94	0.97	1.61	0.750 0.749	0.66(4)	1.875	—	⅞ × 3¼(2)	0.91	1.38	1.75	—	25
0.88	1.94	0.97	1.81	1.000 0.999	0.66(4)	1.875	—	⅞ × 3¼(2)	0.91	1.38	1.75	—	30
1.00	3.47	0.88	2.19	1.375 1.374	0.81(6)	2.812	1.71	1 × 5(4)	1.03	1.56	2.13	—	45
1.50	4.19	1.03	3.68	2.250 2.249	1.03(6)	4.000	2.13	1 × 5(4)	1.03	1.56	4.00	—	60
1.75	5.13	1.219	4.69	3.000 2.998	1.28(6)	4.500	2.68	1¼ × 4¾(4)	1.28	1.94	4.75	—	80

NOTE: When selecting the bearing support for an application with high axial loads, the capacities of the bearings and locknuts must be considered.

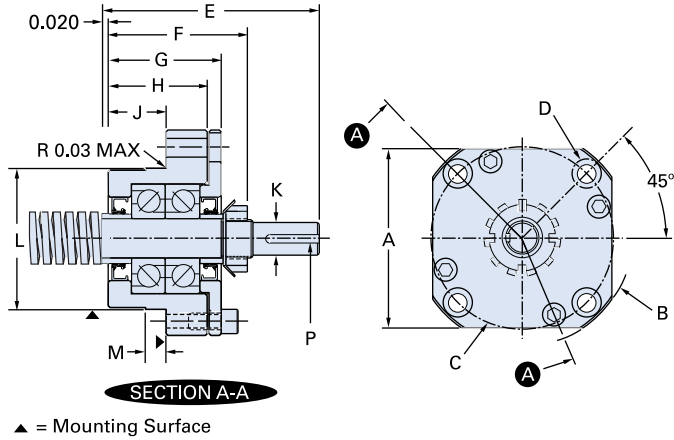
F	G	H	J	K Shaft Dia.	L Thru (4 or 6)	M	N	P				Q	End Code
								Bolt Size (2 or 4)	Thru	C'Bore	P1		
0.25	1.06	0.50	—	—	0.22(4)	0.687	—	¼ × 1½(2)	0.28	0.41	0.41	0.19	7
0.25	1.06	0.50	—	—	0.22(4)	0.687	—	¼ × 1½(2)	0.28	0.41	0.41	0.19	8
0.31	1.19	0.56	—	—	0.28(4)	1.000	—	⅝ × 2(2)	0.34	0.50	0.56	0.38	9
0.31	1.19	0.56	—	—	0.28(4)	1.000	—	⅝ × 2(2)	0.34	0.50	0.56	0.38	10
0.50	1.38	0.69	—	—	0.28(4)	1.187	—	¾ × 1¾(2)	0.41	0.62	1.00	0.33	12
0.80	1.38	0.69	—	—	0.28(4)	1.438	—	¾ × 2½(2)	0.41	0.62	1.00	0.33	15
0.62	1.69	0.84	—	—	0.41(4)	1.500	—	½ × 2¼(2)	0.53	0.88	1.25	0.38	17
0.75	1.72	0.86	—	—	0.47(4)	1.625	—	¾ × 2½(2)	0.66	1.00	1.50	0.5	20
0.88	1.94	0.97	—	—	0.66(4)	1.875	—	⅞ × 3¼(2)	0.91	1.38	1.75	0.52	25
0.88	1.94	0.97	—	—	0.66(4)	1.875	—	⅞ × 3¼(2)	0.91	1.38	1.75	0.52	30
1.00	3.47	0.88	—	—	0.81(6)	2.812	1.71	1 × 5(4)	1.03	1.56	2.13	0.98	45
1.50	4.19	1.03	—	—	1.03(6)	4.000	2.13	1 × 5(4)	1.03	1.56	4.00	1.22	60

EZZE-MOUNT™ Flange-Mount Single and Double Bearing Support



FLANGE-MOUNT DOUBLE

Double Angular Contact Bearing, which should be used with Type 3 Standard Ends

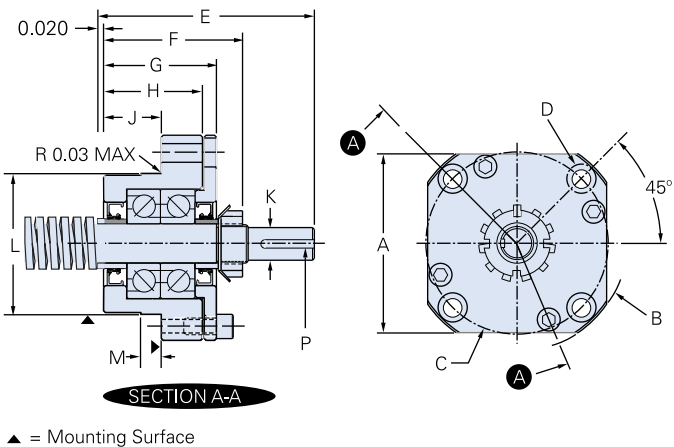


Double Part No.	A	B	C	D Thru	C'bore
EZF-1007	1.88	2.44	1.875	0.266	0.44
EZF-1008	1.88	2.44	1.875	0.266	0.44
EZF-1009	2.00	2.60	2.000	0.266	0.44
EZF-3010	2.00	2.60	2.000	0.266	0.44
EZF-3012	2.50	3.17	2.500	0.266	0.44
EZF-3015	2.70	3.27	2.750	0.281	0.44
EZF-3017	3.38	4.03	3.250	0.344	0.53
EZF-2020	3.38	4.03	3.250	0.344	0.53
EZF-3025	4.38	5.31	4.250	0.531	0.81
EZF-2030	4.38	5.31	4.250	0.531	0.81
EZF-3045	6.50	7.88	6.313	0.781	1.25



FLANGE-MOUNT SINGLE

Single Radial Bearing, which should be used with Type 1 Standard Ends



Single Part No.	A	B	C	D Thru	C'bore
EZF-4007	1.88	2.44	1.875	0.266	0.44
EZF-4008	1.88	2.44	1.875	0.266	0.44
EZF-4009	2.00	2.60	2.000	0.266	0.44
EZF-4010	2.00	2.60	2.000	0.266	0.44
EZF-4012	2.50	3.17	2.500	0.266	0.44
EZF-4015	2.70	3.27	2.750	0.281	0.44
EZF-4017	3.38	4.03	3.250	0.344	0.53
EZF-4020	3.38	4.03	3.250	0.344	0.53
EZF-4025	4.38	5.31	4.250	0.531	0.81
EZF-4030	4.38	5.31	4.250	0.531	0.81
EZF-4045	6.50	7.88	6.313	0.781	1.25

EZZE-MOUNT™ Flange-Mount Single and Double Bearing Support

E	F	G	H	J	K Shaft Dia.	L	M	P	Q	END CODE
1.94	1.44	1.06	0.82	0.50	0.187-0.186	1.3775-1.3770	0.188	0.063	—	7
2.00	1.44	1.06	0.82	0.50	0.250-0.249	1.3775-1.3770	0.188	0.094	—	8
2.38	1.81	1.33	1.09	0.71	0.250-0.249	1.4957-1.4951	0.188	0.094	—	9
2.50	1.81	1.33	1.09	0.71	0.312-0.311	1.4957-1.4951	0.190	0.125	—	10
3.29	1.99	1.57	1.38	0.75	0.406-0.405	1.8894-1.8888	0.312	0.125	—	12
3.50	2.10	1.71	1.50	0.88	0.500-0.499	2.1256-2.1250	0.312	0.125	—	15
3.65	2.33	1.93	1.63	0.94	0.500-0.499	2.5193-2.5185	0.312	0.125	—	17
4.03	2.71	1.98	1.72	1.03	0.625-0.624	2.5193-2.5185	0.312	0.188	—	20
4.45	2.89	2.36	1.94	1.19	0.750-0.749	3.1492-3.1482	0.375	0.188	—	25
4.86	3.05	2.36	1.94	1.19	0.999-1.000	3.1492-3.1482	0.375	0.250	—	30
6.68	4.47	4.01	3.22	1.97	1.375-1.374	4.8025-4.8015	0.500	0.313	—	45

NOTE: When selecting the bearing support for an application with high axial loads, the capacities of the bearings and locknuts must be considered.

E	F	G	H	J	K Shaft Dia.	L	M	P	Q	END CODE
—	—	1.00	—	0.40	—	1.3775 1.3770	0.188	—	0.13	7
—	—	1.00	—	0.40	—	1.3775 1.3770	0.188	—	0.13	8
—	—	1.00	—	0.44	—	1.4957 1.4951	0.188	—	0.13	9
—	—	1.00	—	0.44	—	1.4957 1.4951	0.190	—	0.13	10
—	—	1.15	—	0.55	—	1.8894 1.8888	0.312	—	0.13	12
—	—	1.25	—	0.63	—	2.1256 2.1250	0.312	—	0.20	15
—	—	1.32	—	0.63	—	2.5193 2.5185	0.312	—	0.20	17
—	—	1.47	—	0.72	—	2.5193 2.5185	0.312	—	0.20	20
—	—	1.67	—	0.76	—	3.1492 3.1482	0.375	—	0.25	25
—	—	1.67	—	0.76	—	3.1492 3.1482	0.375	—	0.25	30
—	—	2.50	—	1.25	—	4.8025-4.8015	0.500	—	0.50	45

EZZE-MOUNT™ Universal Mount Bearing Support with Motor Mount



Universal Mount with motor mount includes an EZZE-MOUNT block with a motor mount for easy, accurate installation of ball screw and acme screw assemblies.

EXAMPLE:
1000-0250 SRT RH / U3 / 4N / 41.87 / SBN7508 / FS

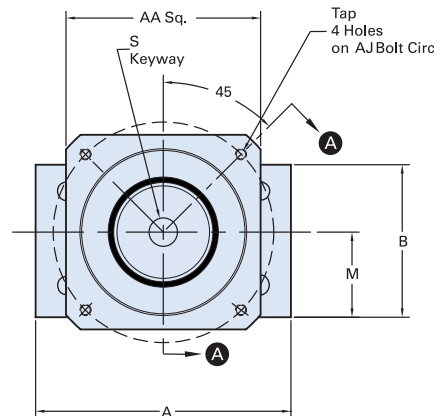
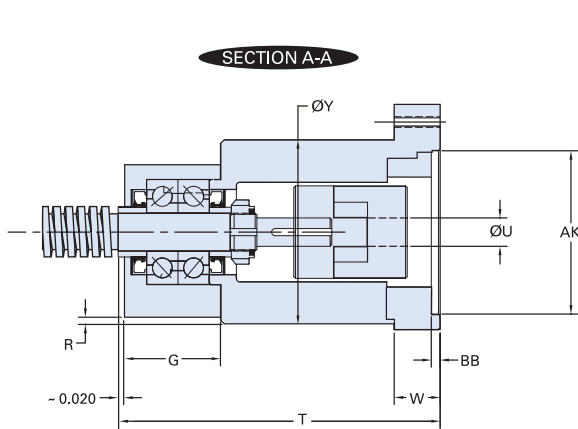
EZM-2020-34

Note: When selecting the bearing support for an application with high axial loads, the capacities of the bearings and locknuts must be considered.

EXAMPLES OF EZM DESIGNATIONS:

U1, U2, U3 or U4 = Standard Mount available above
UX = modified, further explanation needed (i.e.: Special Frame)

Part No.	Ref. Code	Nema Frame Ref.	AA	BB	T	U	S	Y	W	AK	AJ	TAP	R
EZM-1008-17	U1	17	1.75	0.25	3.35	0.25	0.094	1.75	0.52	.868/1.871	1.725	#8-32	0.19
EZM-1009-23	U2	23	2.50	0.19	4.10	0.38	0.125	2.50	0.38	1.503/1.506	2.625	#10-32	0.26
EZM-3010-23	U2	23	2.50	0.19	4.10	0.38	0.125	2.50	0.38	1.503/1.506	2.625	#10-32	0.26
EZM-3012-23	U2	23	2.50	0.19	4.48	0.38	0.125	2.50	0.38	1.503/1.506	2.625	#10-32	0.10
EZM-3012-34	U3	34	3.25	0.16	4.92	0.50	0.125	2.50	0.81	2.878/2.882	3.875	#10-32	0.10
EZM-3015-23	U2	23	2.50	0.19	4.90	0.38	0.125	2.50	0.54	1.503/1.506	2.625	#10-32	-
EZM-3015-34	U3	34	3.25	0.16	5.13	0.50	0.125	2.50	0.81	2.878/2.882	3.875	#10-32	0.19
EZM-3017-34	U3	34	3.25	0.16	5.56	0.50	0.125	3.12	0.81	2.878/2.882	3.875	#10-32	0.13
EZM-3017-42	U4	42	4.50	0.19	6.31	0.63	0.188	3.12	1.56	2.504/2.508	5.000	1/4"-20	0.13
EZM-2020-34	U3	34	3.44	0.16	5.96	0.50	0.125	3.44	0.81	2.878/2.882	3.875	#10-32	0.10
EZM-2020-42	U4	42	4.50	0.19	6.71	0.63	0.188	3.44	1.56	2.504/2.508	5.000	1/4"-20	0.10
EZM-3025-34	U3	34	4.00	0.16	6.44	0.50	0.125	4.38	0.81	2.878/2.882	3.875	#10-32	0.31
EZM-3025-42	U4	42	4.50	0.19	7.17	0.63	0.188	4.38	1.56	2.504/2.508	5.000	1/4"-20	0.31
EZM-2030-34	U3	34	4.00	0.16	6.97	0.50	0.125	4.38	0.81	2.878/2.882	3.875	#10-32	0.31
EZM-2030-42	U4	42	4.50	0.19	7.72	0.63	0.188	4.38	1.56	2.504/2.508	5.000	1/4"-20	0.31
EZM-2030-56	U5	56C	6.63 dia.	0.19	7.78	0.63	0.188	4.38	1.62	4.502/4.506	5.875	0.41 dia. thru	0.31



EZZE-MOUNT™ Universal Mount Bearing Support with Flange Mount



Flange Mount with motor mount includes an EZZE-MOUNT block with a motor mount for easy, accurate installation of ball screw and acme screw assemblies.

EXAMPLE:

105-RA / Y3 / 4N / 41.87 / 20105 / FS

EZF-3017-34

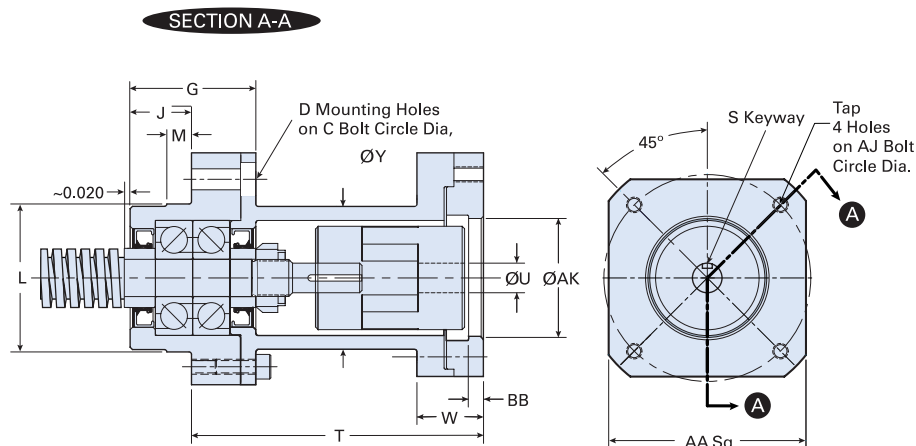
Note: When selecting the bearing support for an application with high axial loads, the capacities of the bearings and locknuts must be considered.

EXAMPLES OF EZF DESIGNATIONS:

Y1, Y2, Y3, Y4 = Standard Mount available above

YX = modified, further description needed (i.e.: Special Frame)

Part No.	Ref. Code	Nema Frame Ref.	AA	BB	T	U	S	Y	W	AK	AJ	TAP
EZF-1008-17	Y1	17	1.75	0.25	2.84	0.25	0.094	2.2	0.52	.868/871	1.725	#8-32
EZF-1009-23	Y2	23	2.50	0.19	3.41	0.38	0.125	2.1	0.88	1.503/1.506	2.625	#10-32
EZF-3010-23	Y2	23	2.50	0.19	3.41	0.38	0.125	2.1	0.88	1.503/1.506	2.625	#10-32
EZF-3012-23	Y2	23	2.50	0.19	3.70	0.38	0.125	1.81	0.88	1.503/1.506	2.625	#10-32
EZF-3012-34	Y3	34	3.25	0.16	4.14	0.50	0.125	1.81	1.31	2.878/2.882	3.875	#10-32
EZF-3015-23	Y2	23	2.50	0.19	3.84	0.38	0.125	1.98	0.88	1.503/1.506	2.625	#10-32
EZF-3015-34	Y3	34	3.25	0.16	4.36	0.50	0.125	1.98	1.31	2.878/2.882	3.875	#10-32
EZF-3017-34	Y3	34	3.25	0.16	4.62	0.50	0.125	2.25	1.67	2.878/2.882	3.875	#10-32
EZF-3017-42	Y4	42	4.50	0.19	5.37	0.63	0.188	2.25	2.41	2.504/2.508	5.000	¼"-20
EZF-2020-34	Y3	34	3.44	0.16	4.92	0.50	0.125	2.37	1.67	2.878/2.882	3.875	#10-32
EZF-2020-42	Y4	42	4.50	0.19	5.67	0.63	0.188	2.37	2.41	2.504/2.508	5.000	¼"-20
EZF-3025-34	Y3	34	4.00	0.16	5.24	0.50	0.125	3.00	1.67	2.878/2.882	3.875	#10-32
EZF-3025-42	Y4	42	4.50	0.19	5.98	0.63	0.188	3.00	2.41	2.504/2.508	5.000	¼"-20
EZF-2030-34	Y3	34	4.00	0.16	5.78	0.50	0.125	3.00	1.67	2.878/2.882	3.875	#10-32
EZF-2030-42	Y4	42	4.50	0.19	6.53	0.63	0.188	3.00	2.41	2.504/2.508	5.000	¼"-20
EZF-2030-56	Y5	56C	6.63 dia.	0.19	6.60	0.63	0.188	3.00	2.42	4.502/4.506	5.875	0.41 dia. thru
EZF-3035-56	Y5	56C	6.63 dia.	0.19	7.54	0.63	0.188	4.50	2.50	4.502-4.506	5.875	0.41 dia. thru



LINEAR MOTION APPLICATIONS

High Quality, Precision Linear Motion Solutions

LIFE SCIENCES



- Auto samplers
- Syringe pumps
- Microscopes
- MRI scanners
- CT scanners
- Radiographic machines
- In-vitro diagnostics
- Genomics
- Blood gas chemistry

PRINTING & BINDING



- "Z" axis actuators
- Multi-axis gantries
- 3D printing
- Automation / Material handling
- Additive manufacturing (AD)
- Large format sign printing
- Digital offset printing process
- Folding and sealing equipment
- Thermal CTP systems

SECURITY - MILITARY



- Automated door locking systems
- Pan-tilt-zoom cameras
- Automated gates
- Tactical automated security cameras
- Missile fin actuation
- Tank sighting systems
- Drones and UAVs
- Torpedo fin actuation
- Guided munitions

SEMICONDUCTOR



- Burnishing stages
- Stacking systems
- Vision inspection machines
- X, Y, Z gantries
- Wafer elevators / Wafer handling
- Acoustic microscopes
- Ultrasonic imaging
- Tuning coils
- Vacuum chamber doors