



**General Specifications:**

Enclosure: NEMA 4 / IP56

Temperature range: 0 .. 70 deg Cel (derate duty cycle at high temp.)

Extended temperature range: -40 .. 70 deg Cel [ w. Heater option]

Finish: E-coating, Stainless

Stall protection: by electronic position and motion detection

Feedback: TTL, 4.20mA

Life Expectance: 250,000 cycles or equivalent under specified conditions

Motor: BLDC brushless DC motor.

Voltages: 12-24 VDC

Stall protection: by electronic position and motion detection

Positioning precision: +/- 3 deg for 1/4 – 1/2 turn models  
+/- 0.25 deg for multi turn

Positioning resolution: +/- 0.15 deg max. adjusting to electronic signal resolution of 12 bit  
additional signal filters available

Range setting: dip switches inside enclosure

Speed setting: dip switches inside enclosure

End of travel detection: for needle valve closing, by motion detection

Power setting: adjustable to protect delicate needle valves on closing operation

Position detection: Hall detectors

Motor control: Electronic, full computer control

Mechanical shock: 1 m drop test no damage to function  
Random SAE J1211, Chassis, Exterior

Mechanical vibration: Random SAE J1211, Chassis, Exterior

Thermal Shock: -20 deg cel to + 70 deg cel 10 min

**General Description:**

Type Mxx electric / electronic actuator are used to precisely position small valves and devices

**Gears:** Mxx actuators use sintered, greased for life metal gearing only

**Housing:** all housing parts are aluminum die cast and are protected by an electrophoresis paint

**Bearings:** oiled for life porous bronze bearings

**External Fasteners:** Stainless Steel

**Manual Override:** optional, mounted directly on the output shaft

**Mxx actuators** offer a full range of control options:

- Multiturn Analog, Partial Turn Analog
- 1/4 - 1/2 turn TTL

**External Gear Stages:** Metal Gears for additional reduction:

- MxH 3.75 additional gear ratio
- MxU 15 additional gear ratio

**Performance: Mxx Multi-turn models:**

Model	Torque Range [in-lbs]	Speed range [time for 1 turn]
<b>MCL</b>	2 .. 32	1 .. 5 sec
<b>MCM</b>	6 .. 90	3 .. 9 sec
<b>MCH</b>	22 .. 300	15 .. 60 sec
<b>MCU</b>	110 .. 1200	75 .. 300 sec

**Performance: Mxx 1/4 and 1/2 turn models:**

Model	Torque Range [in-lbs]	Speed range [time for 1/4 turn]
<b>MDM</b>	6 .. 90	0.75 .. 2.5 sec
<b>MDH</b>	22 .. 300	3 .. 9 sec
<b>MDU</b>	110 .. 1200	11 .. 38 sec

**Note:** the speed and torque depend on the settings by dip switch of the actuator, selectable by user. Consult user manuals of individual units.

\* De-rate the duty cycle to 25% for the highest torque values

**Other Specifications Multi-turn Models:**

Isolated Signals: optical isolation 1000V min.  
[AI and AF models only]

Feedback 4..20mA: for sensing resistor of max. 250 ohms. Floats +6VDC / -2VDC from power Gnd  
[AF model only]

Position on power loss: - Standard, "remembers" the position it was in before shut down.  
- will reset the valve based on torque setting when the signal is between 3 and 4 mA

**Other Specifications 1/4 and 1/2 turn Models:**

TTL Signals in: internal pull up, <1mA required to pull down

TTL signals out (Feedback): will drive max 2.5mA

