**MEDICAL - FABRICATION****COIL WINDING
AUTOMATION**

LONG LENGTH

SMOOTH
MOTION

CUSTOMIZABLE

COMPACT
PROFILE**Smooth Motion Over Long Lengths for Medical
Equipment Manufacturing**

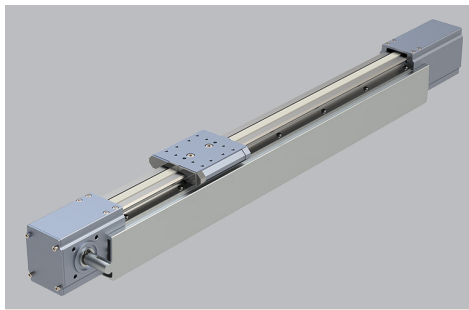
The medical industry was in need of a coil winder that could mass produce wound wire products yet, at the same time, meet the demand for extremely high-quality coils. These coils are used in various applications, including as tools to implant stents and other medical devices into the body and as leads in pacemakers.

CHALLENGE**AUTOMATION THAT BALANCES HIGH VOLUMES AND HIGH
QUALITY**

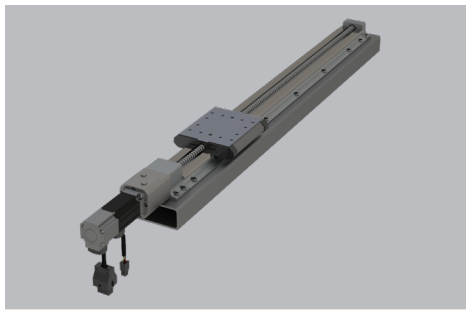
The manufacturer needed a motion solution to deliver wire to the arbor. The solution would have to satisfy two designs: a benchtop model which can produce coils up to 30 inches long and a floor model to produce coils up to 156 inches (13 feet) long. The wires are typically several thousandths of an inch in diameter; the system would need sufficient accuracy to wind them with a 0.0004 inch pitch and minimize tension variation in the manufacturing process.

Both designs required a low profile and low friction linear actuator to deliver the wire. Smooth motion is critical to meeting the accuracy requirements. The floor model in particular demanded a longer length motion system than an industry standard linear actuator.

Additionally, the customer wanted a built-in mechanism for locking the actuator in place during portions of the operation.



LoPro® linear actuator with belt drive and aluminum support beam



LoPro® with leadscrew drive, steel support beam, and motor system



Basic wheel plate option, showing four DualVee® guide wheels beneath the plate

SOLUTION

DELIVER A SMOOTH AND COMPACT ACTUATOR SOLUTION FOR LONG TRAVEL

Bishop-Wisecarver provided the medical machinery builder with a slightly customized LoPro® linear actuator. A size 3 LoPro® delivers wire to the arbor, driven by a brushless servo motor to meet the accuracy demands. LoPro® actuators can be fitted to extreme lengths, so even the 13' feed system could be smoothly actuated.

The LoPro's wheel plate was customized with a locking lever to hold the wheel plate in place during portions of the winding process.

CHALLENGE SOLVED

SMOOTH MOTION OVER LONG LENGTHS

For both the benchtop and floor systems, LoPro® linear actuators from Bishop-Wisecarver deliver smooth motion and high performance guided motion. This enables the machine builder to produce an automated winding system that meets quality requirements while increasing throughput of these essential medical components.

Bishop-Wisecarver's ability to incorporate the locking mechanism and mounting beam into the complete actuator solution minimizes the profile of the already compact linear system.

THE BISHOP-WISECARVER ADVANTAGE

START WITH SMOOTH-RUNNING GUIDE WHEEL TECHNOLOGY BUILT FOR THE CHALLENGE.

When it comes to extreme applications with critical outcomes, Bishop-Wisecarver has systems and products that will hold up to the toughest challenges, including long lengths and extremely smooth motion requirements. Our expert engineering team can also provide design collaboration and custom solutions to help meet our customers' needs.

- ✓ DualVee Motion Technology® uses vee guide wheels for smooth, quiet, and low-friction motion
- ✓ LoPro® actuators customizable to virtually any stroke length - limited only by the method of actuation
- ✓ Speeds up to 5.5 m/s and accelerations up to 5 g's
- ✓ Multiple drive options: belt, chain, leadscrew, ballscrew, or undriven
- ✓ Sleek, low-profile design, with a footprint designed for stability
- ✓ Custom length steel or aluminum support structures available