HANBAY Electric Actuators

# INFINITE APPLICATIONS - INFINITE COMPATIBILITY

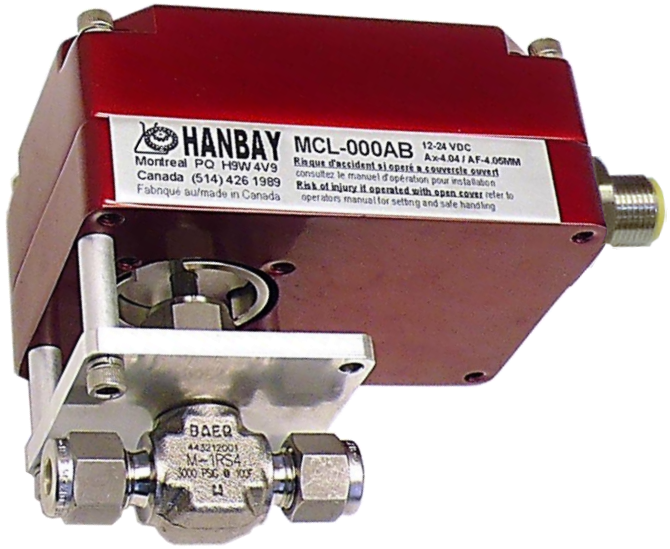
# Precise Flow Control for any small valve

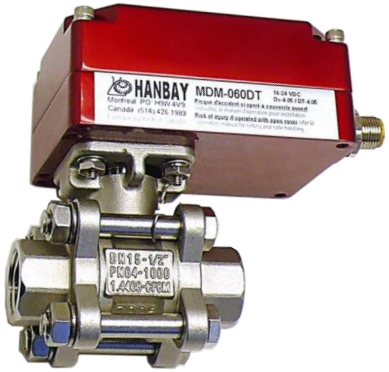
## MCM Actuator

High-pressure valve

## Custom Applications

7-way ball valve





## MDM ¼ Turn Actuators

For On/Off applications

**316 Stainless Steel option

## Custom Actuators

Custom applications, materials and control options

## M-Series Actuators

Precise flow control and valve micro-positioning

### Fits any small valve

| | | |
|---|---|---|
| Needle | Gate | Globe |
| Metering | Globe | Butterfly |
| Ball | Bellows | High-Pressure |

There isn't a valve that we can't automate

**HAZLOC**
**CSA / UL rated**
Class I, Div 1, Group B, C, D
Class II, Group E, F, G

Swagelok · HOKE · HiP High Pressure Equipment Company · Badger Meter, Inc. · FISHER · HAM-LET · BuTech · MEC · REGO · JORDAN VALVE · Hy-Lok HY-LOK CORPORATION · +GF+ · Parker Autoclave Engineers · Thompson Valves · MAXOK

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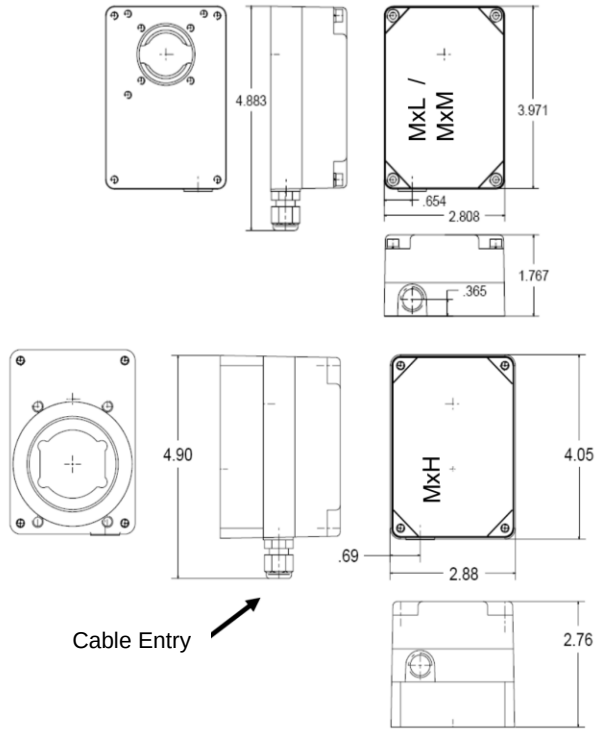
# M-SERIES ACTUATOR DIMENSIONS & SPECS




**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
- ¼ - ½ turn TTL

**External Gear Stages:** Metal Gears for additional reduction:
MxH 3.75 additional gear ratio
MxU 15 additional gear ratio

**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 – ½ turn models<br>+/- 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 |

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

| Model | Torque Range [in-lbs] | Speed range [time for 1 turn] |
|---|---|---|
| **MCJ** | 3 .. 20 | 1 .. 5 sec* |
| **MCL** | 18 .. 60 | 1 .. 5 sec |
| **MCM** | 44 .. 132 | 3 .. 9 sec |
| **MCH** | 88.5 .. 400 | 15 .. 60 sec |

* Speed decreased at lowest torque settings

**Performance: Mxx ¼ and ½ turn models:**

| Model | Torque Range [in-lbs] | Speed range [time for ¼ turn] |
|---|---|---|
| **MDM** | 44 .. 132 | 0.75 .. 2.5 sec |
| **MDH** | 88.5.. 400 | 3 .. 9 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: [AI and AF models only]** | optical isolation 1000V min. |
| **Feedback 4..20mA: [AF model only]** | for sensing resistor of max. 250 ohms. Floats +6VDC / -2VDC from power Gnd |
| **Position on power loss:** | - Standard, "remembers" the position it was in before shut down.<br>- will reseat the valve based on torque setting when the signal is between 3 and 4 mA |

**Other Specifications ¼ and ½ turn Models:**

| | |
|---|---|
| **TTL Signals in:** | internal pull up, <1mA required to pull down |
| **TTL signals out (Feedback):** | will drive max 2.5mA |