

REXA

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Mpac

Multi positioning
actuator

LINEAR
ML series

ROTARY
MR series

DRIVE
MD series

*The Final Step to
Process Control*

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Electraulic Actuators and Drives

- **Three mode operation:** Manual (up/down push-button), Two Position (single contact), Emergency Shutdown (spring failure)
- **Self-contained, Electraulic technology**
- **Optional spring failure upon power loss**
- **Available in linear, rotary and drive configurations**
- **100% solid state controls**
- **Discrete Operation:** Motor and pump only operate when motion is required
- **Designed for long life with no maintenance**
- **Adaptable to virtually any valve, damper or motion control application**

The **Mpac** is the ideal actuator or drive for many control applications. Two positions and intermediate manual controls are available from the same unit. Output configurations of linear, rotary or drive motion provide maximum flexibility to fulfill any installation. Setup is simple and reliable with no limit switches or potentiometers to adjust. The digital electronics, continuous feedback, Electraulic Power Module and optional spring failure bring to the **Mpac** a dimension of safety and reliability not found in conventional electric actuators.

Operation of the **Mpac** is by means of an Electraulic Power Module. This hydraulic system contains an AC induction motor, gear pump, valving, solid state contactors and digital controls in a compact, one piece assembly. A hydraulic cylinder and position feedback are combined with the Power Module to produce a self-contained, electric actuator or drive. The technical details of this unique hydraulic system is discussed in the publication, Theory of Operation.

Power Modules are available in two sizes, B and C. The difference between them is the stroking speed of an actuator. The C size has three times the speed of the B. Higher speed is available by a manifold with two C size modules. This approach to product configuration offers a high degree of commonality and reduces spare parts inventory. The required stroking speed for an application determines the size and quantity of the modules. Regardless of the selected power module, the rated output remains unchanged for any cylinder.

The **ML series actuator** combines a linear cylinder and the power modules. Rated thrusts from 500 lbs to 120,000 lbs and strokes up to 22 inches are standard. Adaptation to the driven device is usually accomplished by a bolted yoke consisting of two legs and a base. Stem connection is through **REXA's** unique elastic coupling.

The **MR series actuator** combines a rotary rack and pinion cylinder and the power modules. Torques from 600 in-lbs to 100,000 in-lbs are standard. A female keyed shaft connection and four bolt mounting pattern make for a straight forward adaptation to ball valves, butterfly valves, louvers or any device requiring rotation up to 270 degrees.

The **MD series drive** combines the MR series actuator and a drive mounting base. Torques from 600 in-lbs to 100,000 in-lbs are standard. The base is attached to a user prepared pad by a 4 bolt pattern. A drive arm is custom designed to meet a particular installation.

Mpac Specifications

REXA

REXA is continually improving the design of its products. As such, specifications are subject to change.

Operation

- Two Positions:** Direct or reverse action
Control signal: (single input)
24 to 120 volts, AC or DC
Dry contact
- Manual:** Intermediate positioning
Control signal: (up/down pushbuttons)
Remote station - dry contact
Local switches (optional)
- Emergency Shutdown:** Power open/spring closed
Control signal: (single input)
120 VAC
Main electric power
- Stroke:** Any - up to maximum rated
- Accuracy:** Within 2% of rated stroke
- Speed:** Varies with actuator size and Power Module
Please refer to TM1-Stroke Time

Mechanical

- Motion:** Linear - ML Series
Rotary - MR Series
Drive - MD Series
- Type:** Self-contained Electraulic actuator or drive
- Materials of Construction:** Anodized aluminum (power module, rotary feedback housing & ML series cylinder), iron and steel (ML, MR & MD series cylinders and MD series mounting base)
- Environmental Rating:** NEMA 4X
- Operating Temperature Range:** 0°F to +140°F¹; optional to +200°F, optional to -20°F (auxiliary heating is required)
- Drive Motor:** 115 VAC - induction; limited to 20 start, stop or reverse cycles per minute
- Manual Operation:** Outboard end of the motor shaft is rotated to move unit

¹Limited by actuator mounted electronics. Specify separate electronic option for higher temperature range.

Electrical

- Type:** Actuator mounted (separate electronics available)
Self-contained, digital
Solid state motor relays
- Power Requirements:**
B Power Module, 115 VAC - 4 amp
C Power Module, 115 VAC - 12 amp
2C Power Module, 115 VAC - 24 amp
- Operating Temperature Range:** -20°F to +140°F²
- Connections:** Heavy Duty Screw terminals
- Position feedback:** Thin film potentiometer (10X10⁶ cycles)
ML series: within the cylinder, rigidly connected to the stem
MR & MD series: separate housing located on the cylinder, connected directly to the output shaft.

²Ambient temperature only. Direct solar heat load must be avoided.

Options

- Fail Open or Closed** (upon loss of power):
Includes electrically operated bypass valve and integral spring to move the actuator.
Please refer to TM4-Spring Failure
- Position Transmitter:** Provides 4-20 mA output proportional to position, includes alarm indication
Please refer to TM12-Position Transmitter
- Stem Boot** (ML series only): For environments where the seals may be damaged by airborne particles
- Split Clamp** (ML series only): Bolted connection between the stems of the actuator and driven device
- Auxiliary Control:**
Actuator mounted - two position rotary switch, LOCAL/AUTO & two position momentary switch, OPEN/CLOSED
Remote - a manual control station may be located remote from the actuator (the station may be user supplied or two types are available from REXA)
Please refer to TM17-Auxiliary Control, Remote
- Limit Switches:**
Electrical - two relays, SPDT, electrically switched, includes alarm indication
Mechanical - two or four, SPDT, independently switched
Please refer to TM13-Limit Switches
- Manual Override** (uses the normal hydraulic circuit):
Handwheel or Drill Drive - attached to the motor housing
Geared (5:1) Hand Crank - installed on a separate power module.
Please refer to TM15-Manual Override
- Separate Electronics:** For environments at the actuator where the ambient temperature is above +140°F or there are other aggressive condition (vibration, RFI)

Rated Shaft Output¹

Rotary or Drive		Linear	
Torque (inch-lbs)	Rotation (degrees)	Thrust (lbs)	Rated Strokes (inches)
600	90, 120	500	2
1,200	90, 120	2,000	2, 4, 6, 8, 11
2,500	90, 120	4,000	2, 4
5,000	90, 120	5,000	2, 4, 6, 8, 11, 16, 22
10,000	90, 120	8,000	2, 4, 6
20,000	90, 120	10,000	2, 4, 6, 8, 11, 16, 22
50,000	90, 120	15,000	2, 4, 6, 8, 11, 16, 22
100,000	90, 120	20,000	2, 4, 6, 8, 11, 16, 22
		30,000	2, 4, 6, 8, 11, 16, 22
		40,000	2, 4, 6, 8, 11, 16, 22
		50,000	2, 4, 6, 8, 11, 16, 22
		60,000	2, 4, 6, 8, 11, 16, 22
		80,000	2, 4, 6, 8, 11, 16, 22
		120,000	2, 4, 6, 8, 11, 16, 22

¹Output values are for fail in place actuators. Depending upon the direction of motion, the optional spring failure will increase or decrease the shaft output.