Linear Motion Systems

THOMSON™
Linear Motion. Optimized.
Product Overview

Thomson’s linear motion systems are divided into seven different categories to make the selection process of a unit easier.

### Ball screw driven - ball guided units
Units designed for high thrust, payload, precision and stiffness.
- Force up to 12000 N
- Repeatability down to 0.005mm

### Ball screw driven - slide guided units
Low cost units for high thrust applications and demanding environments.
- Durable guide system
- Washdown protected version

### Belt driven - ball guided units
Smooth running units for high speed, acceleration and load requiring a long lifetime.
- Speed up to 5 m/s
- Acceleration up to 40 m/s²

### Belt driven - slide guided units
Units for applications requiring smooth travel, high speed, high acceleration and low maintenance.
- Cost efficient guide system
- Chemically protected versions

### Belt driven - wheel guided units
Units for high speed, high acceleration, smooth motion and medium to high loads.
- Speed up to 10 m/s
- Acceleration up to 40 m/s²

### Linear lifting systems
Linear lifting systems are often used in X-Y configurations in combination with other linear motion systems.

### Linear rod units
Units designed for lifting applications or for the replacement of hydraulic and pneumatic cylinders.
The History of Linear Motion Systems is our History

The unmatched breadth of the Thomson linear motion system product line comes from the consolidation of three world-rekowned brands: Thomson, Neff and Tollo. We are product innovators with decades of application experience. Unbiased ownership of the multiple motion system technologies enable Thomson to provide you with the optimal balance of performance versus installed cost for your application.

Thomson has consolidated the most competitive and complementary products from each brand into the most advanced, most comprehensive product portfolio available today. The range covers the smallest and most compact linear motion systems to the biggest and most robust. Our wide range of guide and drive systems can be configured economically and can also work in harsh environments, at high speeds, and in high precision applications.

Thomson is linear motion, optimized.

Founded in 1905, Neff offered products for the linear motion market and, over the decades, became a market leader in ball screw technology. The first linear motion system from Neff was presented in 1981 at the FAMETA show in Stuttgart.

Thomson introduced the first ball screw actuator into an aviation application in 1939 and invented the anti-friction Linear Ball Bushing® Bearing in 1945. Thomson has been a market lead with an increasing portfolio of linear motion technologies ever since.

## Performance Overview

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<td>3005</td>
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<tr>
<td>Feedback devices / brackets</td>
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</tbody>
</table>
### Belt Drive, Slide Guides
- **Profile Size**
  - Smallest unit: 40 × 40
  - Largest unit: 240 × 85

### Belt Drive, Wheel Guides
- **Profile Size**
  - Smallest unit: 50 × 50
  - Largest unit: 188 × 150

### Linear Lifting Systems
- **Profile Size**
  - Smallest unit: 50 × 50
  - Largest unit: 240 × 85

### Linear Rod Units
- **Profile Size**
  - Smallest unit: 50 × 50
  - Largest unit: 80 × 80

### Stroke Length
- Maximum stroke length: 11000
  - 12000
  - 10800
  - 12000
  - 11000
  - 3000
  - 500

### Speed
- Maximum speed:
  - Belt Drive, Slide Guides: 2,5 m/s
  - Belt Drive, Wheel Guides: 1,6 m/s
  - Linear Lifting Systems: 5 m/s
  - Linear Rod Units: 10 m/s

### Maximum Acceleration
- Maximum acceleration:
  - Belt Drive, Slide Guides: 20 m/s²
  - Belt Drive, Wheel Guides: 8 m/s²
  - Linear Lifting Systems: 40 m/s²
  - Linear Rod Units: 40 m/s²

### Accuracy
- Maximum repeatability:
  - Belt Drive, Slide Guides: 0,01 ±mm
  - Belt Drive, Wheel Guides: 0,05 ±mm
  - Linear Lifting Systems: 0,05 ±mm
  - Linear Rod Units: 0,02 ±mm

### Load
- Maximum load, Fx:
  - Belt Drive, Slide Guides: 12000 N
  - Belt Drive, Wheel Guides: 5000 N
  - Linear Lifting Systems: 5000 N
  - Linear Rod Units: 1480 N

- Maximum load, Fy:
  - Belt Drive, Slide Guides: 8000 N
  - Belt Drive, Wheel Guides: 3005 N
  - Linear Lifting Systems: 6400 N
  - Linear Rod Units: 3000 N

- Maximum load, Fz:
  - Belt Drive, Slide Guides: 8000 N
  - Belt Drive, Wheel Guides: 3005 N
  - Linear Lifting Systems: 9300 N
  - Linear Rod Units: 7500 N

- Maximum load torque, Mx:
  - Belt Drive, Slide Guides: 780 Nm
  - Belt Drive, Wheel Guides: 117 Nm
  - Linear Lifting Systems: 600 Nm
  - Linear Rod Units: 200 Nm

- Maximum load torque, My:
  - Belt Drive, Slide Guides: 900 Nm
  - Belt Drive, Wheel Guides: 279 Nm
  - Linear Lifting Systems: 720 Nm
  - Linear Rod Units: 200 Nm

- Maximum load torque, Mz:
  - Belt Drive, Slide Guides: 900 Nm
  - Belt Drive, Wheel Guides: 279 Nm
  - Linear Lifting Systems: 930 Nm
  - Linear Rod Units: 330 Nm

### Features
- Units with double carriages
- Units with left/right carriages
- Telescoping units
- Non driven units
- Units with cover band
- Wash down protected units
- Chemically protected units

### Accessories
- Mounting kits
- Gear boxes
- Servo motors
- Limit switch / sensor brackets
- Feedback devices / brackets

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**Thomson Linear Motion System Features**

Thomson offers five main categories of linear motion systems, a series of linear lifting units and linear rod units plus our long expertise in building customized units. The unmatched product range makes Thomson the only linear motion system partner you need to configure the optimal solution for your application.

Drive and guide technology advantages:
- **Screw driven units with ball guides** - for high loads and high precision
- **Screw driven units with prism guides** - for medium to high load and durable guide system
- **Belt driven units with ball guides** - for high load and dynamics
- **Belt driven units with wheel guides** - for applications requiring extreme speed and acceleration
- **Belt driven units with prism guides** - for low cost and durable guide system.

**Screw or belt drive**

Thomson linear motion systems can be driven by either a screw system or a tooth belt system. We use a broad variety of screw and belt types to meet the specification for all possible applications.

A screw driven unit (A) is normally recognised by high thrust and stiffness and can be based on a low cost lead screw with preloaded nut, through to a standard commercial rolled ball screw or even a state of the art high precision ground ball screw.

A belt driven unit (B) is chosen when acceleration and speed are the most important criteria. Our belt driven units use a wide range of different belts from leading belt manufacturers.
Thomson Linear Motion System Features

Thomson offers three major types of guiding technologies allowing you to identify the "just right" configuration in terms of performance, cost, robustness or life for your needs whether it may be in a machine tool, packaging, handling, assembly, measuring, medical, robotics or a general automation application.

Fast wheel guides
A wheel guided system offers an excellent combination of stiffness and dynamics. With high load capacity and unmatched speed and acceleration, wheel guides are the perfect choice for a dynamic application. Decades of experience ensure that you get the best in class technology when choosing a Thomson wheel guided linear motion system.

High precision ball guides
Thomson ball guided linear motion systems come in two different versions.

The first version (C) has a unique ball guide developed by Thomson. This integrated ball guide system is used in some of the ball guided units and offers outstanding load carrying performance along with high accuracy and a long life expectancy.

The second version (D) are based on a commercial type of ball guide which offers smooth and quiet travel and the highest precision. These ball guided systems offer the best performance on the ball guide market today.

Robust prism guides
The unique self aligning prism guide system uses prism shaped polymer bushings running directly on the anodised profile surface. The prism guides offers a cost efficient, smooth, reliable and maintenance free guiding system. Resistant to shock loads, dust and dirt it is the best choice for applications in demanding environments.

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Thomson Linear Motion System Features

Thomson linear motion systems range from very small units to the largest ones available. Profile sizes range from as small as 25 mm up to 130 mm in height and up to almost 240 mm in width. We can offer linear motion systems with stroke lengths from only a few hundred millimeters up to as much as 12 meters as standard.

Linear motion system features:
• All units based on anodized, corrosion resistant aluminium profiles
• Units with left and right moving carriages available
• Play free screw driven units available
• Linear motion systems with single or double carriages available

Patented screw support technology
All screw driven units can be delivered with screw supports to ensure high speed at long strokes. Some screw supported units have a unique patented screw support system offering full speed up to strokes of 11 meters. This option ads on less length to the unit than other screw support systems on the market due to its outstanding stroke to total-length-of-unit ratio.

Long stroke lengths
Thomson offers the longest stroke lengths in the industry with stroke lengths up to 12 meters for belt driven units and up to 11 meters for screw driven units.

Unique cover band technologies
Sealing the units from water, dust and other contamination is essential for a long and trouble free life. Thomson offers two best-in-class sealing technologies. One is stainless cover band (E) kept in place with magnet strips. The other a plastic cover band (F) that is self-locking to the aluminium profile. A unique feature is the cover band stretching function that eliminates any cover band slack, thus increasing the life of the cover band.
Thomson Linear Motion System Features

Thomson offers an unmatched selection of accessories such as gearboxes, sensors, feedback devices and mounting kits to allow easy installation of the linear motion systems to any machine or application. We also offer predefined motor and drive packages as well as accessories for multi axis applications, making it possible to create complete automation, handling and robotic systems.

- Modern design means fast and easy installation
- Little or no maintenance required
- High quality and modern production ensures long and reliable life.

Central lubrication
Units with central lubrication have one point where lubrication is applied. This is an easy way to ensure that guides and the drive screw are well lubricated throughout the expected lifetime of the unit.

Stainless units
There are two types of stainless units; washdown or chemically protected. Washdown protected units are screw or belt driven prism guided units upgraded so that they can operate in wet and humid environments such as food, dairy and slaughter plants. Chemically protected units are belt driven prism guided units that are further upgraded to tolerate basic and acid liquids, making them suitable for paper mills, galvanising plants and the chemical industry in general.

Packages and multi axis solutions
By combining the unique linear motion systems from Thomson and utilizing the predefined mounting components it is easy to create multi-axis systems. Combine this with our range of servo motors, servo drives and motion controls to build a state-of-the-art motion
Applications

Linear motion systems are the right solution for many types of manual and automatic machines. The large range of models and sizes makes it easy to find the perfect linear motion system for your particular application.

Advantages:
- State of the art technology
- Easy to use sizing & selection software
- Free to use 3D CAD blocks available
- World wide sales, support and service
- Large network of system houses and integrators
- One of the largest suppliers in the world.

General Automation

Combining Thomson linear products enables you to solve any automation application. Our products are well known among car manufacturers and system houses around the world.

Machine Tools

High performance Thomson screw driven and ball guided products allow great flexibility of design and efficiency of operation. Also available are servomotors, gearboxes and drives to build a complete motion solution.

Assembly

High precision screw system and ball guide system enables you to solve high precision pick and place applications as well as soldering and inspection tasks.
Applications

Thomson has over 100 years of linear motion experience and our application engineers are just a phone call away. Contact us today to learn more about how we can help you making linear motion easy.

- Large range of accessories
- Multi axis kits
- Customised units
- ISO 9001 certified production
- Short delivery times.

Packaging and Palletizing

Our wheel guided and prism guided linear motion systems were specifically developed to suit the needs for the packaging, printing and scanning industry. The food, beverage and paper industries are also long-time customers.

Robotics

The wide range of linear and lifting units, gear boxes, motors and drives, enables you to easily and quickly create many different types of robotic systems for advanced applications.

Materials Handling

Combining Thomson overhead rail products with the linear lifting units enables you to solve any material handling application. Preconfigured lifting units are available as well as individual components which can be combined easily to fit your specific needs.

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