



# CUSTOM ACTUATION SYSTEMS

## State-of-the-Art Solutions

Diakont is a high tech engineering firm that specializes in advanced solutions for the energy industry. Diakont's initial motion control products were created to upgrade aging fluid-based steam turbine valve controls within the nuclear industry. As a result of replacing hydraulic controls with modern Electromechanical Actuators (EMAs), Diakont was able to successfully expand its product offering which can now be applied towards industries beyond energy including one-off and high demanding applications.

Diakont custom actuation systems incorporate state-of-the-art component designs to provide industry leading precision, power and reliability. These components include precisely-machined roller screws and high-force permanent magnet synchronous motors.

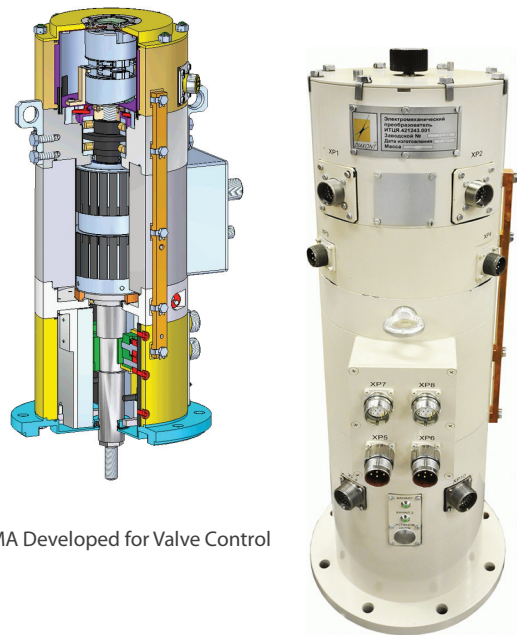
Advanced roller screws provide a high-performance method for converting rotary torque to linear motion. With more cumulative contact surface and a lack of backlash, Diakont's advanced roller screws significantly exceed competitor solutions with higher reliability, lifetime, load capacity, tolerance to shock loads, absence of vibrations and efficiency output.

High-force permanent magnet synchronous motors provide the ultimate solution for providing exact accuracy in high dynamic/force motion, while delivering exceptional reliability. The motor's rotating motion is transferred to the output shaft by a "direct drive" system.

## Easy Installation and Maintenance

The compact design of Diakont EMAs accommodate the easy replacement of hydraulic and pneumatic actuators. Diakont EMAs are also compatible with most manufactures' variable frequency drives.

The only maintenance required for Diakont EMAs is changing the lubrication. On average, EMA lubrication only requires changing once every five years. Further, the EMA design facilitates lubrication changing without disassembling the unit.



EMA Developed for Valve Control

## High Quality and Durability

The Diakont EMA is designed and manufactured to stringent quality standards. All stages of the production cycle, from incoming testing of electronic components to final, factory acceptance testing of the finished products, are performed under the tight parameters of Diakont's ISO 9001-certified Quality Management System.

The Diakont custom EMAs have an MTBF of 200,000 hours (in dual-redundant configuration) as a result of using robust components such as roller screws, permanent magnet synchronous motors and planetary reducers. With a greater number of contact points than ball-screw solutions, roller screws provide increased load capacity and rigidity. Diakont offers complete turnkey EMA solutions as well as individual components for your specified needs.

### North America

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## Custom EMA Projects

Diakont is typically approached by new and existing customers to design custom actuation systems for a variety of applications:

	<p><b>Steam Turbine Process Control</b></p> <p>Application: power plant steam turbine throttling</p> <ul style="list-style-type: none"> <li>• EMA rated specification – Force 5,000N, Speed: 200 mm/sec</li> <li>• EMA advantages: dual redundant high-precision (10 µm) roller screw EMA with twin motors</li> </ul>
	<p><b>Gas Turbine Process Control</b></p> <p>Application: gas turbine control systems (inlet guide vane)</p> <ul style="list-style-type: none"> <li>• EMA rated specifications – Force: 10,000N, Speed : 25 mm/sec</li> <li>• EMA advantages: explosion-proof and vibration-proof roller screw EMA (up to 10g; 2000 Hz)</li> </ul>
	<p><b>Aerospace Components</b></p> <p>Application: fuel system valve control</p> <ul style="list-style-type: none"> <li>• EMA rated specifications – Force: 1,500N</li> <li>• EMA advantages: high vibration-proof EMA (up to 100g), compact and lightweight (1.7 kg)</li> </ul>
	<p><b>Maritime Vessels</b></p> <p>Application: propulsion turbine systems</p> <ul style="list-style-type: none"> <li>• Dual redundant linear EMA with roller screw – Force: 5,000N, Speed: 200 mm/sec</li> <li>• High forced linear EMA with roller screw &amp; cycloidal reducer – Force: 135,000N, Speed: 10 mm/sec</li> </ul>
	<p><b>Commercial Aviation</b></p> <p>Application: aircraft thrust reversers (in process)</p> <ul style="list-style-type: none"> <li>• EMA rated specifications – Force: 9,000N, Speed: 300 mm/sec</li> <li>• EMA advantages: high vibration-proof EMA, lightweight (11 kg), temperature-proof (from -55C up to +80C)</li> </ul>

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