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Weathering the Storm

Canada's fluid power leaders discuss the challenges ahead and potential remedies for the industry.

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Live Wire

BC's Live Line lessens hazard of electrical line work.

It's a sobering fact that many of the support structures holding up the world's electrical grid are nearing the end of their serviceable life. After 50 or so years, wooden electric poles and corresponding cross supports inevitably rot and need replacement. When they do, power company linemen get in an insulated bucket and are hoisted by a crane as much as 50 feet in the air to repair those structures.

However, many times the equipment used to hold the energized electrical lines in place while the work is done is less than ideal, creating a potentially hazardous environment.

"With electricity, you only get one mistake," says Larry Ewert, product designer for Live Line Solutions, a manufacturer of insulated crane and digger derrick attachments for energized transmission and distribution line maintenance. "There have been fatalities using equipment that was inadequate. Our products help to keep linemen out of harms way."

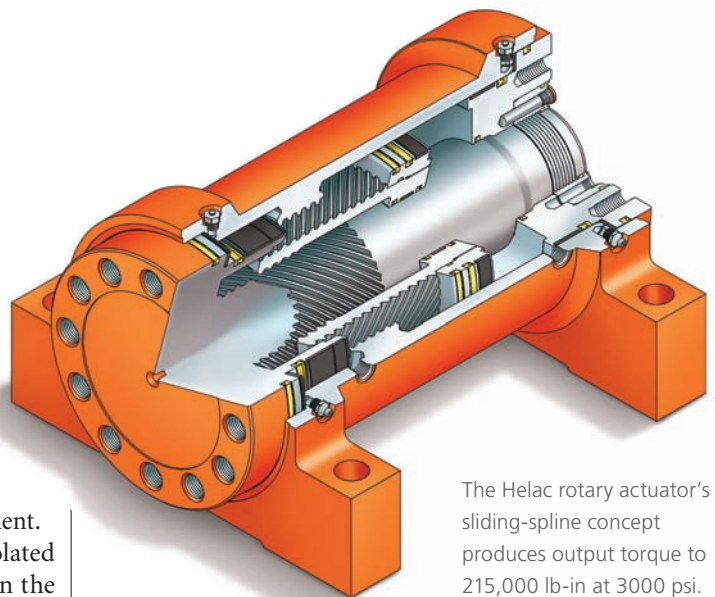


Live Line Solution's Insulated Conductor Support Jibs (ICSJ) and LinePro HA keep linemen safe and increase productivity by incorporating radio-controlled, hydraulic-actuated articulation.

Among their products, the company's PowerArm series of Insulated Conductor Support Jibs (ICSJ) temporary support energized ultra high voltage power lines to allow faster and safer insulator and tower replacement/relocation. In addition, the company's LinePro HA aerial devices are configurable as a Live Line bucket truck/aerial platform device, an energized conductor support, pole setting vehicle and a material-handling crane.

"We've used to use a multi-pin hole for the buckets and the supporting conductors," Ewert says. "Linemen used to set the position on the ground, lift it up and hope they had the right angle. If they guessed wrong, they'd have to bring it all down and reset it, so it was time consuming."

A former vehicle technician with BC Hydro, Ewert recog-



The Helac rotary actuator's sliding-spline concept produces output torque to 215,000 lb-in at 3000 psi.

nized the safety

and productivity issues involved in the traditional multi-pin method and designed an improved aerial device that includes hydraulic actuation so the company's bucket truck/aerial platform devices could be repositioned in the air, by radio control. According to Ewert, precise platform positioning without drift increases safety and allows for various degrees of articulation.

For the hydraulic actuation, Live Line Solutions relies on Helac Corporation's L30-215 helical rotary actuator, which is responsible for the articulation and boom positioning. Ewert says Helac's actuators provide jib storage and quick deployment not previously available.

"We can't accomplish the same thing with cylinders because they're too cumbersome," he says. "Because we get the same articulation out of a compact package, the Helac actuator is more efficient for what we do."

The actuator functions as a rotating device, mounting bracket and bearing support. The large circular shaft flange with drilled and tapped bolt circle is used to attach the actuator to the jib boom.

The characteristics of the helical rotary actuator make it ideal for this application. The L30 series offers high load carrying, high torque output, compact configurations and corrosion resistance in a cost-effective package with 180-degree rotation. Its sliding-spline operating concept produces output torque to 215,000 lb-in at 3000 psi. At the same time, the actuator measures 23.6 inches with a 10 in housing diameter and weighs 790 lbs.

Because the spline teeth remain engaged at all times, loads are equally distributed over the teeth, resulting in increased shock load resilience. Large integral nylon composition bearings support heavy radial, moment and thrust loads without additional external bearings. Sealing occurs against smooth cylindrical surfaces, effectively eliminating leakage and enabling selected positions to be held without drift.

The helical rotary actuator assists Live Line's aerial devices to be safer and much more efficient. The load holding capability allows for safety with either the aerial work platform or the insulated conductor support application.

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