



# CASE STUDY

## LEAD SCREWS AUTOMATE HOSPITAL BEDS



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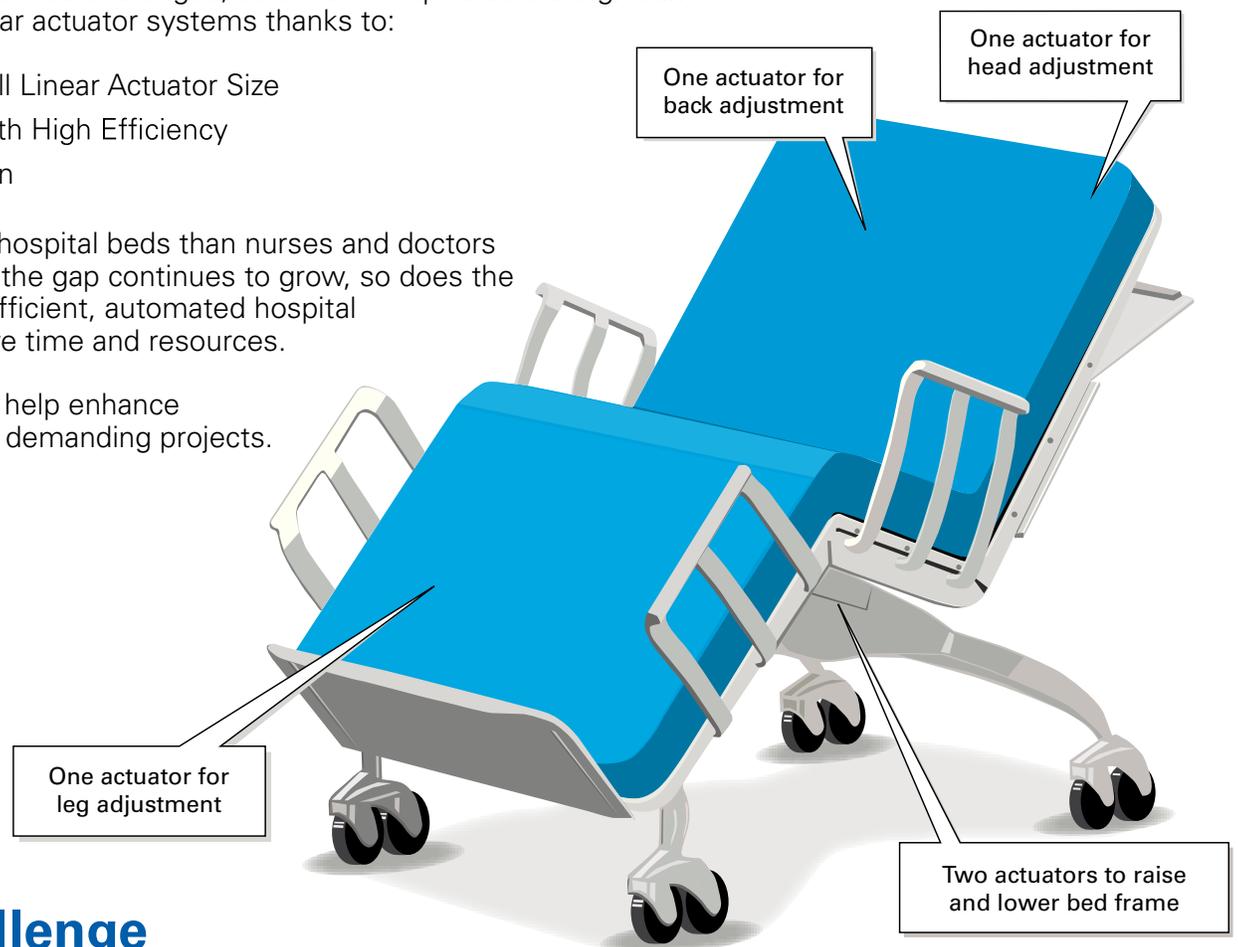
# Lead Screws Automate Hospital Beds

Facing unprecedented challenges, automatic hospital bed design can benefit from linear actuator systems thanks to:

- Relatively Small Linear Actuator Size
- High Power with High Efficiency
- Modular Design

There are more hospital beds than nurses and doctors in a hospital. As the gap continues to grow, so does the need for more efficient, automated hospital beds to help save time and resources.

Linear actuators help enhance your designs for demanding projects.



## The Challenge

**Safety:** The FDA's Guidance Document, "Hospital Bed System Dimensional and Assessment Guidance to Reduce Entrapment," and IEC requirements standard 60601-2-38 are driving increasingly complex design geometries and safety features, meant to prevent pinch-points and areas of entrapment. Movable sectional rails and more points of articulation in the frame and new areas of bed movement will benefit from the kind of precise motion control and positional feedback that is available with linear actuators.

**Power:** The more movable components that are included in a bed design, the more likely it is that areas of high strain or lifting moment will occur.

**Geometric Size Constraints:** More functionality must be achieved in the smallest possible footprint.

**Patient Comfort and Therapy:** There is a growing need for increased movement and articulation (with the concomitant need for linear actuators). Lift or sit assist and other solutions, designed to give better care with less demand on caregivers, require new design strategies.

**Reliability:** Designs must target the highest possible reliability.

**Cleanability:** Increased emphasis on prevention of hospital-based infection demands good cleanability of all touch surfaces, an ideal use for smooth-surfaced enclosures and guards. Small-footprint linear actuators help simplify enclosure design.

**Maintainability:** To meet the realities of demanding medical environments, components and mechanisms must be designed for quick return to full, safe usability.

## The Solution

- Precision linear actuator systems simplify the design of safe, quiet, and reliable power-driven positioning. Linear actuators integrate easily with increasingly complex moving components and controls.
- Linear actuator systems for automatic hospital beds can range from 2" stroke actuators to 24" stroke actuators with power to handle up to 6000 N loads.
- Our continuous, documented ISO 9001 procedures offer you full accountability and quality records that can be fine-tuned to your GMP and/or QC requirements.
- Whatever the need: lowering, raising, repositioning, mobility, patient transfer linear actuators make small footprint design possible by combining high-efficiency motors with precision-formed metals and engineering resins.
- Linear actuators contribute directly to smooth, precise and quiet movement that is designed to enhance patient comfort. With their quiet operation, highly-controllable motion and lock points, electric linear actuators continue to supplant other types of hydraulic or mechanical systems.
- Precision manufacturing and materials engineering help ensure the reliability of linear actuators.

## Linear Actuators

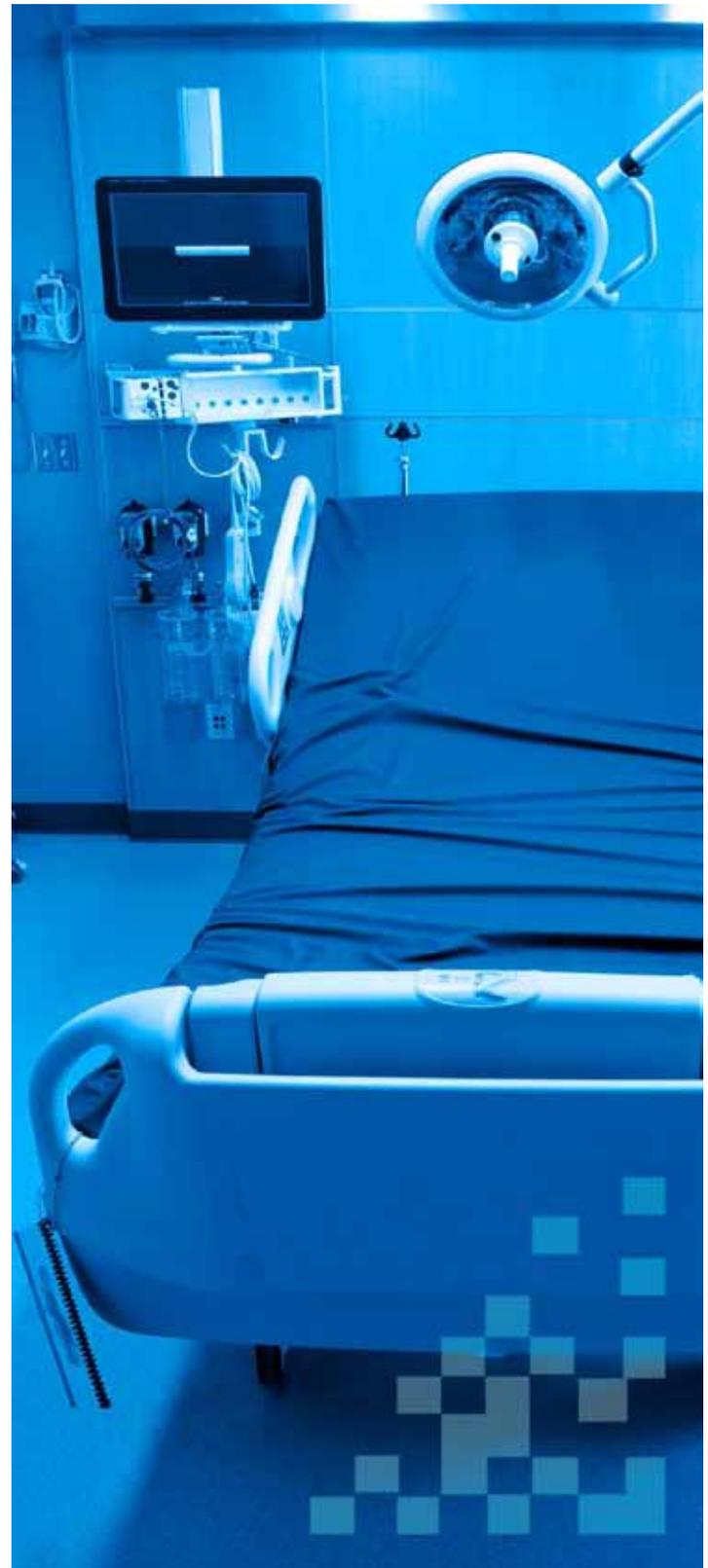
Linear actuators are a combination of an electric motor and an acme screw or a high efficiency ball screw. They are designed for easy installation directly into industrial or commercial applications.



**HELIX**<sup>™</sup>  
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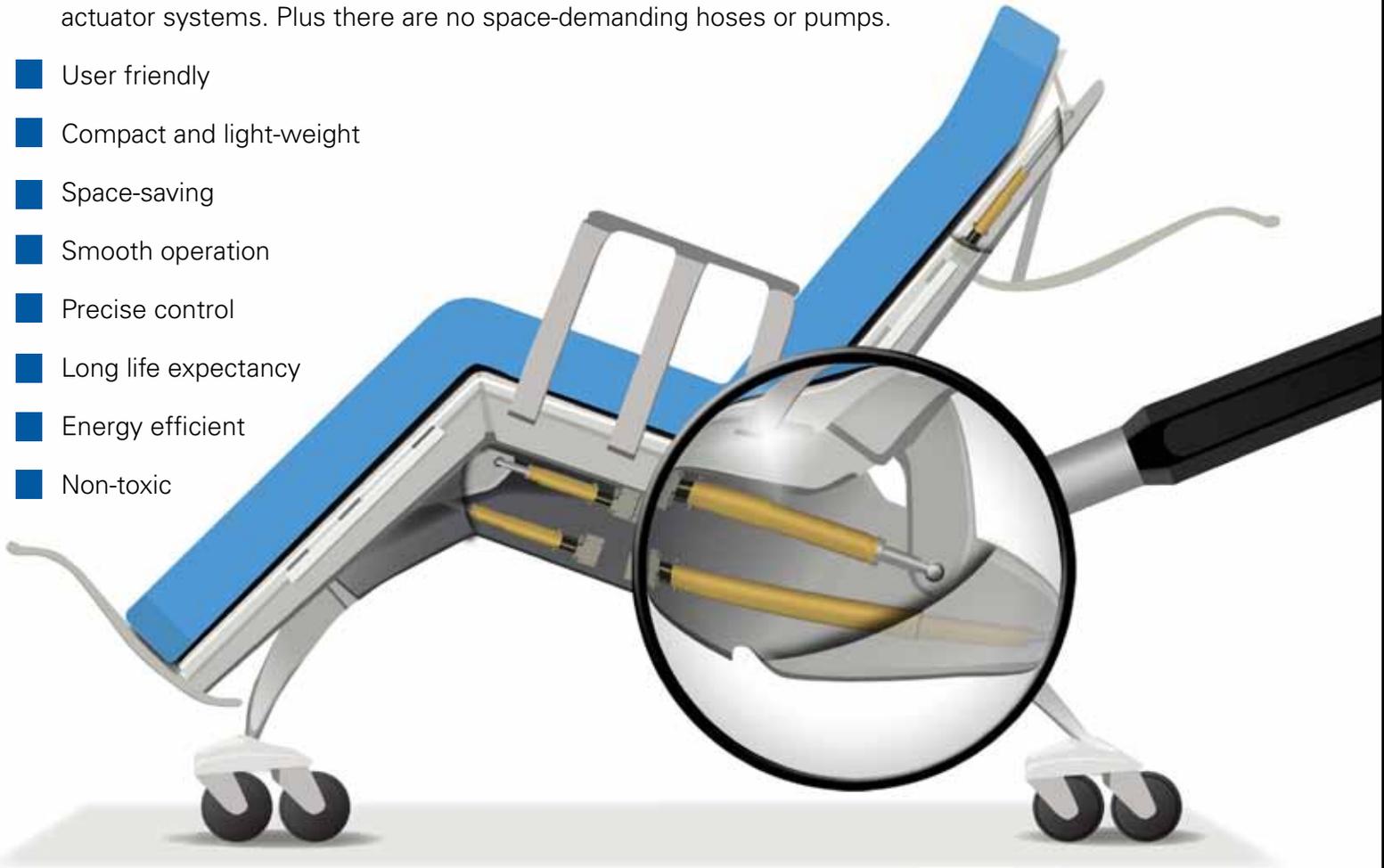
## The Solution *(continued)*

- Low-friction, precision-machined surfaces and dimensionally-accurate plastics molding which can utilize PTFE-infused or self-lubricating resins help reduce maintenance.
- Enclosure design and other design features for cleaning are simplified with linear actuators, thanks to their small footprint and flexible design options.
- If you need custom components, our design team will work with you to create linear actuators that meet your motion, NVH, power and footprint specifications.
- Fully modular linear actuator design, plus a broad range of mounting options, work together in the creation of components that can be field-modified, repaired or swapped out quickly, reducing time constraints on medical bio-engineering and maintenance personnel.
- Linear actuators are well-suited to a broad range of design objectives, including lifts and rotators, sit-to-stand lifts and mechanisms for patient transfer.



## Helix Parameters That Benefit You

- Quiet Operation
- Designed to enhance safety
- Modular, our engineering approach enables versatile, customizable design to meet specific application needs."
- Simple installation, especially compared to hydraulic and pneumatic linear actuator systems. Plus there are no space-demanding hoses or pumps.
- User friendly
- Compact and light-weight
- Space-saving
- Smooth operation
- Precise control
- Long life expectancy
- Energy efficient
- Non-toxic



## The Helix Advantage

Helix Linear Technologies offers the broadest product line of any lead screw manufacturer, including a full line of rolled, milled, or ground screws and nuts, in standard and customizable sizes. The company provides the flexibility required to service the expanding and evolving customer-driven market for precision linear motion products.

Whether you need Acme, Trapezoidal, or Speedy® (high lead) threads with a precision low-backlash nut, or a state-of-the-art anti-backlash design, Helix delivers the highest quality products of exceptional value to its customers.

