

Ball Screw Assemblies

HELIX[™]
LINEAR TECHNOLOGIES

Partners



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Certifications



Market Segments Served

- Medical & Diagnostic
- Aerospace
- Packaging
- Automotive

- Electronics
- Transportation
- Patient Handling
- Entertainment

- Semiconductor
- Military and Defense
- Factory Automation
- Pulp & Paper

- Steel
- Chemical
- Agriculture/Food Handling
- Tire Manufacture



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 and ball 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 ball screws, 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 and ball screws in the growing electromechanical actuation industry. Our rapid growth has included the addition of end-to-end linear actuator solutions, providing integrated solutions.

Ball Screw Design Features



Ball Screws from Helix Linear Technologies are manufactured using a cold-forming process that enhances material strength, increases precision, and produces extremely high lead angles.

Offered in diameters 4 mm to 40 mm, additional design ball screw characteristics include:

- High-accuracy and repeatability
- High efficiency
- High load ratings (for both static and dynamic loads)
- Reduced energy consumption
- Low friction and stick-slip free operation
- Minimum wear
- High reliability and a long service life
- Available dirt wipers

Static and Dynamic Load Ratings

The load ratings for Helix Linear Technologies ball screws are calculated based on commonly used DIN bases.

Lead Accuracy

G9 = $\leq 0,1$ mm /300 mm - Standard
G7 = $\leq 0,052$ mm/300 mm
G5 = $\leq 0,023$ mm/300 mm

Efficiency

Efficiency for carry ball screws is $\geq 90\%$.

Materials

- **Screw and balls:** Steel 1.3501 (100 Cr6) or 1.1213 (Cf53)
- **Nut:** Steel 1.2714 (55NCrMoV7)
- Corrosion-resistant steel available
- Additional material options available upon request

Operating Temperature

-4° to 176° F (-20° to 176° C)
Consult and application engineer for additional temperature parameters and materials.

Reduced Backlash

Reduced backlash ≤ 0.01 mm is available (for paired screw/nut assemblies, or those that have been mounted).

Ball Screw Nut Types

Ball Nut Shapes



Mounting Thread (FG)

- Cost effective
- Turned outer diameter
- Pin wrench hole



Cylindrical (ZY)

- Cost effective
- Turned outer diameter
- Pin wrench hole



Flange (FB/FA)

- Cost effective
- Turned outer diameter
- Pin wrench hole

Ball Return Systems



End Cap Ball Return (E/F)

- Ideal for oversquare pitches
- Wipers firmly integrated into end caps
- High-performancetechnopolymer construction
- Cost-efficient



Tube Ball Return (R)

- Return is fully integrated into nut body
- Designed for heavy loads
- Excellent for high-temperature applications
- Space-saving design



Single Thread Ball Return (I)

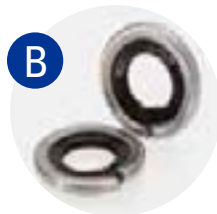
- High-performancetechnopolymer construction
- Additional materials available upon request
- Pin wrench hole

Don't see what you're looking for? Custom designs are available. Consult with a Helix Linear Technologies Application Engineer today.

Wiper Options



Technopolymer Wiper



Brush Wiper

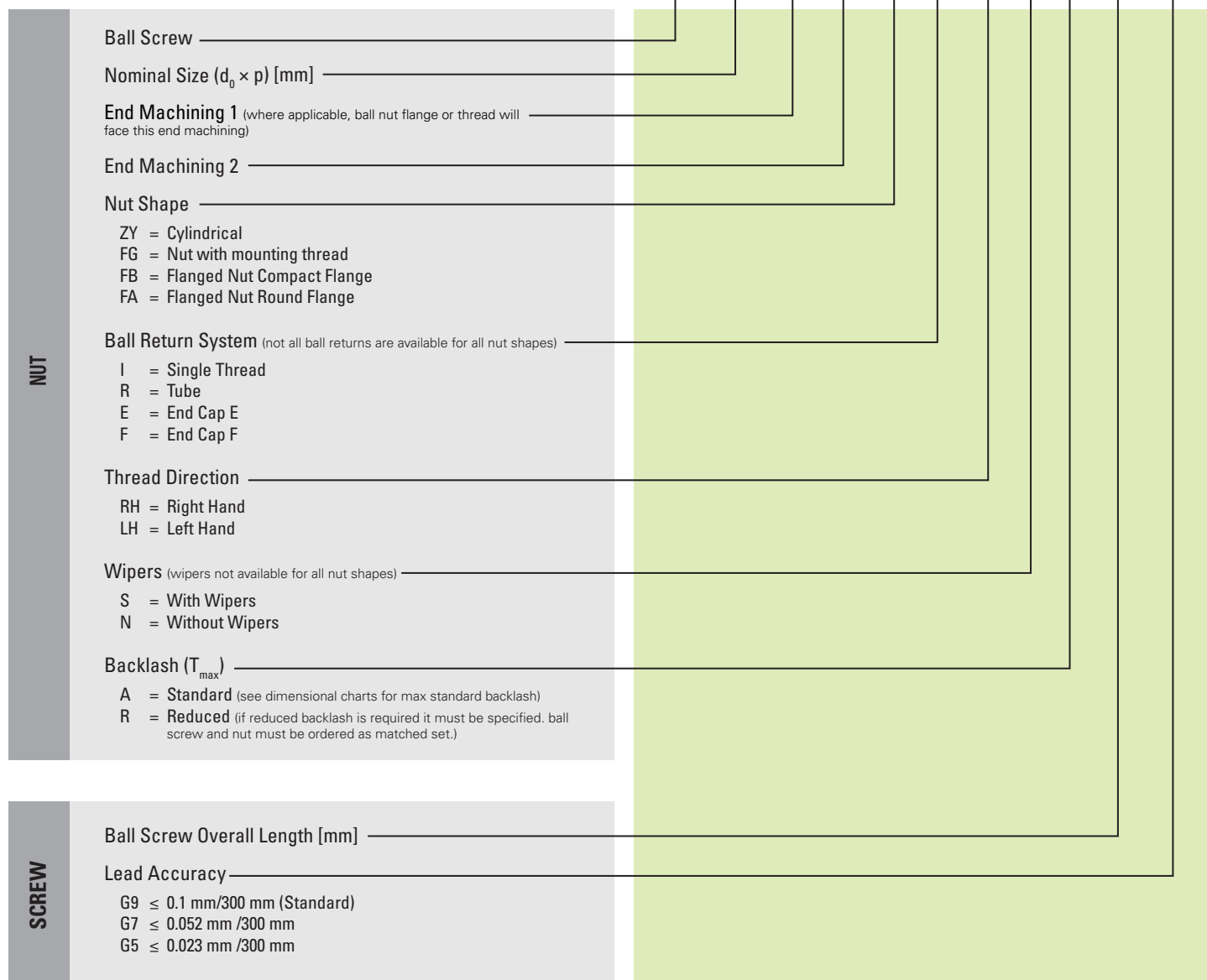


Felt Wiper

** Available Upon Request*

Ball Screw Assembly Part Number Configuration

Ball Screw Assembly ————— **ECS - 4×1 - 1K - 4N - FG - R - RH - S - R - 350 - G7**



Ball Screw Only ————— **ECS - 4×1 - 1K - 00 - RH - 300 - G9**

Ball Nut Only ————— **ECN - 4×1 - FG - R - RH - N - A**

Ball Screw Dimension Map

Standard Range

Pitch [mm]	Nominal Diameter (d) [mm]													
	4	5	6	8	10	12	12.7	14	15	16	20	25	32	40
1	●		●	●										
1.5				●										
2		●	●	●	●	●		●		●	●			
2.5				●										
3		●		●	●	●								
4					●	●		●						
5				●		●				●	●	●	●	●
6			●											
8				●										
10					●	●				●	●	●	●	
12				●		●								
12.7							●							
15													●	
16										●				
20									●		●			●
25												●		
25.4							●							
30												●		
32													●	
40														●
50										●				





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