The electric actuator is made by M-System.

No time- and money-consuming air source equipment is required!

Directly connected to various open networks to save wiring efforts to a great extent!

Energy saving
Space saving
Shorter installation work time

Furthermore,
many more advantages!

High function and high performance
- High thrust (5000 N)
- High resolution (1/1000)
- A battery-driven model is available as well.
The electric control valve fully demonstrates its functions

The pneumatic control valve requires many pieces of air source equipment, including a compressor.

Pneumatic control valve

The pneumatic control valve requires complicated equipment and consumes plenty of power.

A compressor entails equipment costs as well as troublesome maintenance work! What is more, it results in high electricity bills!

The electric control valve connects to various open networks directly.

A number of electric control valves with open network capability connect in a daisy-chain layout, which saves wiring effort. Various operating information on electric control valves can be collected through a single network.

For open networks, refer to Guidance 2 on page 8.

($) Contact us for details

Electric control valve → PLC
- Opening position feedback
- Opening position input error
- Motor lock alarm
- Maintenance information (Motor activation count and integrated operation distance)
- Others

PLC → Electric control valve
- Opening position setting
- Forced opening and closing
- Alarm reset
- Maintenance information and reset
- Others

M-System’s electric actuator
MSP / MRP
by simply connecting signal and power supply!

The electric control valve does not require any air source device or other auxiliary equipment.

The electric control valve does not require incidental equipment, and consumes less power.

Electric control valve

M-System’s electric actuator.

Control signal
4-20 mA DC
or Open network

Power source

Equipment cost ↓1/5 (*)
Energy consumption ↓1/10 (*)

Only standby power (*) is consumed when the control loop is in a steady state.

(*) The data surveyed by M-System.
(*) Maximum power consumption: 240 VA
Standby power: 20 VA
The data is provided on the condition that M-System’s PSN1 Electric Actuator is used.

The stepping motor is adopted for the drive block.

Digital control unit
Features
- Instant zero/span position setup
- Flexible opening/closing speed settings
- Opening position output
- Lock alarm output

Stepping motor
High thrust 5000 N
High resolution 1/1000

The stepping motor has high thrust and a resolution of 1/1000.

Battery for fail-safe operation is optional.

Power outage emergency battery

Customers can choose models provided with a battery as well as functions of emergency actions (i.e., Full Closed, Full Open, Hold Position or Target Value) in times of loss of power.

The photo shows M-System’s PSN1 Electric Actuator.

The stepping motor has high thrust and a resolution of 1/1000.

Battery for fail-safe operation is optional.

Power outage emergency battery

Customers can choose models provided with a battery as well as functions of emergency actions (i.e., Full Closed, Full Open, Hold Position or Target Value) in times of loss of power.

The photo shows M-System’s PSN1 Electric Actuator.
The electric control valve is of a simple structure and compact, and it ensures high performance.

The electric actuator section is small, which makes it possible to narrow the distance between pipes.

After installation, the electric control valve will be operational by just providing power supply and connecting signal input (or connecting a network).
Two-way control valve for acid and alkali service (Resin made)

The T-8210 type control valve has excellent corrosion resistance to acid and alkali fluid because the wetted part is made of resin. The valves provides high seal performance with a gland packingless structure equipped with a PTFE bellows.

Nominal size (A): 15 to 65

Globe type single seated control valve for water, steam, and gas service

The T-8110 type control valve is a control valve with a wide range of application, from water and steam to gas, etc.

Nominal size (A): 15 to 300

Low flow control valve for water, steam, and gas service

The T-8020 type control valve is a control valve suitable for very small flow control. The valve is screwed connection type, small and lightweight.

Nominal size (A): 8 to 15

Single seated bellows control valve with metal bellows for toxic fluid and vacuum service

The T-8115 type control valve has a structure equipped with an external pressure type bellows. The seal performance is superior to that of a general gland structure. Therefore, the control valve is applicable to controlling toxic fluid and vacuum service.

Nominal size (A): 15 to 300
Many other products are available. Feel free to contact Toko Valex.

Three-way control valve for mixing and dividing

There are two kinds of three-way control valves. One is a mixing three-way valve which mixes two kinds of fluid into one. The other is a flow dividing three-way valve which divides fluid into two directions.

Cage-type control valve for high-pressure, high-differential pressure, and low-noise service (Double seated cage trim)

A cage-type control valve is a pressure balance control valve which is applicable to controlling high pressure or high differential pressure fluid by balancing the pressure in the cage. Trims can be combined according to uses. Applicable to a wide range of temperature from -196°C to 500°C.

Sanitary control valve for food and beverage service

The T-8910 sanitary control valve is a regulating valve for the sanitary process of products, such as food, drinks, and chemicals. It minimizes internal residual liquid, features a clamp-type split structure, and allows ease of disassembly cleaning, thus excelling in terms of sanitary and maintainability.

Angle-type cryogenic control valve (Vacuum container mounting)

The T-8800 type control valve controls cryogenic fluid, such as liquid helium whose service temperature is close to the absolute zero degree. The valve is installed by welding in a vacuum container. The valve trim has a structure which prevents galling thermal oscillation at low-temperature operation and provides good shutoff performance even if the pipe is deformed to some degree due to thermal change.
Guidance 1  Stepping Motor
A stepping motor rotates by a constant angle per pulse.

A stepping motor, also called a pulse motor, is a motor that rotates in synchronization with a command pulse signal. The principle of rotation of a simplified 2-phase, 8-pole stepping motor model is shown in the figure below. A stepping motor consists of a stator with windings and a rotor using a powerful neodymium magnet. Energizing the stator windings to generate a magnetic force is called excitation. By sequentially exciting the multiple stator windings based on the command pulse, the motor rotates stepwise, utilizing the action of attraction and repulsion between the magnetic poles of the stator and rotor. The rotation angle of a stepping motor is always determined by the constant mechanical accuracy (motor structure and machining accuracy) for each command pulse signal. Therefore, a stepping motor performs highly accurate positioning control.

Guidance 2  Open Network
An open network is an industrial network, the specifications of which are made public and can be commonly used by many users and manufacturers. Open networks are roughly divided into the following two types:
1. Those specified by organizations and associations in consultation and recognized as official standards.
2. Those developed by individual manufacturers and organizations and established as de facto standards as a result of promotion activities. Both types have well-organized and integrated specifications and are available to everyone for many purposes. Either one can connect different manufacturers' devices (multivendor devices) and brings many benefits to users. Currently, many types of open networks are expanding their tempo of popularization according to the applicable field and country in the market.

Guidance 3  Explanation of Optional Icons

<table>
<thead>
<tr>
<th>Icon</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Wide" /></td>
<td>Some types of inner valves that have an equal percentage flow characteristic can be replaced with optional inner valves with a flow rate rangeability of 100 to 1. Contact us for applicable valve specifications, applicable valve sizes, and other details.</td>
</tr>
<tr>
<td><img src="image" alt="Special" /></td>
<td>Valves with customized piping connection shapes and dimensions are available. Contact us with your desired pipe shape and dimensions in detail.</td>
</tr>
<tr>
<td><img src="image" alt="Narrow" /></td>
<td>Users can choose non-standard materials for wetted parts. Contact us with the materials of your choice.</td>
</tr>
<tr>
<td><img src="image" alt="High" /></td>
<td>It is possible to manufacture products approved by the Minister of Economy, Trade and Industry of Japan in the certified range pursuant to the High Pressure Gas Safety Act (Japan). Contact us for the conditions and requirements of the fluid that needs to be controlled.</td>
</tr>
</tbody>
</table>

Users can choose bellows with a withstanding pressure of 1 MPa G made of stainless steel (grade 316).

Users can choose bellows with a withstanding pressure of 1.5 MPa G made of stainless steel (grade 316).

Users can choose bellows with a withstanding pressure of 3 MPa G made of stainless steel (grade 316).

Users can choose bellows with a withstanding pressure of 10.5 MPa G made of stainless steel (grade 316).

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