Mechanical Motion Solutions by Thomson
Trusted provider of optimized motion solutions for more than 70 years

www.thomsonlinear.com
Thomson – Your Trusted Partner

Thomson invented anti-friction linear technology more than 70 years ago and has continued to lead the industry ever since. The Thomson brand is recognized as the global leader in motion technology.

Talk to us early in the design process to see how Thomson can help identify the optimal balance of performance, life and cost for your next application. Visit www.thomsonlinear.com and find a wealth of product and application information as well as 3D models, software tools, our distributor locator and global contact information.

Unmatched Product Range

Over the past several years, our family of motion products has grown significantly and now includes BSA, Neff, Tolle, Micron, Deltran and Cleveland – all now part of Thomson.

Worldwide Service and Support

Thomson field service engineers and support teams are available to assist wherever and whenever they are needed. The broadest product offering and unbiased technology expertise enable us to bring you the optimal balance of performance, life and cost. That’s why design engineers turn most often to Thomson products to meet their motion control requirements.
Thomson invented the ball bushing bearing more than 70 years ago and has since been the recognized leader in this field. Offering the widest range of bearings and accessories, we easily satisfy an even broader set of requirements with the best performing product for the application.

**RoundRail™ Linear Ball Bushing Bearings**
- Most extensive product offering in the industry
- Pre-assembled, ready-to-install stages provide low friction and smooth, accurate motion
- Cutting-edge segmented technology

**60 Case LinearRace Shafting**
- Manufactured to the highest quality standards
- Life extends as much as 50% over the competition
- Available in a number of materials and coatings
- Custom machining capabilities

Thomson has a complete offering of rails and carriages in a broad range of styles and sizes and is a “one-stop shop” for all of your profile rail needs.

**Profile Rail Linear Guides**
**Profile Rail 400 Series**
- Wide product offering in industry standard sizes
- Double-faced ball bearing design

**Profile Rail 500 Series**
- Exceptional straightness, rigidity and accuracy
- Double-backed design for high moment load capacities

**MicroGuide® Series**
- Miniature linear guides in 440C stainless steel
- Available as small as 5 mm

**T-Series**
- Lightweight rail made from aircraft grade aluminum
- Easy and fast installation

We offer the most complete line of industrial ball screws. Our products range from standard to high-precision assemblies, and our custom capabilities range from hollow to telescoping ball screws.

**Miniature Precision Rolled Series**
- Efficient, cost-effective solution in a small envelope

**FineLine Precision Rolled Series**
- Offers low cost and high precision

**Precision Rolled Series**
- The most comprehensive imperial-based ball screw offering in the industry

**NEFF Precision Rolled Series**
- A wide range of metric ball screws

**Precision Plus Ground Series**
- High repeatability, accuracy and stiffness

Thomson precision lead screws are the highest quality lead screw assemblies in the industry and an excellent economical solution for your linear motion requirements.

**Rollled precision stainless steel screws**
**V-Thread screws for high positioning resolutions**
**Threaded and flange mounted nuts in several models and configurations**
**Anti-backlash nuts for highest accuracy**
**Bronze nuts for heavy duty applications**
**Custom screw end machining**
### Glide Screws

The Glide Screw™ combines the features of a linear bearing and a lead screw in one smooth operating package, thus creating something better than both. The patented* Glide Screw delivers high performance, fast installation and less complexity in a small package.

- Easy and fast to install and maintenance free
- Reduced footprint, improved equipment uptime and lower cost of ownership
- Metric and inch options available
- Integrated lubrication block
- Optional configurations for harsh environments

* Patent No. 9400047

### Motorized Lead Screws

Motorized Lead Screws from Thomson combine a hybrid stepper motor and a precision lead screw together in one compact envelope. Patent-pending Taper-Lock technology allows quick decoupling and secure, properly aligned connections. This combination offers several advantages over a traditional solution.

- Five standard motor sizes and a large number of screw leads and diameters available
- Improved torque density and efficiency
- Reduced noise
- Taper-Lock design provides the ability to quickly decouple the lead screw from the stepper motor
- Rotating nut or rotating screw configurations

### True Planetary® Gearheads

With seven product families and more than 3000 size and ratio combinations, Thomson offers a True Planetary gearhead solution for virtually every application.

- **UltraTRUE** – Smoothest operating on the market
- **ValueTRUE** – High-performance at a competitive price
- **DuraTRUE** – In-line, right angle, dual and hollow shaft options available
- **NemaTRUE** – Optional front faces
- **EverTRUE** – Continuous duty, higher speeds and lower temperature
- **XTRUE** – Economical precision design
- **AquaTRUE** – Stainless steel gear with up to IP69K protection

* Patent No. 9400047

### Linear Motion Systems

Thomson invented the linear motion system and offers the largest range in the industry. These systems are ideal for handling, packaging and other factory automation applications that require high speed and/or long stroke capabilities.

- Modular, self contained and self supporting
- Can easily be assembled into X-Y and gantry configurations using multi-axis mounting accessories
- Sizes ranging from the smallest to the biggest in the industry
- Ball screw or belt-driven models
- Ball-, wheel- or prism-guided models
- Large range of options and accessories
- Sealing and washdown options are available for harsh environments

### Glide Screw Microsite

[www.thomsonlinear.com/gs](http://www.thomsonlinear.com/gs)

### Linear MOTIONEERING Sizing and Selection Tool

[www.linearmotioneering.com](http://www.linearmotioneering.com)

### Micron MOTIONEERING Sizing and Selection Tool

[www.micronmotioneering.com](http://www.micronmotioneering.com)
Linear Actuators

Our linear actuator range is one of the broadest on the market, and we can offer a suitable model for almost any imaginable application. Thomson also has a long experience in designing custom solutions and build more custom actuators than anyone.

Electrak® HD
- Industry-leading, on-board electronics, including J1939
- Superior performance, higher loads and longer stroke length
- Unrivaled environmental protection (IP69K/IP67 static and IP66 dynamic)

Throttle Series
- Specially designed for throttle applications
- Multiple control, feedback and environmental options, including CANBUS communication

Max Jac Series
- Designed for tough and corrosive applications
- IP69K protection ensures operation in even the most harsh conditions and environments

Precision Linear Actuators

The compact design and higher load capacities of our precision linear actuators make them ideal for the replacement of hydraulic and pneumatic cylinders.

T Series
- Robust, high-accuracy, 100% duty cycle actuators
- Three sizes and a multitude of accessories available
- Mounting kits according to hydraulic standards available

ECT Series
- Fully motorized precision linear actuators
- Choose between a large number of motor, gear box and mounting alternatives

PC Series
- Built to replace pneumatic cylinders
- High power density, accuracy and life expectancy
- Visit www.thomsonlinear.com/conversion to learn more about the PC Series

Lifting Columns

Thomson lifting columns are ideal for medical applications such as wheelchair lifts, x-ray machines, and surgical tables as well as ergonomic automation applications such as workstations and desk lifts.

LC1600 Series
- Two-piece extrusion with 1600 N loading capacity
- Ideal for cost-sensitive applications where extension-to-retraction ratio is not as critical

LC2000 Series
- Three-piece extrusion with 2000 N loading capacity
- Telescoping lead screw mechanism to provide an ideal extension-to-retraction ratio

LC3000 Series
- Three-piece extrusion with ballscrew drive to allow for 3000 N loading capacity and high moment loading

Miniature Systems and Components

Thomson produces the widest selection of miniature linear and rotary components that are engineered to work together. They all benefit from our long experience in motion control engineering and have all the advantages and features offered for standard-size products.

- Smaller components enable designers to reduce the size and weight of their end product, resulting in products that are smaller, lighter and less expensive to manufacture
- Widest variety of miniature motion products on the market
- Products are designed to work together
- Thomson offers easy and fast customization
Worm Gear Screw Jacks

The Thomson worm gear screw jacks set new standards of precision and engineering and meet all of today’s requirements for safety, cost-efficiency and durability.

MULI® and JUMBO® Series
- Models for loads from 5 to 500 kN
- Designed for easy installation of motors, gears and shaft encoders
- All models designed for tensile and compressive loads
- Complete range of motors and accessories is available
- Synchronization of several jacks is easily accomplished

www.thomsonlinear.com/wgsj

Clutches and Brakes

Thomson has more than 100 years of experience in manufacturing quality clutches and brakes. Today, our ISO9000 certified clutch and brake products are working in a wide range of applications and in almost all types of products.

- We offer mechanical and electromechanical wrap spring clutches and brakes
- Electromechanical power on/off spring set friction brakes and clutches, permanent magnet brakes, and multiple disc/tooth clutch brakes
- Friction, multiple disc, tooth, spring set and other types are available
- A large range of technical and value-add options are available
- Custom solutions

www.thomsonlinear.com/cb

Precision Balls

Thomson has more than 60 years as a leader in supplying standard precision balls, precision ball bearings and unique stainless steel balls for specific applications. Thomson offers a large variety of precision ball types, unique precision ball bearings technologies and a high quality in both materials and workmanship.

- Most complete variety of materials and technologies
- More than 27 high-performance materials
- Ceramic, hollow and specialty balls
- ISO9001:2000 registered
- A2LA certified measuring lab

www.thomsonlinear.com/pb

Customization and White Paper Designs

Applications often have unique challenges that cannot always be solved by an off-the-shelf solution. Thomson specializes in providing custom-engineered solutions quickly and cost effectively to address these requirements. We frequently develop and ship products that have been altered in one or several ways such as:

- Custom materials
- Custom surface treatment
- Custom size or geometry
- Custom assemblies
- Custom services
- New designs

www.thomsonlinear.com/contactus

Worm Gear Screw Jacks

www.thomsonlinear.com/wgsj

Clutches and Brakes

www.thomsonlinear.com/cb

Precision Balls

www.thomsonlinear.com/pb

Customization and White Paper Designs

www.thomsonlinear.com/contactus
Innovation, Engineering and Customization Excellence

Often the ideal design solution is not about finding the fastest, sturdiest, most accurate or even the least expensive option. Rather, the ideal solution is the optimal balance of performance, life and cost.

Thomson continues to innovate, both in products and tools necessary for design engineers to select, size and specify the optimal component for any application—regardless of industry or market. From standard products to “white sheet” designs, Thomson has the engineering expertise and manufacturing capabilities to optimize the balance between performance and cost to suit your specific needs. Our engineered, custom designs, as well as our multitude of free, online tools, set us apart from other manufacturers and create a benchmark in the component industry.

Decades of Application Expertise

Since 1936, Thomson has been one of the forerunners in the motion technology industry. Our inventions and products have been supplying optimized motion solutions to a broad range of companies and application areas.

Thomson is the name you can trust for high-quality, innovation, on-time delivery, controlled costs and reduced risk regardless of your industry. With extensive experience in numerous industries, including mobile off-highway, medical and health, packaging, food processing, material handling, factory automation, clean energy, and machine tools, Thomson offers the widest selection of mechanical motion components designed to work together to provide the optimal solution for your specific application.
### 70+ Years of Innovation, Quality and Trust in Motion Technology

<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
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</thead>
<tbody>
<tr>
<td>1936</td>
<td>First ball screw application developed for recirculating ball steering systems</td>
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<tr>
<td>1939</td>
<td>Thomson Saginaw produces first aircraft ball screw for the B-29 Super Fortress</td>
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<tr>
<td>1940</td>
<td>First ball screw application</td>
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<tr>
<td>1943</td>
<td>Thomson invents the trademarked UltraTRUE, the first helical-crowned true planetary gearhead</td>
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<tr>
<td>1945</td>
<td>Thomson invents the first anti-friction linear ball bushing bearing</td>
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<tr>
<td>1947</td>
<td>Thomson develops thread rolling process for ball screws</td>
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<tr>
<td>1947</td>
<td>Significant improved linear ball bushing bearing patented</td>
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<tr>
<td>1948</td>
<td>Subminiature clutches and brakes are released</td>
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<tr>
<td>1949</td>
<td>500 Series linear actuators released</td>
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<tr>
<td>1950</td>
<td>Thomson Saginaw introduces multiple circuit ball screws</td>
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<tr>
<td>1953</td>
<td>Precision “A” Bearing invented with better ball circulation manufacture</td>
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<tr>
<td>1955</td>
<td>First re-circulating ball screw introduced on 1955 Dickey</td>
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<tr>
<td>1957</td>
<td>The first generation of actuators for use in garden tractors and farm equipment is released</td>
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<tr>
<td>1958</td>
<td>Roundway bearing patented, offers 20 times greater load capacity than ball bushing bearings</td>
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<tr>
<td>1960</td>
<td>UltraTRUE, the first helical-crowned true planetary gearhead</td>
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<tr>
<td>1962</td>
<td>Self-aligning twin pillow block is invented</td>
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<tr>
<td>1963</td>
<td>Thomson invents the self-aligning super ball bushing bearing, which provides up to 37 times more life and up to three times greater load capacity than ball bushing bearings</td>
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<tr>
<td>1965</td>
<td>Performance Pak electromechanical actuators are developed</td>
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<td>1967</td>
<td>The first line of actuators with parallel motors and both acme and ball screw drive is released</td>
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<tr>
<td>1968</td>
<td>Tiger line actuators are released for OEMs</td>
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<tr>
<td>1970</td>
<td>Stainless steel rolled lead screws and Supermet® introduced</td>
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<tr>
<td>1973</td>
<td>Multiple circuit ball screws introduced at Saginaw</td>
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<td>1975</td>
<td>Electrak Pro actuator and the DDC control line released</td>
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<tr>
<td>1976</td>
<td>Electrak HD electric linear actuators released</td>
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<tr>
<td>1978</td>
<td>800 Series linear guide introduced</td>
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<tr>
<td>1980</td>
<td>Electrak 205 and the first line of MCS controls are released</td>
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<tr>
<td>1981</td>
<td>The XC advanced anti-backlash nut with ActiveCAM® is released</td>
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<tr>
<td>1982</td>
<td>400 Series linear actuator released</td>
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<tr>
<td>1985</td>
<td>The first LM80 rodless actuator is released</td>
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<tr>
<td>1989</td>
<td>500 Series linear actuators released</td>
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<tr>
<td>1990</td>
<td>Super Smart Ball Bushing Bearing is invented – 276 times the life and six times the load capacity of a conventional bearing</td>
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<tr>
<td>1993</td>
<td>Light-weight titanium screw developed for space flight</td>
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<td>1995</td>
<td>Gen IV wipers developed for harshest environmental conditions</td>
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<tr>
<td>1997</td>
<td>Electrak Throttle released</td>
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<tr>
<td>2000</td>
<td>Electrak Pro actuator and the DDC control line released</td>
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<tr>
<td>2004</td>
<td>Electrak HD electric linear actuators released</td>
</tr>
<tr>
<td>2007</td>
<td>Electrak Pro actuator and the DDC control line released</td>
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<tr>
<td>2008</td>
<td>Electrak HD electric linear actuators released</td>
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<tr>
<td>2010</td>
<td>Electrak HD electric linear actuators released</td>
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