

Medical Motion Optimized.

Contributing expertise and technology to high-precision medical applications.

www.thomsonlinear.com

 **THOMSON™**

Linear Motion. Optimized.



Application. Design. Performance.

Thomson optimizes every step in the creation of high-performance medical equipment.

Engineering isn't complete until you know how Thomson can meet your requirements for **optimized medical motion**: technologically superior components and pre-assembled systems that allow flexibility in application but push efficiencies in production, and a streamlined sourcing process for components that can be trusted for longevity, strength, and quiet, no-fail performance.

Involve Thomson from the design stage to expand your options and shorten your process. Leverage our superior technology and production for a better finished product. We've been innovators in motion for decades. Today we optimize medical motion through:

Superior design and production. We've been in the motion-technology business for seven decades, and we take problem-solving as seriously as you do. Talk to us early in the design process and benefit from optimization through:

- Extensive testing of your equipment through our proprietary technologies
- Zero-setup products for speed-to-market and cost-effectiveness
- Collaboration with other Danaher companies to integrate and streamline solutions with controls, drives and motors

Superior technology. Optimization starts here – in our own labs. Our products are engineered to perform exactly as promised and to over-deliver on quality and longevity. Medical practice makes relentless demands on its machines. We respond.

Breadth of line. We start with the broadest selection of standard products in the world and can readily modify them to spec. We welcome white sheet design solutions and routinely address special needs and circumstances. For a huge range of medical applications, Thomson supplies and optimizes:

- Actuators
- Linear bearings
- Ball and lead screws
- Linear guides (round and square rail)
- Micron® planetary gearheads
- Linear slides and systems
- Deltran clutches and brakes

Complete your engineering process by talking with Thomson about optimized medical motion.

Integrate Our Expertise Into Your Design Process.

When experienced Thomson engineers contribute early in your design process, you optimize machine performance, life and cost. Leverage our capacity for analysis, modifications and white sheet solutions. Take advantage of smart standardization that gives you more freedom and improved speed to market. And then rest easy knowing that the results will be predictably excellent. Here are some of the keys:

WE DEVELOP standard platforms that make any design easily customizable.

WE PRODUCE zero set-up products to get our clients to market faster and more cost-effectively.

WE TEST extensively on your equipment to enable evaluation of our products in your application.



Leverage our capacity for analysis, modifications and white paper solutions.



Trust our testing of your equipment to optimize your product application decisions.

Couple these process advancements with our highly proven, highly engineered components and pre-assembled systems, and you've optimized your medical machine project.

We Participate in a Vast Range of Applications.

Through world-class components and systems, decades of motion-control expertise, integration with other Danaher divisions and a global footprint, we contribute to a huge array of medical solutions.



Reach market faster with our zero set-up products.

Diagnostics/Treatment

Oncology
Nuclear Medicine
CT/MRI/Imaging
Dental Injectors
Portable Respirators
Surgical Robotics
Positioning of Screens
and Keyboards

Patient Handling

Patient Couches
Tables
Dental Chairs
Ergonomic Positioning Devices
Ambulance Gurneys
Patient Lifts
Stair Lifts
Wheelchairs
Mobility Enhanced Vehicles

Rehab Equipment

Extension/Flexion
Carpal Tunnel
Spinal Decompression

Lab Automation

Fluid Pumps
Pick & Place
Blood Handling/Sampling
TestTube Handling/DNA Sampling
Dispensing

DIAGNOSTICS/TREATMENT

Diagnostics/Treatment. Thomson provides a huge range of critical components for machines in the areas of medical diagnosis and treatment. These applications demand smooth, quiet operation for patient comfort, as well as positioning accuracy, high load capability and corrosion-resistance. All of these speak to the crucial need for safety and reliability.

The full range of standard, modified standard and completely custom Thomson rotary and linear motion components and systems are used in advanced diagnostic and treatment applications today.

Thomson helps deliver:

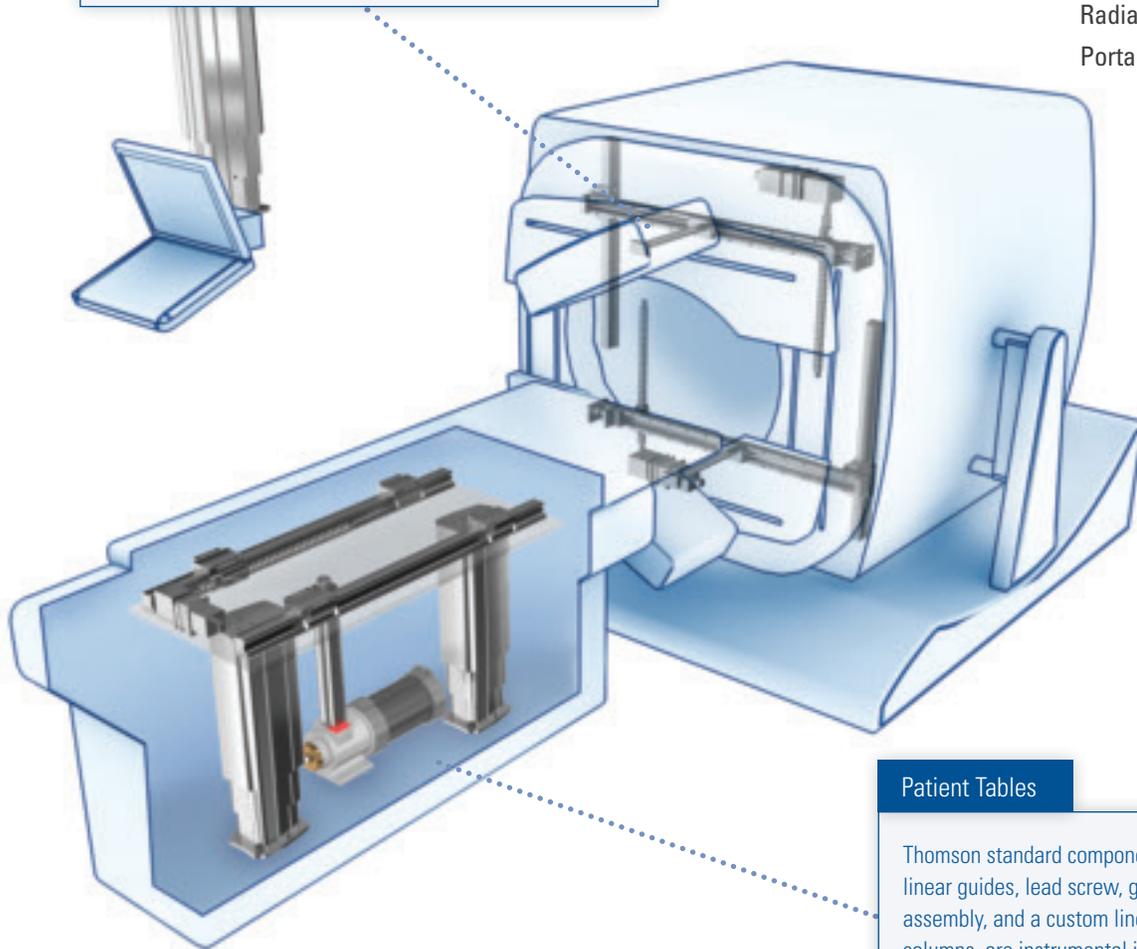
- > Reliability
- > Quiet operation
- > Smoothness
- > Low maintenance

In applications such as:

- Permanent installations
(MRI, CT machine)
- Nuclear medicine CT
- Portable thermal imaging
- O-arm image diagnostic
- Portable installations
(e.g. bedside scanner)
- Radiation oncology
- Portable ventilator

Scan Heads

For scan heads, Thomson standard linear motion assemblies and a modified standard ceiling-mounted lifting column work alongside a complete white sheet design solution. We have the capability to design custom mechanisms as well as build and deliver the assembled system.



Patient Tables

Thomson standard components including profile rail linear guides, lead screw, gearhead and clutch/brake assembly, and a custom linear actuator with lifting columns, are instrumental in this application.

PATIENT HANDLING

Patient Handling. In patient handling, optimized equipment calls no attention to itself. Thomson makes huge contributions to quiet, vibration-free, ultra-dependable ambulance gurneys, bed lifts, bath lifts and more. And our products enable equipment to be adjusted easily and precisely to accommodate the individual needs of patients (up/down, side-to-side, etc.). With superior stainless steel Lube-for-Life guides and other advancements, Thomson makes patient handling easier for caregivers and more secure for patients.

The full range of Thomson linear motion components and systems is used in advanced patient handling applications today, including actuators, brakes, profile rails and many more.

Thomson helps deliver:

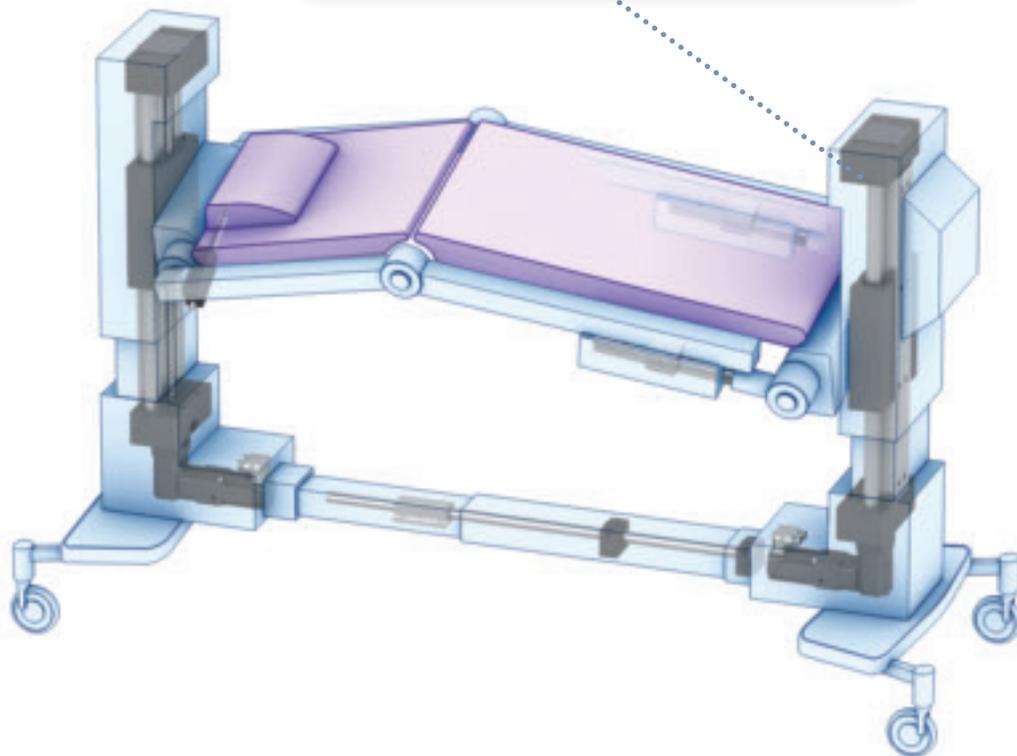
- > Cost-effectiveness
- > Reliability and longevity
- > Quiet
- > Smoothness
- > High capacity

In applications such as:

- Ambulance gurneys and cots
- Stair lifts
- Bed lifts
- Patient couches and tables
- Bath lifts
- Surgical tables
- Dental chairs

Surgical Tables

Thomson 2BA linear guides on the vertical axes provide strong, compact moment-load capacity with smooth motion while being tolerant of quick shifts in weight when the frame is straight.



Bath Chair Lifts

For simple and safe handling, Thomson electrical actuators work ideally here. The WhisperTrak actuator is ultrasonically sealed to promote easy cleaning of the chair.



PERSONAL MOBILITY

Personal Mobility. Thomson has leveraged decades of experience and the latest technologies to offer a new line of linear actuators developed specifically for personal mobility and patient handling applications.

Just one of many Thomson solutions for this segment, these new actuators boast unique strengths. They feature ultrasonically sealed enclosures that enable easy cleaning and compact design, as well as zero maintenance, unique control features and the type of quiet, consistent sound needed for personal mobility applications.

Thomson helps deliver:

- > Reliability
- > Cost-effectiveness
- > Smoothness
- > Quiet operation
- > Load capacity

In applications such as:

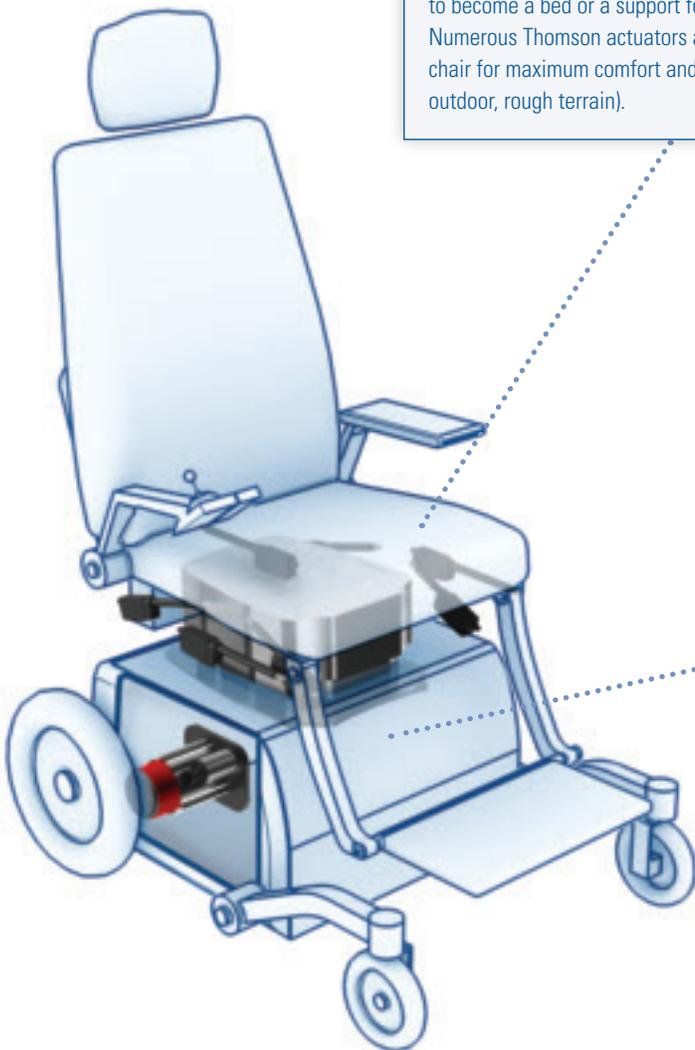
- Wheelchairs
- Wheelchair locks
- Vehicle lifts
- Vehicle ramps
- Vehicle throttle
- Vehicle brake
- Vehicle transmission controls
- Ergonomic positioning devices

Wheelchair Versatility

A central Thomson TC16 lifting column allows this chair to become a bed or a support for a standing person. Numerous Thomson actuators are used to adjust the chair for maximum comfort and driving conditions (indoor, outdoor, rough terrain).

Wheelchair Adjustments

Thomson actuators enable this custom electromechanical parking brake and guides to accomplish multiple adjustments, including those or tilt, recline, head and leg positioning.



LAB AUTOMATION – FLUID PUMPS

Lab Automation – Fluid Pumps. Thomson lead screws and roundrail linear guides are integral to the precise dispensing of fluids by IV pumps. These systems must deliver fluids with total consistency, unaffected by push-back (unlike belt-drive, ball screw or rack-and-pinion systems).

Another key to success is our ability to quickly and efficiently produce small-quantity prototypes that speed your machine's time to market. Other custom capabilities include special materials, special coatings and nonstandard loadings available to provide the "just right" solution.

Thomson helps deliver:

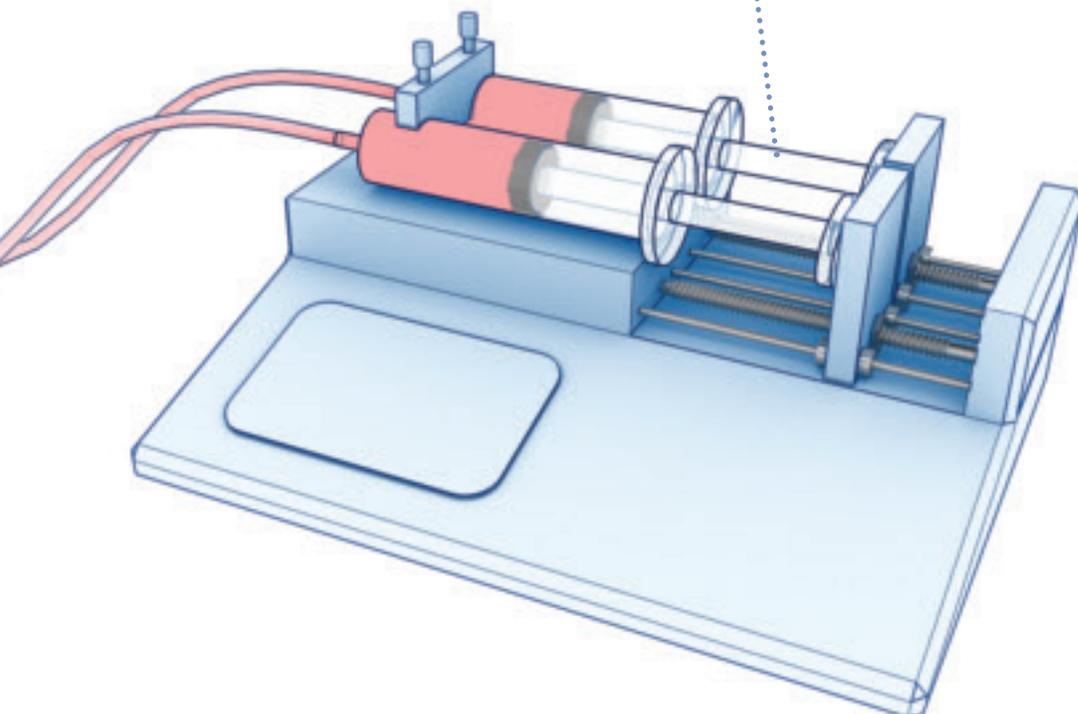
- > Accuracy
- > Miniaturization
- > Smoothness
- > Low maintenance
- > Corrosion-resistance

In applications such as:

- Precision liquid dispensing
- Blood sampling
- Infusion pumps
- Adhesive automation
- Automated pipetting

Fluid Pumps

In addition to the standard screws and rails for fluid pumps, Thomson produces highly-specialized, miniature linear components used in the latest radiation therapy devices, among many examples.



LAB AUTOMATION – PICK & PLACE

Lab Automation – Pick & Place. Thomson components such as profile rails, lead screws and brakes contribute to the efficient, consistent performance of pick-and-place test tube robots. These machines must deliver precision and accuracy with a minimum of required maintenance. Thomson components are available with an extra measure of corrosion protection – important in fluid-handling applications.

Critical to these applications is reliability and low/zero maintenance to minimize downtime and maximize clean operation and speed (through the ability to dial up the performance to an optimal level). Successful lab automation operation can reduce end user costs and speed delivery of medical products.

Thomson helps deliver:

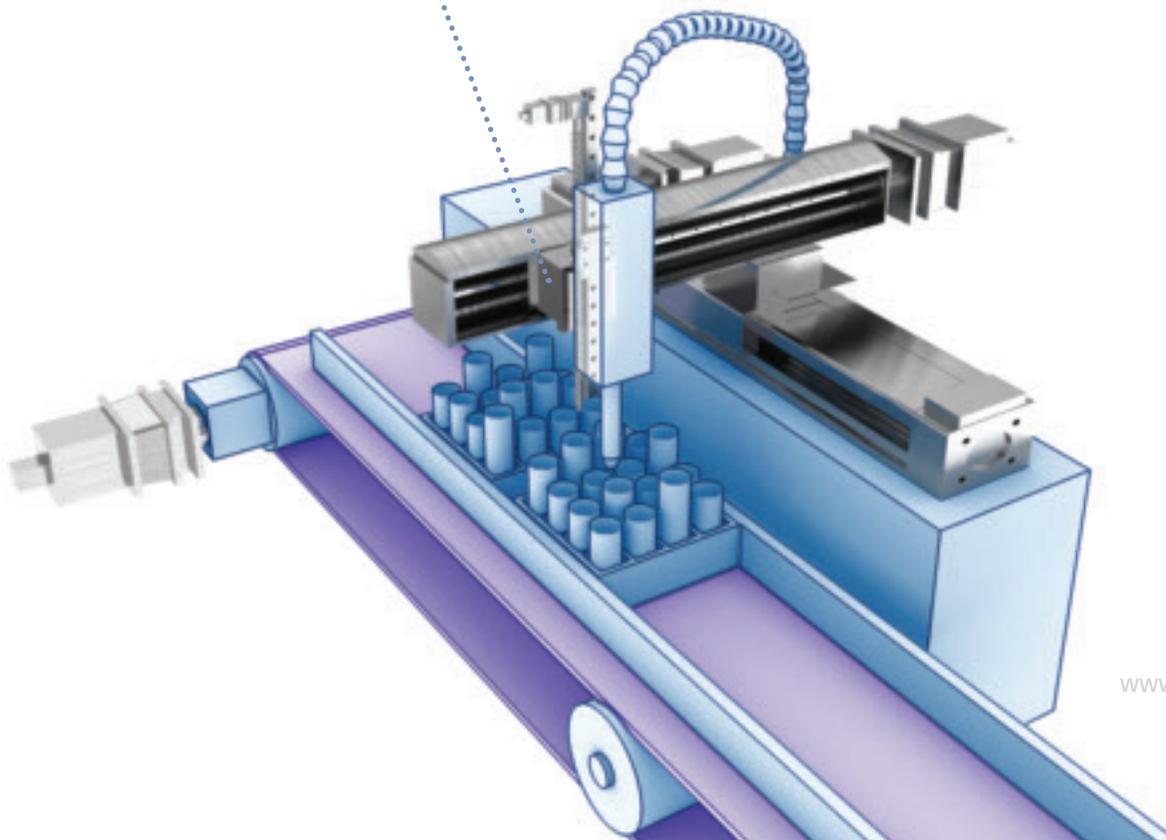
- > Accuracy
- > Reliability
- > Sound consistency
- > Low maintenance
- > Speed
- > Smoothness

In applications such as:

- Robotic workstations
- DNA sampling
- Cell culture
- Air displacement
- Pipetting
- Drug testing
- Drug dispensing
- Liquid handling

Pick & Place

For pick & place robots, Thomson provides a thoughtful combination of standard linear components and pre-assembled linear systems to achieve the right balance of cost, accuracy, speed and life.



Employ Our Superior Thomson Technology.

Leading-edge medical technology is built on leading-edge motion technology, starting with minute engineering details we've mastered over decades of intense work. From patented anti-backlash technology for lead nuts to proprietary processing for roll-forming, and the Lube-for-Life™ technology we invented, our components are built to over-deliver.

Leverage Our Ability To Modify or Customize.

Our application expertise is very deep and our product portfolio is very broad. The result: we can modify our standard products to any degree in a very short time frame. Similarly, we have the design and engineering expertise and technical knowledge to deliver white sheet solutions for virtually any need – quickly. From standard products to modified standard to custom products, we can deliver what you conceive.



ROUNDRAIL LINEAR GUIDES & COMPONENTS

RoundRail Linear Bearings and Guides are pre-assembled with ready-to-install stages that provide low friction and smooth, accurate motion for a wide range of moment or normal load configurations. Slide tables are available as customizable RoundRail Linear Guides or as multi-axis, turnkey systems complete with motors, drives, controls and electromechanical accessories.

PROFILE RAIL

With sizes ranging from our ultra-compact 5 mm MicroGuide™ to the robust 55 mm 500 Series roller, as well as compliancy ranging from our T-Series (transport profile rail) to the extremely rigid, machine tool-grade roller profile rail, Thomson is your “one-stop” source for all your profile rail needs.

LEAD AND BALL SCREWS

Thomson lead screws offer smooth, precise, cost-effective positioning for your linear motion requirements. We offer the widest range of ball screw products in the industry – including rolled and ground thread screws in both imperial and metric sizes. Both include our patented zero-backlash nut technology for excellent repeatability with high stiffness and extremely low drag torque.

CLUTCHES AND BRAKES

Our clutch and brake products work in a wide range of applications specific to the medical industry. These products set a solid foundation for the broad range of standard and custom products currently available to our customers.



GEARHEADS

Thomson Micron® planetary gearheads are used on high-precision motion control applications that require a high torque-to-volume ratio, high torsional stiffness and low backlash. Thomson offers these precision planetary gearheads for all duty cycles, and all with RediMount compliant mounting systems. Web-based sizing, selection, pricing and 3D models of Micron gearheads are available online.



PRECISION LINEAR ACTUATORS

The compact design and higher load capacities of our precision linear actuators make them ideal for flexible integration in tight areas. These programmable precision linear actuators are available in a wide range of voltage, thrust, stroke and mounting configurations. They are designed for high-speed, high-load, continuous operation.



LINEAR ACTUATORS

Our linear actuators are designed for rugged, reliable linear motion applications. Numerous choices in stroke, load, motor type, feedback, limits, and control options make these linear actuators very versatile. Talk to us about the many advantages of using electric linear actuators in place of hydraulics or pneumatics.



LINEAR MOTION SYSTEMS

Our linear motion systems can be used virtually anywhere. They can support and move a range of loads and provide high precision and tight tolerances. They are available pre-engineered, pre-assembled or ready-to-install. The load can be supported with ball guides, slide guides or wheel guides. Actuation can be through ball screw, lead screw or belt drive.

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