Curtiss-Wright: Critical

With an expansive history and strong presence in several industrial sectors, Curtiss-Wright continues to prove its mettle among its vast series of markets. For 2026, the company launches a new series of Tritex® electromechanical linear roller screw actuators, driving new capabilities for end users in the upstream oil & gas sector.

By Steve Fennell

Curtiss-Wright has long been associated with technological innovation. Established in 1929, following a merger of Curtiss Aeroplane and Motor Corporation and Wright Aeronautical Corporation, the company has since sustained strong momentum that continues to shape its operations today.

While its heritage lies in the aerospace industry, the company grew in the decades to follow. Throughout the latter half of the 1900s and 2000s, it diversified with a series of acquisitions in the defense, industrial, and energy sectors – all of which have further established the company's global presence with several cutting-edge technologies.

Curtiss-Wright also strengthened its position in the industrial valve and electric actuator markets with many milestones and further acquisitions. These have included – but not limited to – Farris Engineering (1999), Exlar Corporation (2013), and Dyna-Flo (2020). All currently serve numerous customers across power generation, oil & gas, chemical & petrochemical sectors, as well as the industrial, defense, and aerospace markets.

"Curtiss-Wright became involved in the valve control industry 30 years ago, manufacturing very high end, very fast, and responsive valve control designs," said Nick Holmgard, Senior Product Manager for Exlar® and Tritex® products. "We were doing things that nobody else could at the time. We are continuing to expand into new applications beyond upstream oil & gas by engineering new products that advance our capabilities."

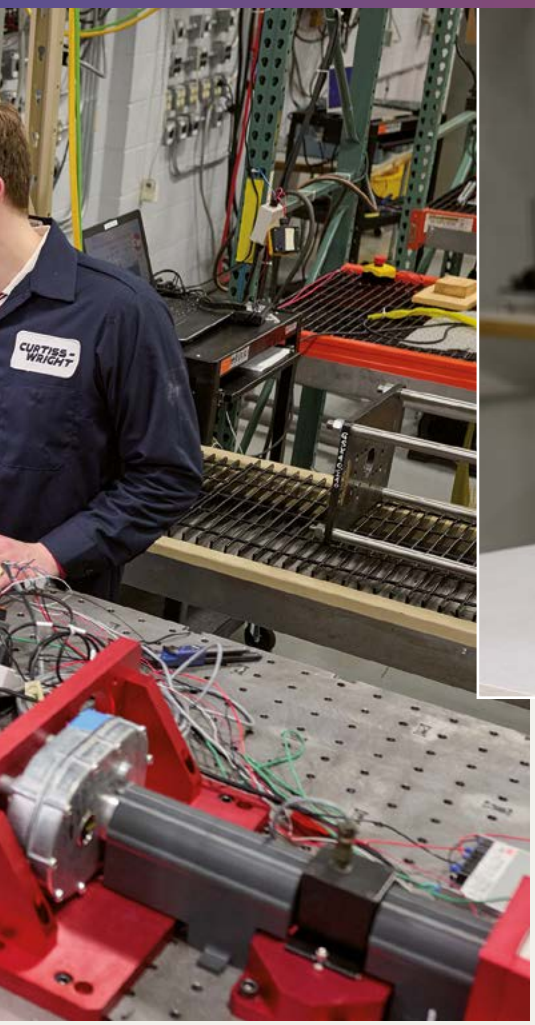
Proven Technologies

One of the leading business units under the Curtiss-Wright umbrella is its Chanhassen site, which designs, engineers, and manufacturers a variety of electromechanical roller screw linear and rotary actuators, which meet the demanding requirements for its core market verticals such as automotive manufacturing, defense, and packaging.

Exlar electromechanical linear roller screw actuators can produce forces up to 80,000 pounds, speeds up to 60 inches per second, and 15 times the life of comparable technology. These features enable users to achieve close times of less than one second in valve control all the while providing the reliability and performance to drive continuous operation in remote, demanding, and critical applications.

These capabilities are made possible by advanced, innovative, and exclusive designs. They include an

Duty Actuation



^ *The Tritex® EXA and EXM along with the rollerscrew and housing.*

‹ *Conducting life and durability testing on the Tritex® EXR.*

> *Customers look to Curtiss-Wright when performance and reliability matter.*

integrated brushless servo motor, onboard servo drive, industrial Ethernet communications, valve seating algorithm, and field tested, industry proven inverted roller screw design.

One of the proven Curtiss-Wright product brands is the Tritex® series, consisting of fully integrated linear and rotary actuators with the performance and reliability for upstream oil & gas applications across North America, including the Permian Basin, Eagle Ford Shales, and other prominent industrial regions in the U.S.

For more than 30 years, the company has successfully fielded more than 10,000 Tritex units in valve control applications. To expand on its capabilities, Curtiss-Wright is launching the Tritex EX, providing an even more robust solution for operators and end users in upstream oil & gas. It joins proven Tritex offerings including the TTX, TDX, and T2X AC linear actuators as well as the R2M/G AC and RDM/G DC rotary actuators.

“Our customers and partners are loyal to us as our designs are extremely reliable and reduce their risk," said Holmgard. “With this proven, high-performance technology for valve control, we have created another resilient product that can operate maintenance-free for many years.”

Proven Roller Screw Design and the New Tritex EX

The inverted roller screw design is a core technology of Curtiss-Wright, electric actuation products going back to the earliest actuation systems. While the first roller screw product was initially designed for packaging equipment and general industrial applications with capabilities of 24/7 operation, the Curtiss-Wright engineering team has applied that same technology across many actuation applications.

“The inverted roller screw is similar to a ball screw but has incredibly durability and typically lasts 15 times longer in typical industrial applications,” explained Holmgard. “With those design attributes, we first optimized it for a linear control valve, and it worked amazingly.”

Due to its reliability and extremely robust design, only minor modifications

were made, which included optimizing its mechanical housing to be more robust for outdoor applications and simplifying the field wiring for operators.

"The Tritex EX might be new to the market, but it's supported by 30 years of design history and thousands of proven applications," said Holmgard.

The Tritex EX follows the introduction of the Tritex EVA080 actuator in 2024. It was engineered with large ¾ NPT ports to provide more open space for easy wiring, and a simplified software setup to address those "big pain points for customers." Following success among customers in North America, Curtiss-Wright built on the Tritex EVA080 further.

"Success breeds customers who want more," said Holmgard. "We then determined to do more beyond the Tritex EVA, despite how successful it is."

The Tritex® actuators in production.

The Tritex EX, as Holmgard describes, is a full-fledged product. Designed to extend capabilities in a wider range of valve-control applications, the Tritex EX is available in rotary and linear variants including the Tritex EXA090, EXM090, and EXR090.

The Tritex EXA090 is a linear design featuring a 4 inch stroke, 1000 lbf, rated thrust, and 1500 lbf seating thrust. The Tritex EXM090 is a rotary variant with servo motor output mounting. It can be paired with a servo gearhead for high-speed, precision modulating applications or with the Exlar KX linear actuator for high-thrust linear valve actuation.

The Tritex EXR during life and durability testing.

Rounding out the line, the Tritex EXR090, which can be configured for quarter-turn and multi-turn applications, houses an integral gearbox with torque options of 1200 lbf-in and 5000 lbf-in. It is also rated for continuous modulating duty with ISO 5211 direct valve mounting features.

The Tritex EX launch will be fully certified for ATEX Zone 1, which meets global standards for explosive gas applications that may be present during normal operation. It's also certified for full operation down to -40°F to manage extreme cold environments and conditions.

"Our new Tritex EX is not limited to the North American market," said Holmgard. "Curtiss-Wright has a strong global presence so it will align with those markets as well."

All new Curtiss-Wright products and modifications across the flow control industry are tested extensively.

To ensure the Tritex EX meets the high cycle rate and high force requirements in the flow control industry, testing included at least 10 million starts and has exceeded the general requirements of ISO 22153:2020 valve actuation standards for continuous duty.

One of the key benefits of Tritex EX (and across much of its product portfolio) is its electric design. While extremely reliable, it produces zero emissions compared to pneumatic designs, thus allowing operators to stay current with emissions guidelines in various applications.

“Typically, in upstream oil & gas, pneumatic actuators are used and every time it actuates, it's powered by the methane gas in the circuit,” says Holmgard. “When it moves, it vents it off into the atmosphere. That is a huge point of emissions in the upstream environment.”

"Additionally, we understand that there are alternatives to methane powered pneumatic actuation. However, the increase in system complexity and reliability concerns can be avoided by applying the critical duty Tritex EX product," said Holmgard.

The Tritex® EXA (left) and the Tritex EXM (right).

Software, Remote Monitoring, and Continued Reliability

Combining proven electromechanical technology, the Tritex EX software provides additional valuable functions. For instance, upon installation and start up, the system automatically calibrates the actuator to the valve’s stroke and closed position, thus making installation fast and efficient, especially when implementing several units across facilities.

Additionally, the smart seating algorithm slows the actuator during the closing and seating of the valve, which reduces valve wear over time and the risk of leakage caused by valve degradation.

In an age of remote monitoring - and considering the rural locations of oilfields, Curtiss-Wright answers the call. Given the function of the Tritex EX servo actuation system, end users can monitor the current draw, the valve position, and additional valuable data points. The servo system can even be implemented with Modbus RTU for long range communication.

“Curtiss-Wright actuation products are known for meeting the requirements of critical duty and high performance in a wide variety of applications,” said Holmgard. "Our customers trust us and rely on Curtiss-Wright for their proven applications."

Engineers with the Tritex® EX in in the electrical lab.

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