



## Động cơ điện đóng mở van Flowinn - ON - OFF - EOM2

AC 110v , AC 220v , AC/DC 24v

Electric Actuator / Ball Valve

## EF(O)M & EMT Actuator Series



EFM1/A Actuator



EFM1/A/B-H Actuator



EOM2-7 Actuator



EOM8-9 Actuator



EOM10-12 Actuator



EOM13-15 Actuator



EMTMX Actuator

## Electric Actuator Installation and Wiring

### Attention:

1. Only available for connecting by copper wire, wiring method must meet electrical specifications of local, regional and national standard. Power supply over the rated value of actuator is not allowed.
2. To ensure the electric actuators are better protected from water, please pay attention to the cable specification: ① for EFM1/A/B-H series, please ensure the diameter of the cable is 6-12mm; ② for EO(F)M2-EO(F)M15 & EMT series, please ensure the diameter of the cable is 10-14mm.
3. When input signal of modulating actuator (input signal/feedback signal) is current signal (4-20mA), please notice that impedance value of input load at controlling end should  $\leq 250\Omega$ , while the output load should  $\geq 250\Omega$ . Any impedance value falls out of the scope mentioned above will cause inaccurate controlling signal & feedback signal. (Please see diagram.)
4. To ensure the reliability of the control, we advise to wire the signal circuit and power circuit separately to the actuators and please ensure the earth wire is firm and reliable.
5. Working time: S2 standard 30 min.



### Warning: Risk of damage to human body

Please cut off power supply before wiring. Accident touch of dangerous electriferous components might cause



### Warning: Risk of damage to property

1. Do not turn on power before confirming wiring is correct. Short circuit and wrong connection will lead to permanent equipment damage.
2. Please pay attention to indicator on the top of actuator. Barbaric operation on hand wheel is prohibited when it passes totally close/open position.
3. Motor of actuator has the function of over-temperature protection. When valve gets stuck or other abnormal happens, failing to be opened or closed in a right way, motor will get into over-temperature protection. At this time, valve can't be opened or closed to the required position. Please check valve or other abnormal occasion. After the breakdown is solved, actuator will be back to normal accordingly.

### Actuator installation steps:

1. Put the actuator vertical alignment onto valve, notice stem of valve needs to fit into adapter of actuator, turning actuator hand wheel to adjust adapter position, clockwise to close / anticlockwise to open.
2. Actuator is fully closed by manufactory (the top indicator point to "C"), valve opening needs to be same as actuator "open to open, close to close".
3. If it is hard to fix screws, please slightly turn the actuator hand-wheel.
4. There is no directional requirement for assembling actuator on the top of valve; it can be assembled as the environment or perspective requirement.
5. Mechanical stop screws for limiting totally close / open

### Actuator wiring steps:

1. Loose 4 screws on actuator cover and then take cover off.
2. Wiring according to the attached wiring diagram on the surface of cover inside.
3. Recheck and then power on after confirming the wiring is right.
4. Turning actuator on to make sure opening/closing function and 2 limited positions are correct.
5. Put the cover back and then fix 4 screws.

### Setting procedure of modulating actuators (Notice! Operated by professional person)

| Calibration                          | LED on PCB | Actuator Movement   |
|--------------------------------------|------------|---|
| 1. Supply power to terminal 1 and 2. |            | Lit<br>Actuator moves to the position as indicated by control signal.   |
| 2. Press button S5 for 5 seconds     |            | Dark<br>Actuator moves to "100%" position (valve open).   |
|                                      |            | Flash<br>Actuator stops at "100%" position (valve open), indicate light flashes, and then the actuator is ready to move towards "0%" position (valve closed). |
|                                      |            | Dark<br>Actuator moves to "0%" position (valve closed).   |
|                                      |            | Flash<br>Actuator stops at "0%" position (valve closed). The indicate light flashes, and then the calibration finished.                                       |
| 3. Calibration finished.             |            | Lit<br>Actuator moves to the position as indicated by control signal.   |

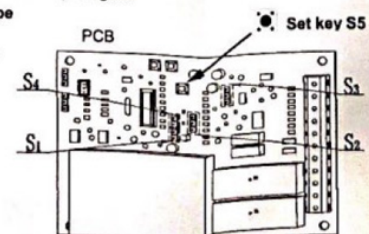
\*Remark: Calibration method is shown as table above. The factory has set it OK, there is no need to reset when normal use, unless there is something wrong with the output signal.

### Adjustment of input/output signal for modulating type

The switch diagram of PCB

| Signal | Input |    | Output |    |
|--------|-------|----|--------|----|
|        | S1    | S2 | S3     | S4 |
| 4-20mA |       |    |        |    |
| 0-10V  |       |    |        |    |
| 2-10V  |       |    |        |    |

Default →





## Trouble shooting

Date: Dec .09. 2015

| Failure  | Reason  | Action  |
|--|---|---|
| Actuator fails to act  | 1.1. Loss power supply (no power).<br>1.2. No input signal or input value is wrong.<br>1.3. Wire breaks or separates from terminal block.<br>1.4. Motor overheating. Overheating protector of motor acts.<br>1.5. Limit switch acts in the middle of opening location.<br>1.6. Capacitor of motor breaks.<br>1.7. Enamel covered wire of motor breaks.<br>1.8. Connect wrongly power supply to input signal terminal (modulating type). | 1.1. Check voltage of power.<br>1.2. Check input signal.<br>1.3. Wire, change terminal block.<br>1.4. Wait motor back to cool.<br>1.5. Adjust stroke switch cam.<br>1.6. Replace capacitor.<br>1.7. Replace motor.<br>1.8. Replace PCB. |
| Actuator keeps acting back and forth                                   | 2.1. The signal is not stable.<br>2.2. Potentiometer can't contact very well or damaged (modulating type).<br>2.3. One of the gears around potentiometer is loose (modulating type).  | 2.1. Check the input signal.<br>2.2. Change potentiometer.<br>2.3. Use tools to fix the screw of gear.  |
| Input and feedback signal don't match with each other(modulating type) | 3.1. Input signal is wrong.<br>3.2. Wrong PCB adjustment (need to be operated by professional person).<br>3.3. The position of gear on potentiometer is wrong.  | 3.1. Check the input signal.<br>3.2. Reset follows the setting procedure.<br>3.3. Readjust the gear on potentiometer.   |
| No feedback signal   | The signal wire is opening or can't connect well.   | Check if wiring is done according to wiring diagram.  |

\*Remark: When water vapor appears inside actuators, which are unpowered after installation, please connect power to heater to dry them before operation.

Table 1: EF(O)M1-15 datasheet of actuator;

AC24/110/220/240V 1 phase 50/60Hz; EOM2-15 can be AC380V- 440V 3 phases 50/60Hz

Unit: mm

| Model  | Torque (N-m) | Open/Close Time (Sec) |            |       | Power (W) | A   | B   | C   | D   | E   | F   | □G    | H   | ΦI  | J     | ISO5211 | Weight (kg) |
|--------|--------------|-----------------------|------------|-------|-----------|-----|-----|-----|-----|-----|-----|-------|-----|-----|-------|---------|-------------|
|        |              | AC/DC24V              | AC110/240V | AC380 |           |     |     |     |     |     |     |       |     |     |       |         |             |
| EFM1   | ON/OFF       | 35                    | 8          | 11    | —         | 10  | 162 | 79  | —   | —   | —   | 11×11 | 20  | 36  | 4-M5  | F03     | 3           |
|        | Modulating   |                       |            |       |           |     | 192 |     |     |     |     |       |     |     |       |         | 5           |
| EFMA   | ON/OFF       | 50                    | 10         | 15    | —         | 10  | 162 | 145 | —   | —   | —   | 11×11 | 50  | 70  | 4-M6  | F05     | 3           |
|        | Modulating   |                       |            |       |           |     | 192 |     |     |     |     |       |     |     |       |         | 5           |
| EFM1-H | ON/OFF       | 35                    | 8          | 11    | —         | 10  | 188 | 108 | 165 | —   | —   | 11×11 | 55  | 70  | 4-M8  | F07     | 3.6         |
| EFMA-H | ON/OFF       | 50                    | 10         | 15    | —         | 10  | 218 |     |     |     |     |       |     |     |       |         | 3.6         |
| EFMB-H | Modulating   | 80                    | 15         | 22    | —         | 10  | —   | —   | —   | —   | —   | 14×14 | 55  | 125 | 4-M12 | F12     | 3.6         |
|        |              |                       |            |       |           |     |     |     |     |     |     |       |     |     |       |         | 3.6         |
| EOM2   |              | 100                   | 14         | 19    | 40        | 265 | 123 | 79  | 216 | 120 | 240 | 14×14 | 35  | 70  | 4-M8  | F07     | 11          |
| EOM3   |              | 200                   | 28         | 39    | 40        | 265 | 123 | 79  | 216 | 120 | 240 | 17×17 | 35  | 70  | 4-M8  | F07     | 11          |
| EOM3A  |              | 300                   | 28         | 39    | 40        | 265 | 123 | 79  | 216 | 120 | 240 | 17×17 | 35  | 120 | 4-M10 | F10     | 22          |
| EOM4   |              | 400                   | 21         | 29    | 90        | 321 | 187 | 103 | 262 | 150 | 297 | 22×22 | 55  | 102 | 4-M10 | F10     | 22          |
| EOM5   |              | 600                   | 28         | 39    | 90        | 321 | 187 | 103 | 262 | 150 | 297 | 22×22 | 55  | 102 | 4-M10 | F10     | 22          |
| EOM6   |              | 800                   | 34         | 47    | 90        | 321 | 187 | 103 | 262 | 150 | 297 | 27×27 | 55  | 125 | 4-M12 | F12     | 22          |
| EOM7   |              | 1000                  | 34         | 47    | 120       | 321 | 187 | 103 | 262 | 150 | 297 | 27×27 | 55  | 125 | 4-M12 | F12     | 22          |
| EOM7A  |              | 1300                  | 34         | 47    | 120       | 321 | 187 | 103 | 262 | 150 | 297 | 27×27 | 55  | 140 | 4-M16 | F14     | 36          |
| EOM8   |              | 1700                  | 25         | 34    | 200       | 378 | 241 | 119 | 293 | 161 | 346 | 27×27 | 65  | 125 | 4-M12 | F12     | 36          |
| EOM8A  |              | 2000                  | 25         | 34    | 200       | 378 | 241 | 119 | 293 | 161 | 346 | 27×27 | 65  | 140 | 4-M16 | F14     | 36          |
| EOM9   |              | 2300                  | 34         | 47    | 200       | 378 | 241 | 119 | 293 | 161 | 346 | 36×36 | 65  | 125 | 4-M12 | F12     | 36          |
|        |              |                       |            |       |           |     |     |     |     |     |     |       |     | 140 | 4-M16 | F14     |             |
| EOM10  |              | 3500                  | 55         | 76    | 200       | 532 | 116 | 215 | 293 | 302 | 182 | 40×40 | 85  | 140 | 4-M16 | F14     | 76          |
|        |              |                       |            |       |           |     |     |     |     |     |     |       |     | 165 | 4-M20 | F16     |             |
| EOM11  |              | 5000                  | 76         | 105   | 200       | 532 | 116 | 215 | 293 | 302 | 182 | 46×46 | 85  | 140 | 4-M16 | F16     | 76          |
| EOM12  |              | 8000                  | 103        | 143   | 200       | 543 | 160 | 215 | 293 | 343 | 168 | 55×55 | 130 | 254 | 8-M16 | F25     | 107         |
| EOM13  |              | 13000                 | —          | —     | 109       | 400 | 672 | 520 | —   | 293 | 281 | 331   | 120 | 254 | 8-M16 | F25     | 218         |
|        |              |                       |            |       |           |     |     |     |     |     |     |       |     | 298 | 8-M20 | F30     |             |
| EOM14  |              | 16000                 | —          | —     | 129       | 400 | 672 | 520 | —   | 293 | 281 | 331   | 120 | 254 | 8-M16 | F25     | 218         |
|        |              |                       |            |       |           |     |     |     |     |     |     |       |     | 298 | 8-M20 | F30     |             |
| EOM15  |              | 20000                 | —          | —     | 155       | 400 | 672 | 520 | —   | 293 | 281 | 331   | 120 | 254 | 8-M16 | F25     | 218         |
|        |              |                       |            |       |           |     |     |     |     |     |     |       |     | 298 | 8-M20 | F30     |             |

Remark: Upper "□G" dimension is suggestive square hole, can be decided by customer under which meets ISO5211 standard

Table 2: EMTMX data sheet of actuator; AC380-440V 3 phases 50/60Hz

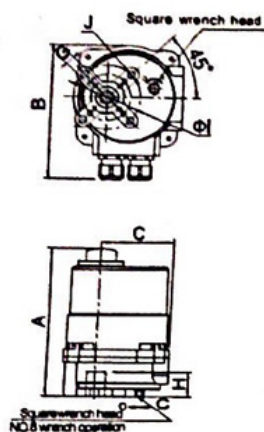
Unit: mm

| Model      | Torque (Nm) | Open/Close Time | Power (W) | A   | B   | C   | D   | E   | F   | G   | □H     | I     | J  | □K  | ISO 5211 | Weight (Kg) |
|------------|-------------|-----------------|-----------|-----|-----|-----|-----|-----|-----|-----|--------|-------|----|-----|----------|-------------|
| EMTMX-3305 | 130         | 23RPM           | 375       | 234 | 150 | 271 | 571 | 275 | 174 | 355 | □19X19 | 4-M10 | 55 | 102 | F10      | 60          |
|            |             |                 |           |     |     |     |     |     |     |     |        | 4-M12 |    | 125 | F12      |             |
| EMTMX-3310 | 250         | 23RPM           | 750       | 234 | 150 | 287 | 586 | 275 | 174 | 355 | □19X19 | 4-M10 | 55 | 102 | F10      | 60          |
|            |             |                 |           |     |     |     |     |     |     |     |        | 4-M12 |    | 125 | F12      |             |
| EMTMX-3320 | 450         | 23RPM           | 1500      | 234 | 150 | 338 | 637 | 275 | 174 | 355 | □22X22 | 4-M10 | 55 | 102 | F10      | 65          |
|            |             |                 |           |     |     |     |     |     |     |     |        | 4-M12 |    | 125 | F12      |             |
| EMTMX-3330 | 720         | 23RPM           | 2250      | 234 | 150 | 368 | 667 | 275 | 174 | 355 | □27X27 | 4-M12 | 55 | 125 | F12      | 65          |
|            |             |                 |           |     |     |     |     |     |     |     |        |       |    |     |          |             |

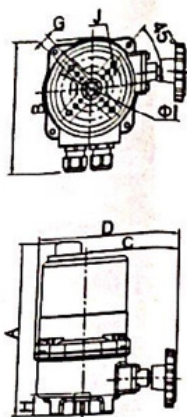
Remark: Upper "□H" dimension is suggestive square-hole, can be decided by customer under which meets ISO5211 standard



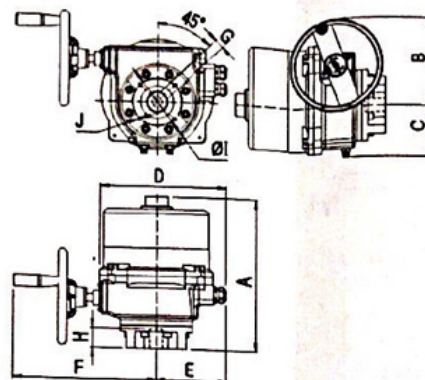
Actuator outline Dimension, pls refer to Table 1&2



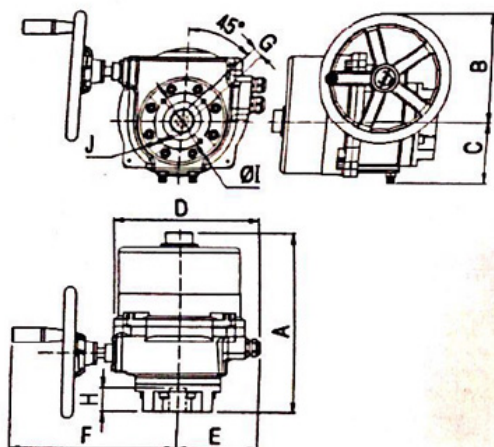
EFM1/A



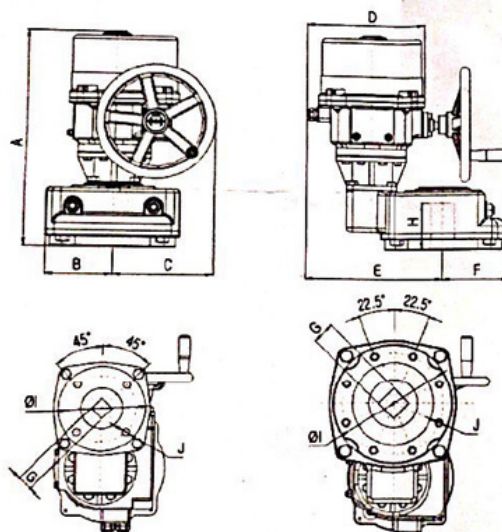
EFM1/A/B-H



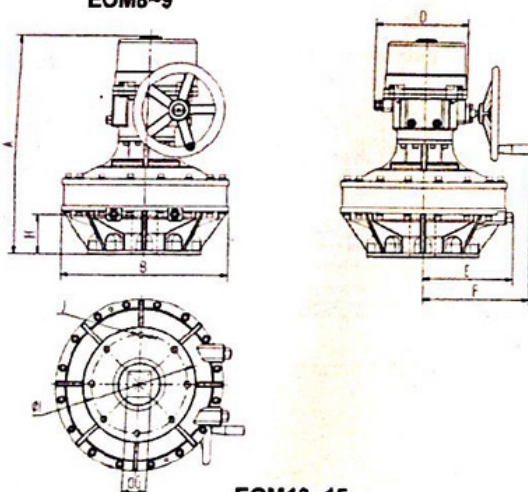
EOM2-7  
EFM2 ~9



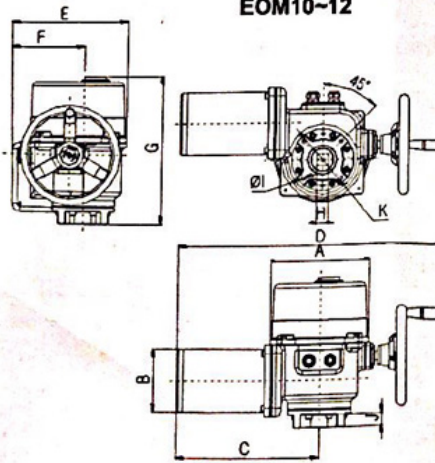
EOM8-9



EOM10-12



EOM13-15

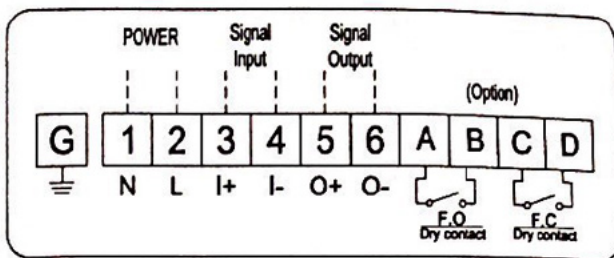


EMTMX

\*Remark:

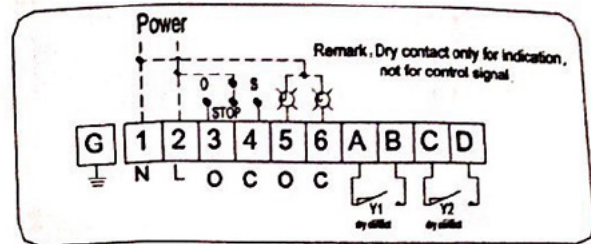
- EFM1/A is without hand wheel type, Please use 8# wrench to operate as arrow direction on the bottom of actuator.
- Other types can offer hand wheel function, either On/off or modulating type.

## Customer wiring diagram (Dotted Line)



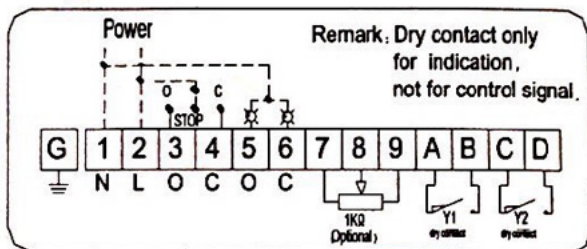
- ☐ 24VAC
- ☐ 110VAC
- ☐ 120VAC
- ☐ 220VAC
- ☐ 230VAC
- ☐ 240VAC

Modulating type wiring



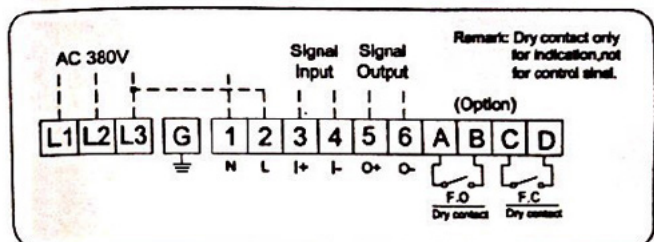
- ☐ 24VAC
- ☐ 110VAC
- ☐ 120VAC
- ☒ 220VAC
- ☐ 230VAC
- ☐ 240VAC

On/off type wiring



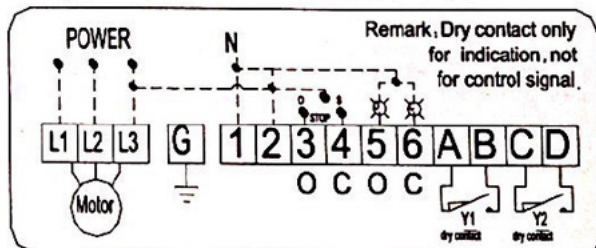
- ☐ 24VAC
- ☐ 110VAC
- ☐ 120VAC
- ☐ 220VAC
- ☐ 230VAC
- ☐ 240VAC

On/off type with potentiometers feedback wiring



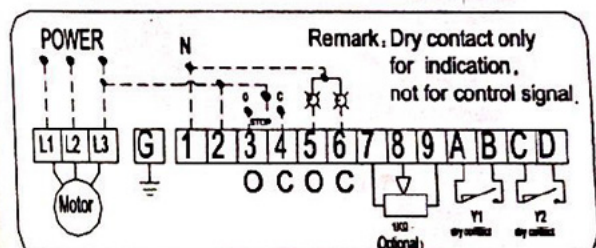
- ☐ AC380V
- ☐ AC440V

Full set modulating type wiring



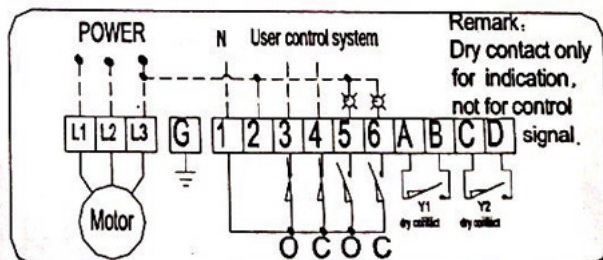
- ☐ AC380V
- ☐ AC440V

Full set On/off type wiring



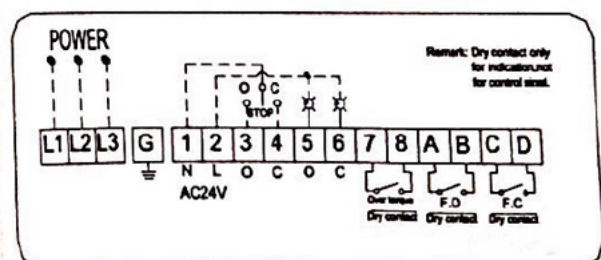
- ☐ AC380V
- ☐ AC440V

Full set On/off type with potentiometers feedback wiring



- ☐ AC380V
- ☐ AC440V

Standard On/off type wiring



- ☐ AC380V
- ☐ AC440V

Full set On/off type (SCOTT WIRING)

☐ For actuators with special requirements, please refer to wiring diagram within them.

## Sản phẩm khác



—

[Electric Actuator FLOWINN - EOM 10~11~12](#)

[Xem thêm Electric Actuator FLOWINN - EOM 10~11~12](#)



—

[Electric Actuator FLOWINN - EOM10](#)

[Xem thêm Electric Actuator FLOWINN - EOM10](#)



—

[Electric Actuator FLOWINN - EFMA - H](#)

[Xem thêm Electric Actuator FLOWINN - EFMA - H](#)



—

[Electric Actuator FLOWINN - EFMA](#)

[Xem thêm Electric Actuator FLOWINN - EFMA](#)



—

### [Động cơ điện đóng mở van Flowinn - ON - OFF - EFMB - 3 - K5](#)

[Xem thêm Động cơ điện đóng mở van Flowinn - ON - OFF - EFMB - 3 - K5](#)



—

### [Động cơ điện đóng mở van Flowinn - ON - OFF - EFMB - H](#)

[Xem thêm Động cơ điện đóng mở van Flowinn - ON - OFF - EFMB - H](#)



