



SERIES 70 ELECTRIC ACTUATORS

Recommended Specifications

General

- The actuator shall be compact and low profile to minimize space requirements.
- The actuator shall provide adjustable operation up to 90°.
- The actuator shall provide easy access for field wiring and adjustment.
- The actuator shall be built to withstand line vibration and shock without failure.

Enclosure - Weatherproof

- The enclosure shall be die-cast aluminum.
- The enclosure shall be polyester or Seacorr coated (as specified) for environmental protection.
- The enclosure shall be provided with captive cover bolts to prevent loss of cover bolts when cover is removed.
- The enclosure shall have two conduit connections (one for power wiring and one for control signal wiring) in either NPT or metric threads as specified.
- The actuator enclosure shall be provided with a high visibility valve position display prominently labeled and color coded to indicate the valve position throughout the full range of travel.

Motor

- The motor shall be a single phase, permanent split capacitor induction type with Class F or better insulation.
- The motor shall contain a built-in UL approved automatic reset thermal overload protector set at 275°F (135°C) embedded in the motor windings.
- Motors shall be 120 VAC or 220 VAC (230 VAC compatible) 50/60 Hz as specified.
- Other DC and AC motors shall be available upon request.

Actuator Gear Train System

- The actuator shall have a self-locking gear train system consisting of a worm and worm gear output drive mechanism, which will hold the valve in the desired position without the need for an electro-mechanical braking system.
- The spur gear train shall have precision cut multi-staged gears which will withstand locked rotor conditions and are permanently lubricated at the factory.
- The actuator shall have an Oldham coupler to correct any misalignment between the output gear and the cam shaft.

Mechanical Travel Stops

- Mechanical stainless steel travel stops shall be provided and located outside the actuator enclosure for ease of adjustment.
- Stainless steel lock nuts shall be provided to hold the travel stops in position.
- O-ring seals for waterproof protection shall be provided.
- The mechanical travel stops shall limit the travel of the actuator in either direction to the full travel range of the valve.
- Stainless steel spacers shall be provided to prevent adjustment of travel stops above 0° and below 90°.

Manual Override

- The actuator shall be equipped with a manual override handwheel to rotate the valve without electrical power.
- The manual override system shall ensure efficient manual operation without the use of extra tools or levers.
- A motor power cutout switch shall be provided to cut power to the motor when the actuator manual override is engaged.



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Travel Limit Switches

- Travel limit switches shall limit the actuator travel in both the open and closed direction of travel.
- Travel limit switches shall be held in brackets for accurate and repeatable valve position feedback.
- Travel limit switch cams shall be infinitely adjustable by finger touch or screw driver.
- All travel limit switches shall be:
 - Single Pole Double Throw (SPDT) Form C, UL Listed, and CSA Approved.
 - 10A at 125/250 VAC and 1/2A at 125 VDC.
- Travel limit switches shall be pre-wired to a terminal block for ease of access and all internal wiring shall range from 12-22 AWG.

Service Requirements

- Actuators shall be designed for electric operation under the following service conditions:
 - Temperature range:
 - -20°F to 150°F (-29°C to 65°)
 - Duty Cycle:
 - 25% for Intermittent Operation
 - 100% for Continuous Operation

Testing

- All actuators shall be factory tested at rated load to ensure proper operation.

Mounting

- All actuators shall comply with ISO 5211 and mount directly to the valve mounting flange and stem without the need for any brackets or couplings.

Optional Equipment

The actuator shall be designed to accept the following optional accessories if specified:

Torque Limiting System

Limits torque output during electrical operation.

- Shall include two SPDT mechanical switches and two factory-calibrated adjusting screws.
- The switches, in response to a predetermined load on the actuator output shaft, shall interrupt power to the motor.
- The switches shall operate at any point and in both directions of actuator travel.

Heater

Prevents internal condensation build-up.

- Shall be a self-regulating temperature control type.
- Shall be pre-wired to the terminal block for ease of connection to external source.
- Rated output shall be 5 W at 120 or 220 VAC.

Local Control Station

Permits local electrical operation of the actuator.

- Shall flush mount to the actuator and include:
 - A local-off-remote control switch.
 - An open-stop-close switch.
 - Two lights which indicate open and closed valve position.
 - Two ¾" NPT conduit entries in base of enclosure for customer wiring.
- Enclosure shall be aluminum and weatherproof.

Battery Back Up

User-selectable valve fail position upon loss of power supply in 24V applications.

- Shall flush mount to the actuator and include:
 - Visual and remote indication of battery status and operation.
 - Field selectable valve fail position.
 - Two ¾" NPT conduit entries in base of enclosure for customer wiring.
- Enclosure shall be aluminum and weatherproof.

Potentiometer

Provides continuous feedback of valve position.

- Shall be a gear driven 10k Ohm potentiometer.
- Shall be standard for units with Servo NXT controller.

Auxiliary Switches

Indicates travel position for remote customer control systems.

- All auxiliary switches shall be:
 - Single Pole Double Throw (SPDT) Form C, UL Listed, and CSA Approved.
 - 10A at 125/250 VAC and 1/2A at 125 VDC
- Up to 6 additional auxiliary switches may be added.



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Servo NXT

Precise modulating control of the valve position.

- Shall accept an analog input command signal proportional to the desired valve position.
- The analog input signal shall be configurable to either current or voltage input:
 - 4-20mA DC, 0-10V DC, 2-10V DC, 0-5V DC.
- Shall have an analog output retransmission signal proportional to the actual valve position.
- The analog output signal shall be configurable to either current or voltage output:
 - 4-20mA DC, 0-10V DC, 0-5V DC.
- LED driven menu display shall be provided for simplified commissioning, monitor and control of actuator.
- Voltage spike and transient protection shall be provided on all input terminals and output terminals.
- Independent isolation shall be provided between analog input command signal and output retransmission signal to eliminate ground loops.
- 120/230VAC units shall have inductive isolation between line voltage and logic level voltages.
- Control characteristic shall be linear and duty cycle shall be 100%.
- Calibration shall be accomplished by pressing a single button to initiate the calibration routine.
- Independent adjustments shall be provided for deadband and for both open and closed speed control of the actuator.
- Internal feedback shall be by means of a 10k Ohm potentiometer.
- Manual mode operation shall be provided to allow for control of actuator when no command signal is present.
- On-board fault indications shall be provided.
- Shall be designed to meet UL and CE standards.

Series 70 DeviceNet™

Network control and feedback of valve position.

- Shall be available as an option to provide on/off or modulating capability.

Actuator Approvals & Certifications

- CE
 - Low Voltage Directive: 2014/35/EU
 - EMC Directive: 2014/30/EU
 - Machinery Directive: 2006/42/EC
 - RoHS Directive: 2011/65/EU
 - IP65
- ABS
- Bureau Veritas Certification
- CSA Certification
 - For select 120VAC units.
- UL Certification (cULus)
 - For select 120VAC units.
 - NEMA Type 4, 4x.

Hazardous Location

- Certified to UL and CSA standards.
 - For select 120VAC units.
 - NEMA Type 4x, 7, 9.
- Hazardous location enclosure shall be UL certified to:
 - Class I, DIV 1 & 2, Group C, D
 - Class II, DIV 1 & 2, Group E, F, G
 - Operating Temperature Code: T3B (165°C)
- All unused conduit entry points to be sealed for ingress protection.

HEADQUARTERS

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