



CASE STUDY

MAINTAINING SYRINGE PUMP PRECISION
AT LOWER COST WITH HELIX™ SOLUTIONS



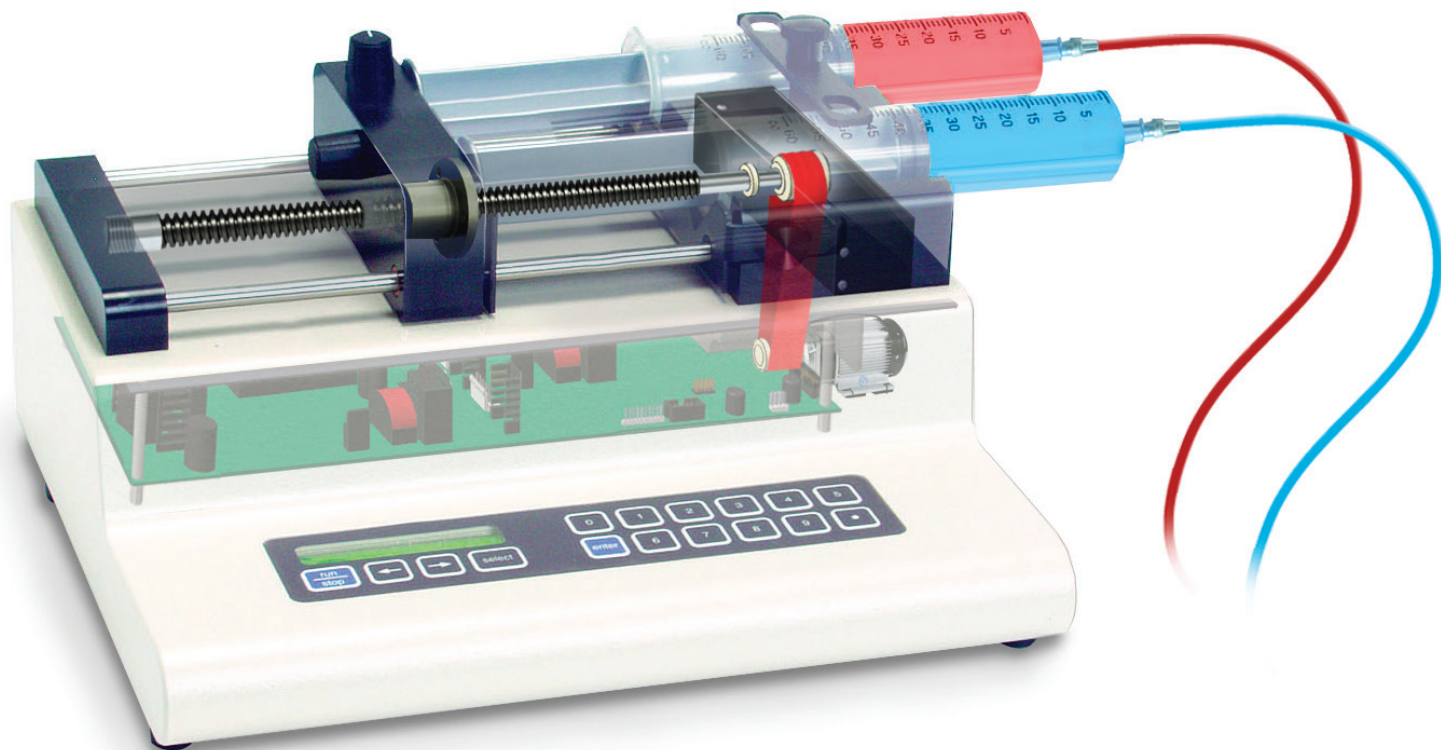
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The Challenge

The use of syringe pumps for medical treatment and chemical/biomedical research has substantially increased in recent years. The most common application for these small infusion pumps is to gradually administer intravenous medications to patients, including pain-killing analgesics, nausea-suppressing antiemetics, and other drugs. Syringe pumps are also used to control the administration of small amounts of fluids as part of laboratory research.

Syringe pump manufacturers face the challenge of maintaining precise control of pump operation so that exact volumes of fluids and medications are dispensed while making the pumps more cost-effective to produce and more compact, quiet, and maintenance-free to deploy. Traditionally, syringe pump manufacturers have utilized ball screws to maintain precise control of linear actuation of the pump plunger. However, the disadvantages of relying on ball screws for this application are that they increase syringe pump costs; tend to be bulky and often require lubrication, which is problematic in medical and laboratory settings.

- Precision Control
- Exact Administration of Fluid Volume
- Gradual Administration of Medication
- Reduced Size of Syringe Pump
- Reduced Noise
- Reduced Maintenance
- Reduced Manufacturing Cost

HELIX™
LINEAR TECHNOLOGIES
A SUBSIDIARY OF NOOK INDUSTRIES, INC.

The Solution

A new generation of precision lead screws and highly engineered plastic nuts are now available for syringe pump applications. HELIX precision lead screws not only offer the same high degree of linear actuation precision afforded by ball screws, they also provide a more customizable solution for syringe pump design and are available at a fraction of the cost of ball screws.

In addition to providing a more cost-effective precision linear actuation solution, HELIX precision lead screws are smaller, offer the lubricant-free operation that is mandatory in clean environments.

HELIX precision lead screws are less bulky than ball screws and fit the compact design profile required for syringe pump development. These lead screws are available in 4-millimeter to 25.4-millimeter diameters. Lead screws are smaller than ball screws and offer syringe pump designers the opportunity to utilize stepper motors with more compact footprints.

The need for liquid lubricants for HELIX precision lead screws is eliminated by combining a Teflon® coating on the screw with a custom-engineered nut available in bronze or plastic.

By using custom designed, injection molded nuts on its precision lead screws, HELIX enables syringe pump manufacturers to use custom screw assemblies, thereby reducing parts from their bills of materials (BOMs). Fewer parts result in manufacturing, assembly, and maintenance cost reductions. Syringe Manufacturers can also take advantage of HELIX customized thread profiles and pre-loaded, anti-backlash nuts to further facilitate syringe pump design innovation.



- Custom Designed Injection Molded Nuts
- Highly Engineered Plastic Nut
- Pre-Loaded and Anti-Backlash Nuts
- Helix Custom Thread Profile
- Cost Effective Lead Screws
- Teflon Coated Screws
- Custom Screw Assemblies
- Reduced Profile (4MM to 25.4MM) Lead Screw
- More Compact Design Style/Footprint



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 antibacklash nut, or a state-of-the-art anti-backlash design, HELIX delivers the highest quality products of exceptional value to its customers.

- Broadest Line of any Lead Screw Manufacturer
- Full Line of Rolled, Milled or Ground Screws & Nuts
- Standard and Customized Sizes
- Acme, Trapezoidal or Speedy High Lead Threads
- Low Backlash Nuts
- State-of-the-art Anti-Backlash Nuts
- Highest Quality Products with Exceptional Customer Value
- Flexibility to Service Expanding/Evolving Customer Driven Market