JDV’s **ELECTRIC CONTROL VALVE**

The electric actuator is made by **M-System**.

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

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

**Open Network Supported**

- CC-Link
- DeviceNet
- LONWORKS
- Modbus

**JSB Series**
- Energy saving
- Space saving
- Shorter installation work time

**JTD Series**

Electric control valve is ready to operate immediately after connecting signal and power supply!

Furthermore, many more advantages!

**High function and high performance**

- High torque (Max. 200 N·m)
- High Resolution (1/1000)
- A battery-driven model is available as well.

**JDV CONTROL VALVES CO., LTD.**
**M-SYSTEM CO., LTD.**
The electric control valve fully demonstrates its functions.

**PNEUMATIC**

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

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.

Replace the existing pneumatic valve with an electric valve.

**The electric control valve connects to various open networks directly.**

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

**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 MRP Series**

(*2) For open networks, refer to Guidance 2 on page 8.
by simply connecting signal and power supply!

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

Control signal 4-20 mA DC or Open network

No incidental equipment

Power source

Then you can eliminate incidental equipment.

The stepping motor is adopted for the drive block.

The stepping motor has high torque 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.

Digital control unit

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

M-System’s electric actuator PRP Series

Stepping Motor

High torque 200 N·m
High resolution 1/1000

(*5) Refer to Guidance 1 on page 8.
The electric control valve is of a simple structure and compact, and it ensures high performance.

The electric control valve has a very simple structure compared to the pneumatic control valve.

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

We are ready to prepare several kinds of valve sizes and materials.\(^6\)
Please contact us for details.

After installation, the electric control valve will be operational by just providing power supply and connecting signal input (or connecting a network).

\(^6\) Refer to Guidance 3 on page 8.
<table>
<thead>
<tr>
<th>Application of JDV’s Electric Control Valve</th>
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<tbody>
<tr>
<td>Petrochemical</td>
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<tr>
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<td>Mining</td>
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<td>Water Purification Plants</td>
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</table>
The accurate and stable control with JDV’s Electric Control Valves ensures the reliable and profitable operation of your plant.

### JSB Series V-Port Segment Control Valve

**Wafer Type**

- **V-notch design** optimizing the flow characteristics and providing a shearing function.

**Inherent Flow Characteristics**

**Cv Values**

<table>
<thead>
<tr>
<th>Size</th>
<th>Opening (%)</th>
<th>10</th>
<th>20</th>
<th>30</th>
<th>40</th>
<th>50</th>
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### Dimensions

**Wafer Type (JSB-W1)**

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**Flanged Type (JSB-A1 Series JIS-10K)**

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(*) Not in ISA standard
The accurate and stable control with JDV’s Electric Control Valves ensures the reliable and profitable operation of your plant.

**JTD Series** Double Offset Butterfly Valve

**Wafer Type**

**Lug Type**

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**Inherent Flow Characteristics**

**Cv Values**

<table>
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<th>Opening (%)</th>
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<tr>
<td>100</td>
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</table>

1st Offset

The centerline of the stem is moved behind the seat axis, in order to offer an optimum sealing contact.

2nd Offset

The centerline of the disc is offset from the centerline of the valve body, allowing the disc seal to move away freely during the opening.

**Disc centerline**

**2nd Offset**

**Pipe centerline**

**1st Offset**

**Pipe centerline**

**2nd Offset**

**Disc centerline**

**Wafer Type**

**Lug Type**


**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 specific 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: How to Order (Example for JSB V-port)**

### JSB Soft Seat

**Ex:**  
W1 → 04 → C → G → 03 → 050 → A1

#### A. SPECIFICATION

- W1: FLANGELESS  
- J1: 10K  
- A1: ASME CLASS 150  
- C1: ASME CLASS 300  
- D2: DIN PN16  
- D4: DIN PN40

#### B. BODY MATE

- 62: WCB
- 63: CF8
- 64: CF8M
- 06: CF8M
- 07: CCM
- 15: CCM

#### C. SEGMENT MATE

- 02: A  
- 03: B  
- 04: C  
- 05: D  
- 06: E  
- 07: F  
- 08: G  
- 09: H  
- 10: I

#### D. SEAT MATL.

- G: PTFE (Teflon)  
- S: S-PTFE (Teflon)  
- T: TFN-100  
- E: PEEK

#### E. STEM MATE

- 02: 304  
- 03: 316  
- 05: 317  
- 07: 304L  
- 08: 316L  
- 10: 31803

#### F. SIZE

- 066: 1”
- 060: 1-1/2”
- 050: 2”
- 048: 2-1/2”
- 040: 3”
- 100: 4”
- 100: 5”
- 100: 6”
- 200: 8”
- 200: 10”
- 300: 12”
- 350: 14”
- 500: 16”

#### G. OPTION

- I: LINE LOAD  
- H: LEVER  
- G: GEAR  
- A: BARE SHAFT

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---

**JDV CONTROL VALVES CO., LTD.**  www.jdv.com.tw  
Headquarters  
NO. 6-1, QINGNIAN RD., YANGMEI CITY, TAOYUAN COUNTY 326, TAIWAN  
Tel: +886-3-4965066  Fax: +886-3-4963526  E-mail: sales@jdv.com.tw

**M-SYSTEM CO., LTD.**  www.m-system.com  
Headquarters  
5-2-55, Minamitsumori, Nishinari-ku, Osaka  557-0063 JAPAN  
International Department &  
Factory  
Tel: +81-(0)6-6659-8201  Fax: +81-(0)6-6659-8510  
E-mail: info@m-system.co.jp