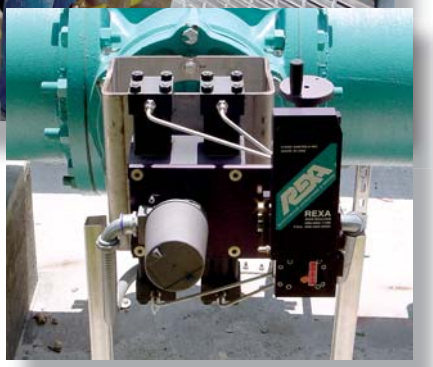
ELECTRAULIC™ ACTUATORS & DRIVES

BULLETIN WWWI-1

FEATURES

- *Self-contained electro-hydraulic technology.*
- *100% duty cycle rated.*
- *Extremely rugged design and construction.*
- *Very low maintenance.*
- *High torque or thrust in a compact package.*
- *100% solid state controls.*
- *Spring and accumulator fail position options.*
- *Linear, rotary and drive configurations.*
- *Discrete operation, motor and pump only operate when motion is required.*
- *Adaptable to virtually any valve, damper or motion control application.*
- *Optional digital communications and diagnostics*

REXA Products For the Water & Wastewater Treatment Industry



Electraulic Design Principle

All REXA actuators use the same basic microprocessor-based self-contained electro-hydraulic design principle. Each unit includes the motor, pump, oil, actuation cylinder and the logic controls to operate them. The only required inputs are the control signal and power source, with various options available for both. Available outputs include position indication, limit switches and alarm relays.

Stable repeatable control, independent of load variations, is provided through the use of high pressure non-compressible fluid in the actuation cylinder. Our solid state digital controls and direct coupled feedback allow for immediate response and a variety of factory and user-settable attributes. Unlike electric actuators that use mechanical gears to transmit force and tend to wear, the REXA design ensures years of reliable and consistent performance.

Product Offering

The **Xpac** is designed to meet the most demanding control requirements and is often employed in critical or severe service applications. A wide range of sizes and options allow actuator performance to be fine-tuned as required by the application. The control enclosure is remote mountable up to 800 ft from the actuator and driven device.

The **Mpac** is ideal for many routine applications where resolution and response requirements are less demanding. Mpac controls are mounted directly on the actuator as standard (remote mount optional). A limited number of input and output options and accessories are available.

REXA actuators can be mounted on ball valves, butterfly valves, plug valves, gate valves and dampers. In addition to the standard products outlined on the following page, REXA can customize an actuator for a specific application. Our modular design readily accommodates requirements for higher output forces, and longer travels.

Applications Served

The requirements for actuation in water treatment are as difficult and varied as those in any other industry. While some actuators are required to constantly modulate, others will not operate for months. The one thing all of these applications demand is reliability. When that actuator is called upon to operate, it must be up to the task. The comfort, health and property of people may depend upon it.

The design of REXA Electraulic™ actuators ensures they are ready when needed. The use of hydraulics eliminates mechanical gears that wear, rust and lock-up in damp locations. The remote mount electronics and watertight cylinder allows for limited submersion installations.

Whenever you need tight control or just reliable low maintenance actuation… RELY ON REXA.

Common Xpac Applications:

- Effluent Valve
- Backwash Valve
- Aeration Blowers
- Flare Dampers
- Metering Valves
- POLYJET Sleeve Valves
- Pumping Station Valves
- Dissolved Oxygen Flow
- Ozone/Oxygen Flow Control
- Return Activated Sludge (RAS) Valve
- Waste Activated Sludge (WAS) Valve

Common Mpac Applications:

- Influent Valve
- Backwash Valve
- Air Scour Valve
- Altitude Valve
- Sludge Line to Filter Press

Specifications

	Xpac	Mpac
Output: **Linear** **Rotary** **Drive**	 2 000 lbf - 120 000 lbf (8 896 N - 533 786 N) 600 lbf·in - 400 000 lbf·in (68 N·m - 45 194 N·m) 600 lbf·in - 100 000 lbf·in (68 N·m - 11 298 N·m)	 500 lbf - 120 000 lbf (2 224 N - 533 786 N) 600 lbf·in - 100 000 lbf·in (68 N·m - 11 298 N·m) 600 lbf·in - 100 000 lbf·in (68 N·m - 11 298 N·m)
Control Signal	Analog: 4-20 mA (std) Pulse: 24-120 Vac or Vdc	Analog: 4-20 mA Single input 24-120 Vac or Vdc, dry contact
Accuracy	**RSS:** <0.15% **Linearity:** <0.05% **Repeatability:** <0.10%	Within 2%
Failure Mode	Fail-in-place (open or closed)	Fail-in-place (open or closed)
Type	Self-contained, Electraulic	Self-contained, Electraulic
Materials of Construction	Anodized aluminum (Electraulic module), anodized aluminum and steel (rack and pinion cylinder/cylinder), steel or iron (D series mounting base)	Anodized aluminum (power module, rotary feedback housing and ML series cylinder), iron and steel (ML, MR and MD series cylinders and MD mounting base)
Environmental Rating	NEMA 4X (std) CSA approved Cl I, Div 2, grps B, C, & D CSA approved Cl I, Div 1, grps B, C, & D	NEMA 4X CSA approved Cl I, Div 2, grps B, C, & D
Temperature Range	-30 °F (-34 °C)‡ to +200 °F (93 °C) **(linear)**, optional to 300 °F (150 °C) -10 °F (-23 °C)‡ to +200 °F (93 °C) **(rotary & drive)**, optional to 300 °F (150 °C)	-20 °F (-29 °C) to +140 °F (+60 °C)*
Motor	Stepping type (B & C) Servo Type (¼D - D)	115 Vac - induction, limited to 20 cycles per minute.
Electronics	Separate Control Enclosure with PCP, motor driver, power supply and termination.	Actuator mounted, self-contained, digital. Solid state motor relays.
Feedback	Thin film potentiometer (50×10^6 cycles)	Thin film potentiometer (10×10^6 cycles)
Options		
Failure	Spring - extend or retract Accumulator	Spring - extend or retract
Position Transmitter	Provides 4-20mA output proportional to position. Includes alarm indicator	Provides 4-20mA output proportional to position. Includes alarm indicator
Booster Pump	High speed operation.	NA
Enhanced Software	0.05% Deadband Minimum Control Point Two Speed Flow Characterization	NA
Stem Boot	Available	Available
Split Clamp	Available	Available
Auxiliary Control	External - NEMA 4X Remote - manual control station	Actuator mounted - two position rotary switch Remote - manual control station
Limit Switches	Electrical - two relays, SPDT, switched by PCP. Mechanical - 2 or 4, SPDT, yoke mounted	Electrical - two relays, SPDT, electrically switched. Mechanical - 2 or 4, SPDT, Independently switched.
Manual Override	Handwheel/Drill Drive Geared (5:1) Hand Crank	Handwheel/Drill Drive Geared (5:1) Hand Crank
Surge or Trip Control	Available	NA
Electrical Transient	Electronics and power supplies can be isolated to resist electrical damage.	NA
Separate Electronics	Standard	Optional

‡ *Lower temperature ranges can be accommodated with additional thermal blanketing.*

* *Higher temperature range with separate electronics.*

Check with factory about Booster Pumps, Accumulators, unique sizing, and other options.

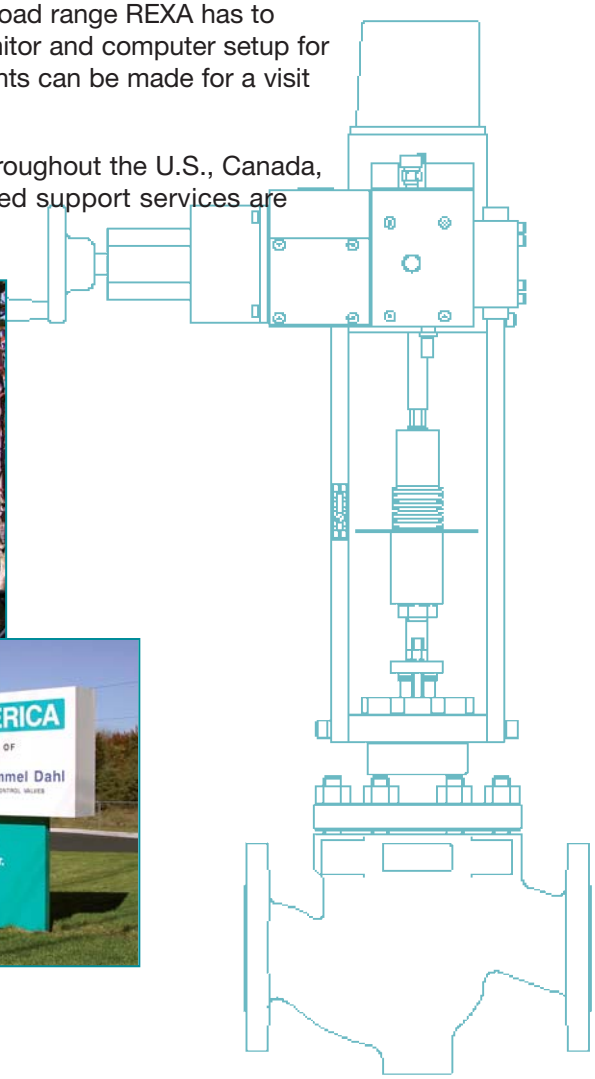
REXA is continually improving the design of its products. As such, specifications are subject to change. Refer to individual brochures for more detail.

About KOSO AMERICA, Inc.

KOSO AMERICA was established in 1993 to manufacture REXA Electraulic™ actuation products. These compact, industrial-grade, self-contained actuators and drives have earned a reputation for high quality and performance excellence in the marketplace since 1985. KOSO AMERICA is ISO 9001:2000 certified.

The KOSO AMERICA facility provides 11 200 sq ft of office space and 35 426 sq ft for manufacturing. Training classes are also held at the facility. The REXA van tours the U.S. and Canada with five working actuators representative of the broad range REXA has to offer. The twenty foot mobile display is equipped with large monitor and computer setup for presentations, and a supply of informative literature; arrangements can be made for a visit to your area.

Sales representatives are listed on our Web site and located throughout the U.S., Canada, and in many international locations. REXA products and related support services are available to the global market.



REPRESENTED BY

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