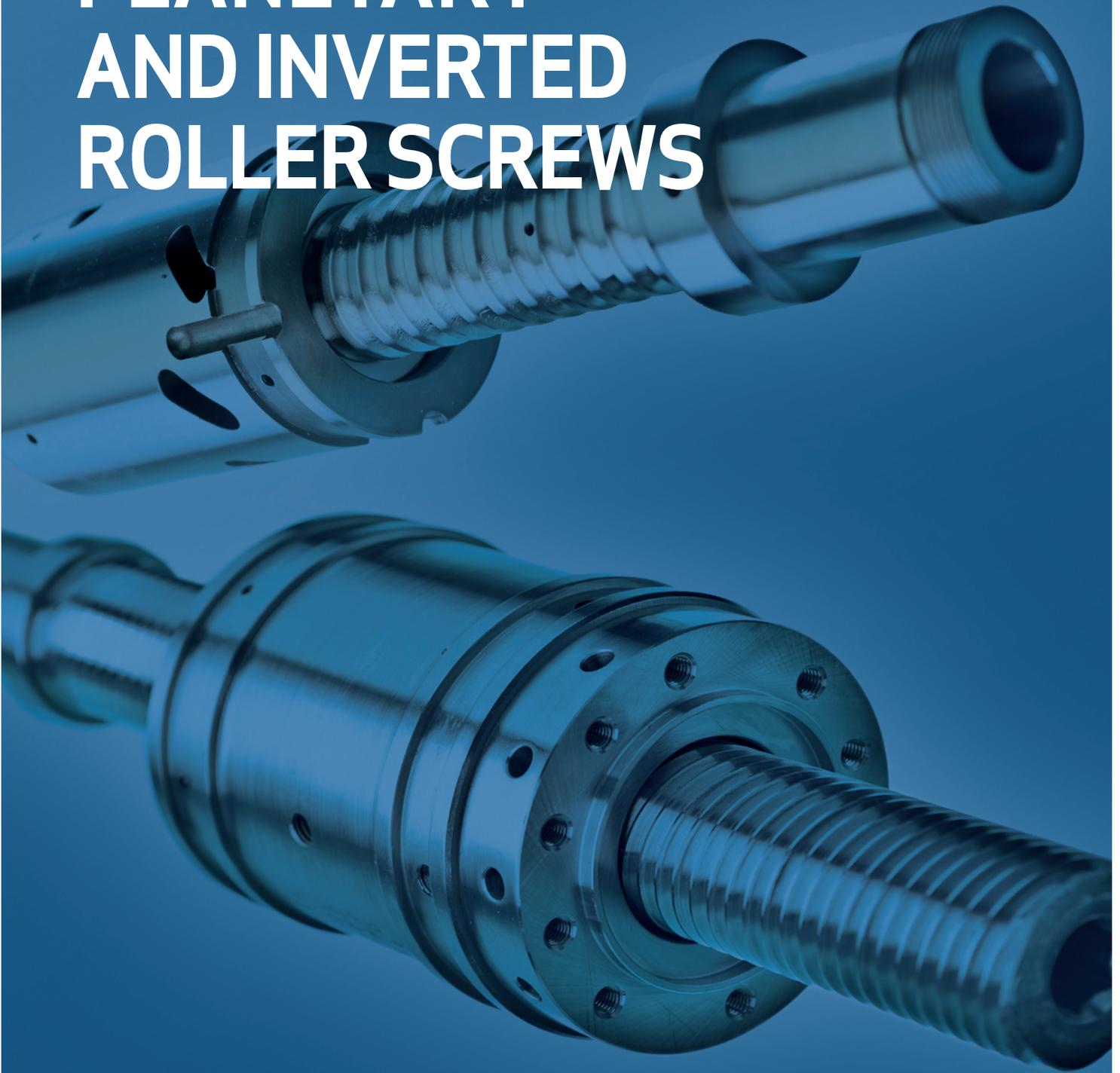


BALL SCREWS, PLANETARY AND INVERTED ROLLER SCREWS



WHAT MOVES YOUR WORLD

MOOG

FLEXIBLE DESIGN AND SUPERIOR ACCURACY FOR HIGH PERFORMANCE APPLICATIONS

Moog has over 30 years experience in producing and designing customized high precision ball and planetary roller screws that are suitable for a variety of markets and challenging motion control applications.

Developed to meet the needs of leading-edge machine manufacturers across a wide range of industries, Moog ball screws and planetary

roller screws are flexible and designed to provide a unique and competitive advantage.

The range accommodates a wide variety of static and dynamic load and acceleration. Alternative designs are available which ensure that the most stringent noise and vibration requirements can be met.

Ball screws



- Ground ball screws and roller screws ISO 3408-3 classes 1-3-5-7
- Various screw diameter-pitch combinations available (screw load capacity and dynamic performance)
- Wide selection of screw end shafts (bearing housings, metric threads, socket heads, wrenches, bored heads, etc.)
- Nut customization (shape, flange, coupling, number of circuits, special machining processes)
- Various lubrication options (selection of the right lubricant for the application, positioning of the lubrication holes)
- Selection of materials and special processing (standard and special materials, surface treatments appropriate for the type of application)
- Extremely quiet operation for low disturbance and low noise applications
- Compact design thanks to the Moog recirculating system design that allows a better load distribution
- Robust design suited to heavy duty applications, vibration and harsh environments.

Planetary roller screws

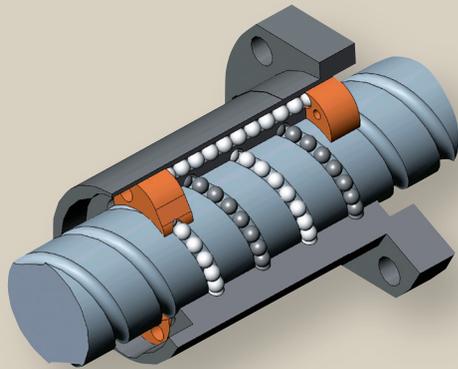
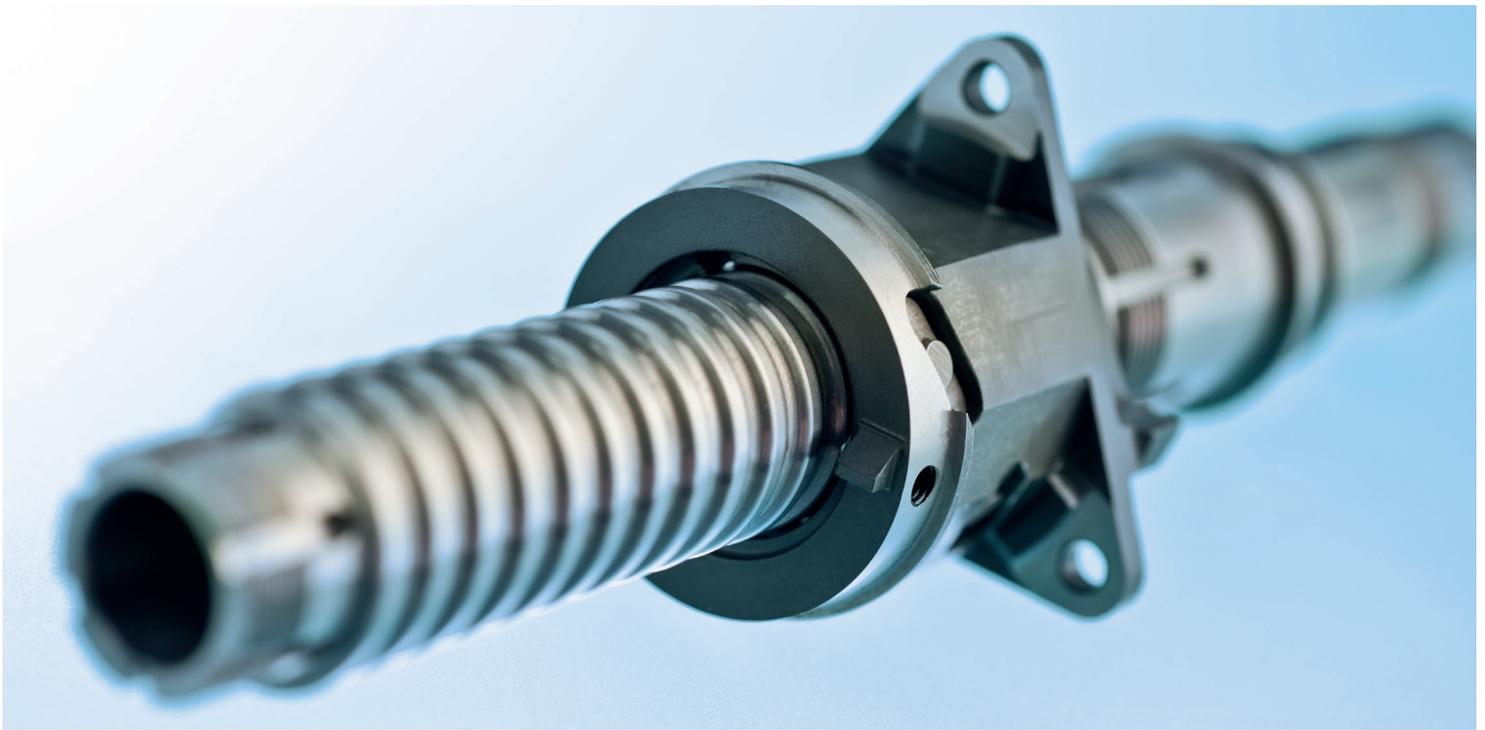


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Inverted roller screws

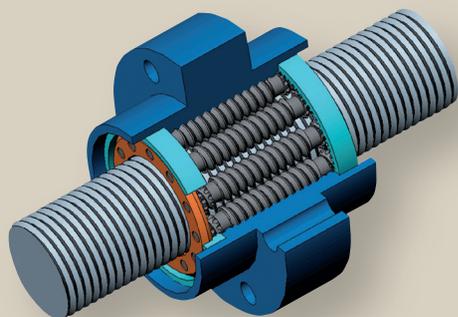


- Works on same principle as a planetary roller screw. In order to reduce the overall actuator dimensions: Either the nut or screw can be directly used as a push tube
- Same high speed capability similar to a planetary roller screw, load acts directly on the translating push tube
- Acceleration and shock resistance beyond limits of ball screw technology
- Compactness, and ease of rotor integration: Reduced number of parts in customer system
- Strongly customized design of screw end shaft and nut
- Provide powerful and reliability
- electro-mechanical actuation where compactness and high load capability are required
- Grinding to ISO 3408-3 classes 3-5
- Axial play or backlash zero by oversized rollers
- Various diameter-pitch combinations available. Stroke depending on nominal diameter.



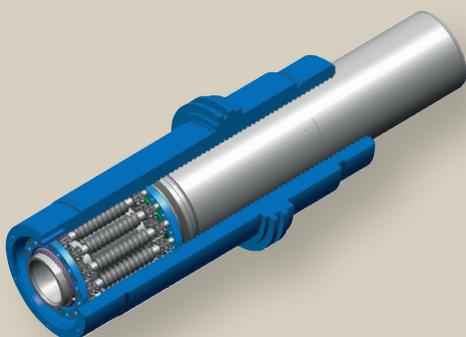
ISO 3408-3	classes 1-3-5-7 ¹⁾
Diameter	12 to 100 mm (0.47 to 3.93 in) ²⁾
Pitch	1.5 to 80 mm (0.06 to 3.14 in)
Length	up to 6,200 mm (244 in) ³⁾
Load capacity:	- Dynamic load up to 1,450 kN -
Acceleration	15 to 30 m/s ²
Single or multi-start	

- 1) ISO 3408-3 defines key geometric features and tolerances of ball screws
- 2) Smaller diameters (less than 12 mm) available upon request
- 3) In special condition reachable length 7,000 mm (275 in)

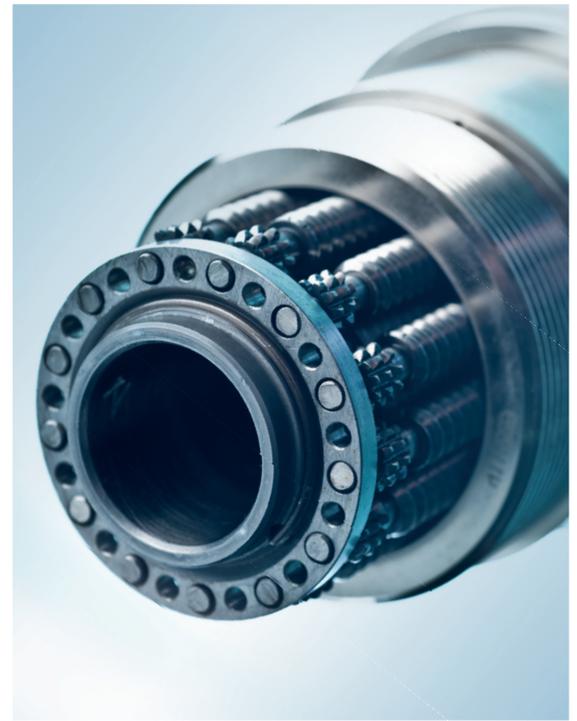


ISO 3408-3	classes 1-3 ¹⁾
Diameter	15 to 100 mm (0.6 to 3.93 in) ²⁾
Pitch	2 to 42 mm (0.08 to 1.65 in)
Length	up to 4,000 mm (157.5 in)
Load capacity:	- Dynamic load up to 1,250 kN -
Acceleration	up to 40 m/sec ²
Number of starts	5 to 6

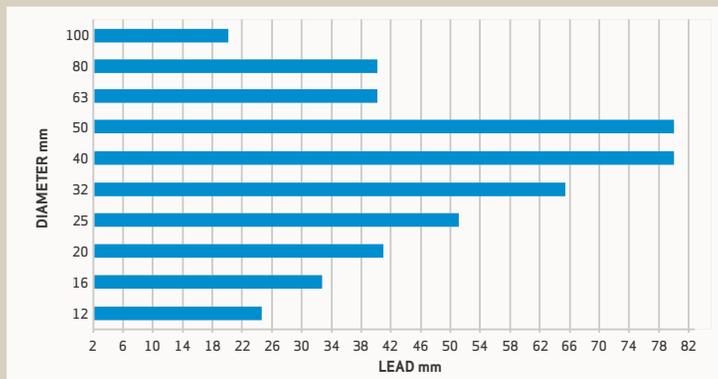
- 1) ISO 3408-3 defines key geometric features and tolerances of ball screws
- 2) Special combination of diameter and lead available upon request



ISO 3408-3	classes 3-5
Diameter	up to 48 mm (1.89 in)
Pitch	3 to 20 mm (0.12 to 0.787 in)
Length	up to 180 mm (7.08 in)
Load capacity:	- Dynamic load up to 300 kN - Static Load up to 750 k

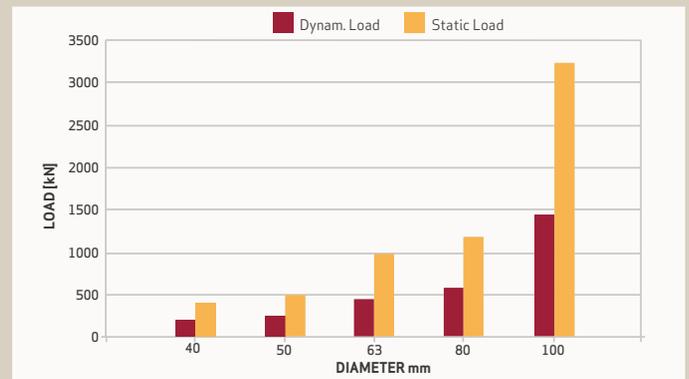


Available combination of diameter and lead (mm)



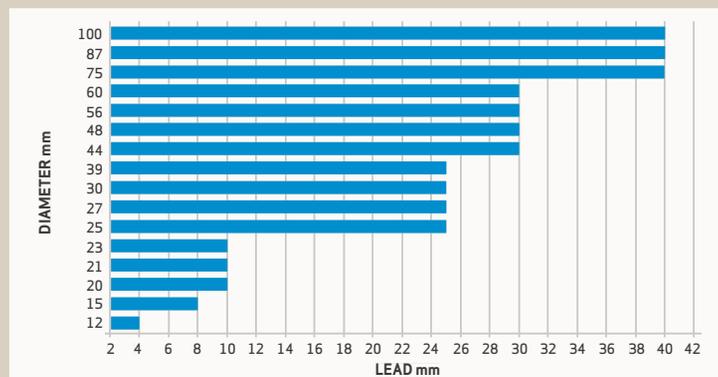
Special combination of diameter and lead not included above can be available upon request

Load Capacity (kN)



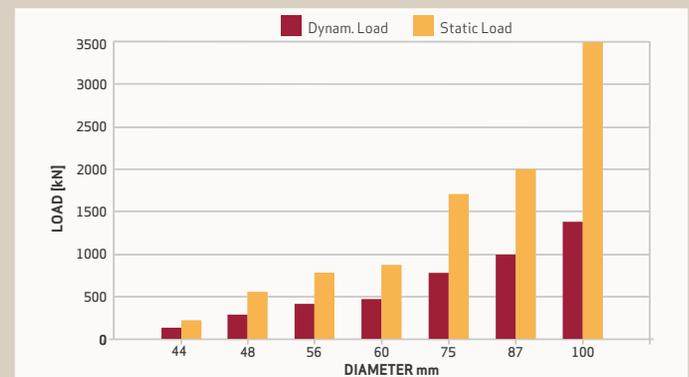
If you need higher load capability not included contact Moog Technician

Available combination of diameter and lead (mm)



Special combination of diameter and lead not included above can be available upon request

Load Capacity (kN)



If you need higher load capability not included contact Moog Technician

Designers considering using Inverted Roller Screws should note the following:

- 1 Only screws up to 48 mm (1.89 inches) are available as an inverted option
- 2 For these sizes designer can consider the same load carrying capabilities and nut dimensions specified in the catalog,
- 3 Nut dimension can be adjusted upon request.

Not all combinations of shaft diameter and lead are possible, contact Moog for technical support.

THE MOOG DIFFERENCE



Fully customizable (even for smaller quantities) to meet all performance requirements within market standard lead times



Maximum flexibility in terms of design and performance range



Extremely quiet and low vibration functionality inherent in the excellent smoothness in the design



High acceleration capability for fast high duty cycle machines



Can be used in conjunction with Moog's complementary range of best-in-class electro-mechanical products and systems such as servodrives, servomotors and motion controllers, to realise cutting-edge electro-mechanical solutions



Moog expertise and close collaboration with customers ensuring solutions that meet today's toughest challenges



Very competitive lead time for fully customised screws:
- From 5 weeks for ball screws
- From 8 weeks for roller screws



We are able to replicate a ball/roller screw based on screws drawings and/or measurements of an existing screw

SPECIALIST TREATMENTS AND FINISHES AVAILABLE FOR ALL PRODUCTS:

- Corrosion
- Increased resistance (aeronautic and motorsports application)
- Friction reduction to reduce wear and increase life time



MORE PRODUCTS. MORE SUPPORT.

Moog designs a range of motion control products to complement those featured in this document. Moog also provides service and support for all of our products. For more information, contact the Moog facility closest to you.

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