

## WYECO AUTO VALVES

# ELECTRIC CONTROL VALVE

The electric actuator is made by MG Co., Ltd.

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

### Open Network Supported

Guidance: Page 8

CC-Link

HART<sup>(\*)</sup>  
COMMUNICATION PROTOCOL

DeviceNet

FOUNDATION<sup>(\*)</sup>

LONWORKS<sup>(\*)</sup>

PROFI<sup>(\*)</sup>  
BUS

Modbus<sup>(\*)</sup>

(\*1) Contact us for details.

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

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

- Energy saving
- Space saving
- Shorter installation work time

### High function and high performance

- High thrust (5000 N)
- High resolution (1/1000)
- A battery-driven model is available as well.

Furthermore,

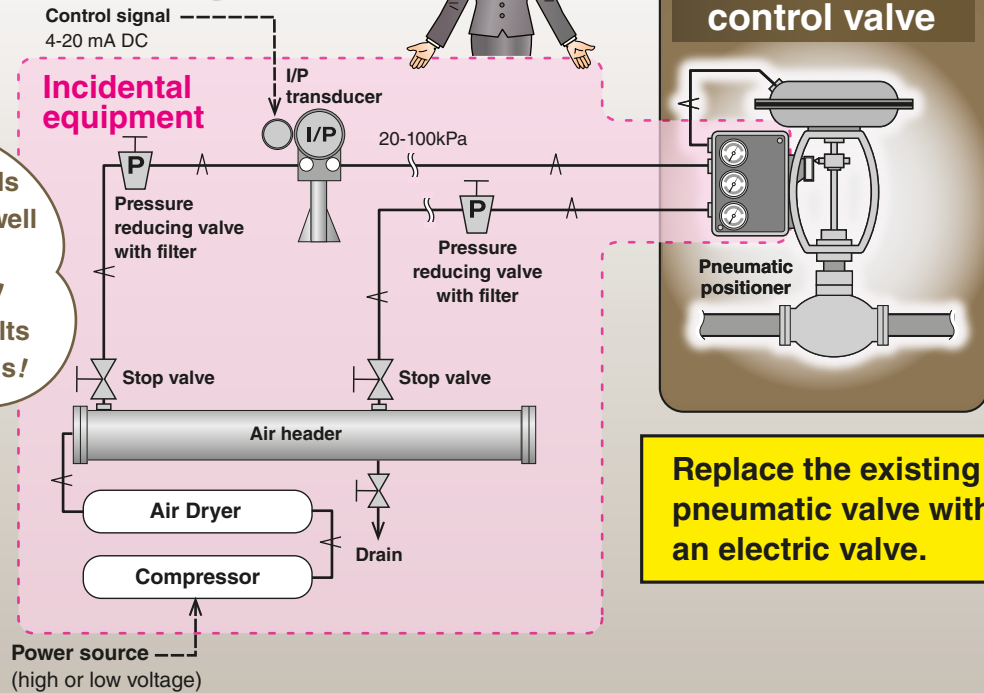
many more advantages!

# Electric control valves are ready to start as

## PNEUMATIC

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

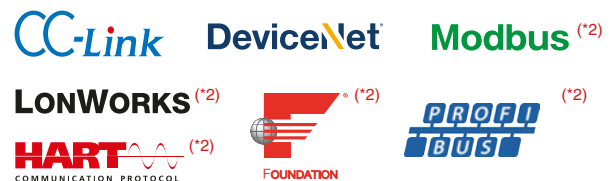
A compressor entails equipment costs as well as troublesome maintenance work! What is more, it results in high electricity bills!



Replace the existing pneumatic valve with an electric valve.

## 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**.

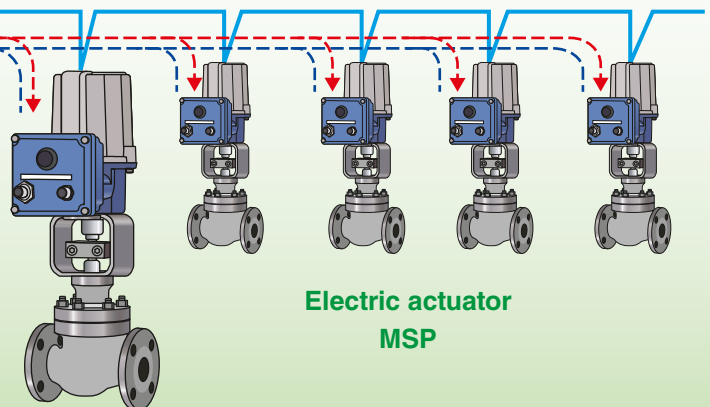
(\*2) Contact us for details.

### 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



Electric actuator  
MSP



# soon as connecting the signal and power cables.

## ELECTRIC

Equipment cost ↓ 1/5 <sup>(\*3)</sup>  
Energy consumption ↓ 1/10 <sup>(\*3)</sup>

Only standby power <sup>(\*4)</sup> is consumed when the control loop is in a steady state.



Then you can eliminate incidental equipment.

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

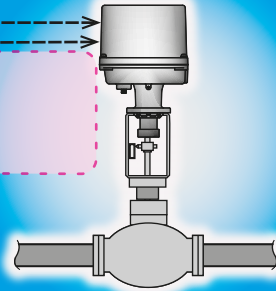


Control signal 4-20 mA DC or open network

No incidental equipment

Power source

## Electric control valve



<sup>(\*3)</sup> The data surveyed by MG Co., Ltd.

<sup>(\*4)</sup> Maximum power consumption: 240 VA  
Standby power: 20 VA

The data is provided on the condition that the PSN1 Electric Actuator is used.

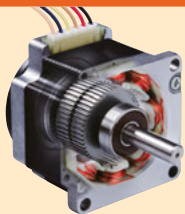
## The stepping motor is adopted for the drive block.

### 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

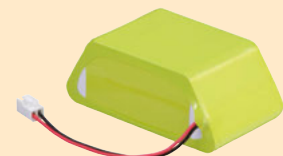
Refer to [Guidance 1 on page 8](#).

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

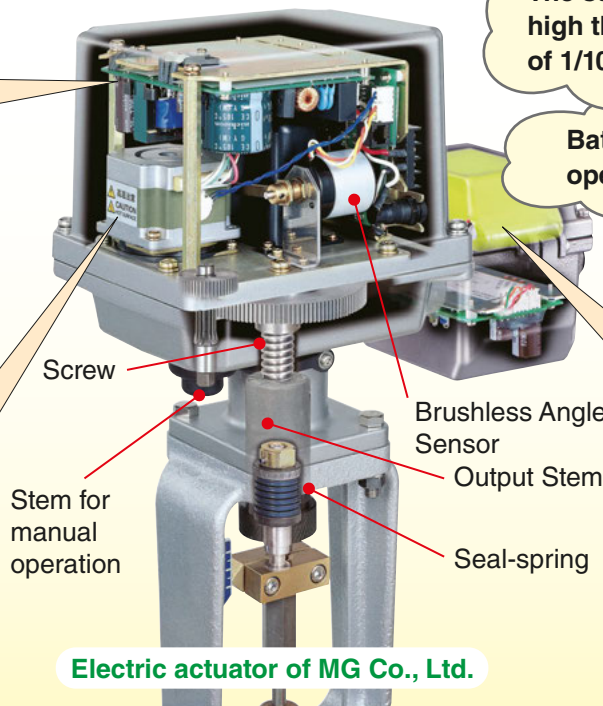
Battery for fail-safe operation is optional.



### 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.



Electric actuator of MG Co., Ltd.

The photo shows PSN1 Electric Actuator.

# The electric control valve is a compact structure 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.

Front view

Side view

Electric Actuator

PSN Series

(Made by MG Co., Ltd.)

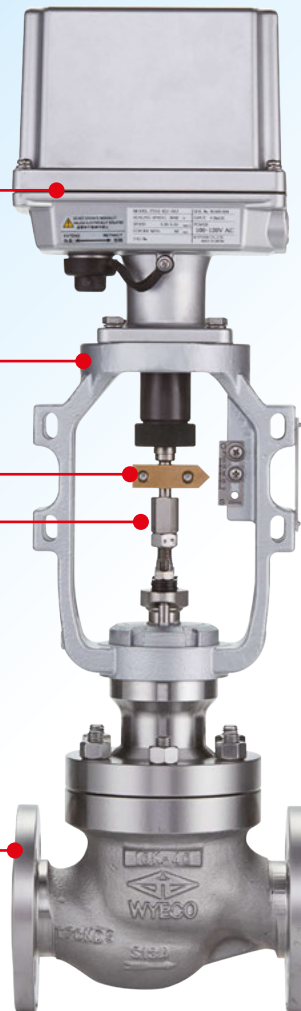
Yoke

Connector/Indicator

Stem

Valve Body

WYECO 8000 Series



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





# Application Examples of WYECO's Electric Control Valve

## Waste Incineration Plants

**Use** Incinerator

**Merit** High-performance/High precision control



## Dyeing and Finishing Plant

**Use** Dyeing machine temperature control

**Merit** High-performance/High precision control



## Pharmaceutical Industry

**Use** Sterilizer/Other apparatus

**Merit** High-performance/  
Improvement of control performance



## Food Industry

**Use** Sterilizer/Other apparatus

**Merit** High-performance/High precision control



## Gas Industry

**Use** Air separation unit

**Merit** High-performance/High precision control



## Steel Industry

**Use** Oxygen injection control

**Merit** High-performance/High precision control



## Petrochemical Plant

**Use** Hydrodesulfurization

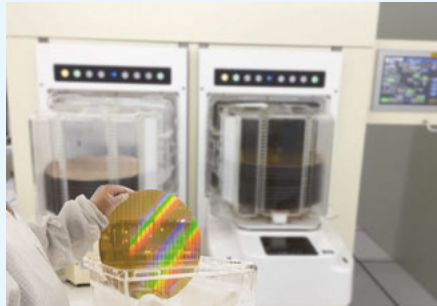
**Merit** High-performance/High precision control



## Semiconductor Factories

**Use** Flow-rate control of photoresist solution/  
Other apparatus

**Merit** High-performance/High precision control



## Water Purification Plants

**Use** Treated water line/Ozone injection/  
Other apparatus

**Merit** High-performance/High precision control



## Power Plant

**Use** Boiler unit/Feed water system/Other apparatus

**Merit** High-performance/High precision control



## Engineering Industry

**Use** Organic solvent production line

**Merit** High-performance/High precision control



## Pulp and Paper Mills

**Use** Boiler unit/Dryer/Drainage process/  
Cardboard making machine/Other apparatus

**Merit** High-performance/Improvement of control performance

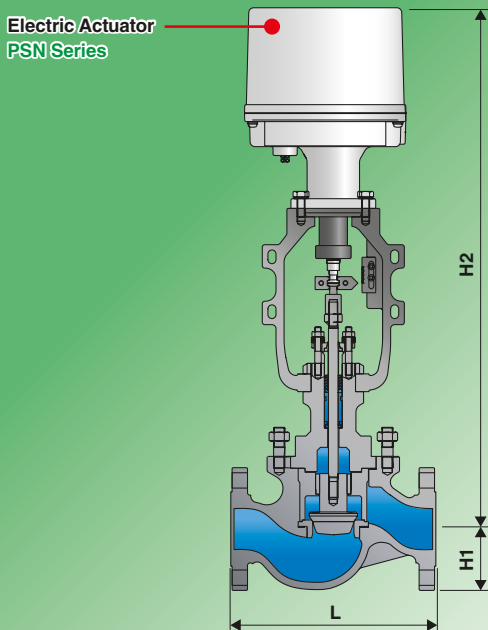


# The accurate and stable control with ensures the reliable and profitable

## 8000 Series Globe Control Valves

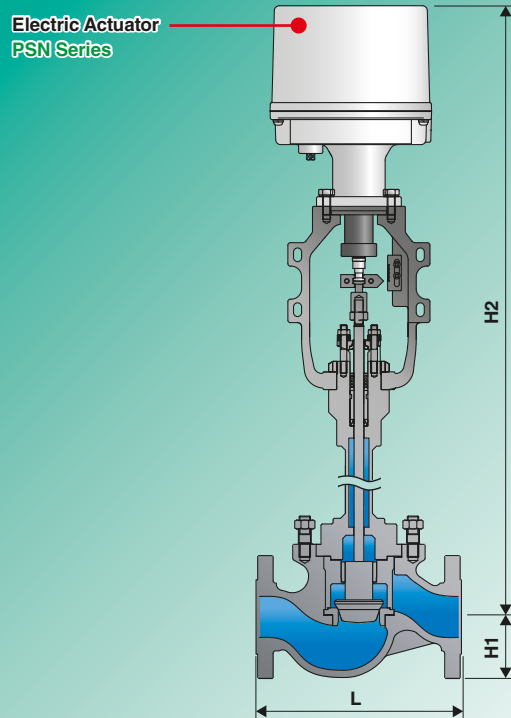
### Standard Type

High-performance control valve.  
Quick release for convenient maintenance.  
The trim part has the automatic correct function.



### Extension Type

For cryogenic fluid, e.g. Liquid Nitrogen (LN2).



ISO STANDARD TYPE BONNET (IEC standard type also available)									Unit : mm
Valve Size	L		ANSI H1		JIS H1		H2		
	CL150	CL300	CL150	CL300	10K	20K	CL150	CL300	
15A	130	130	45	48	48	48	595	595	
20A	150	150	49	59	50	50	595	595	
25A	160	160	54	62	63	63	595	595	
40A	200	200	64	78	70	70	603	603	
50A	230	230	76	83	78	78	646	646	
65A	290	290	89	95	88	88	692	692	
80A	310	310	95	105	93	100	877	877	
100A	350	350	115	127	105	113	907	907	

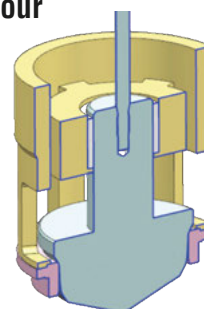
ISO EXTENSION TYPE BONNET (IEC extension type also available)									Unit : mm
Valve Size	L		ANSI H1		JIS H1		H2		
	CL150	CL300	CL150	CL300	10K	20K	CL150	CL300	
15A	130	130	45	48	48	48	756	756	
20A	150	150	49	59	50	50	766	766	
25A	160	160	54	62	63	63	776	776	
40A	200	200	64	78	70	70	782	782	
50A	230	230	76	83	78	78	795	795	
65A	290	290	89	95	88	88	907	907	
80A	310	310	95	105	93	100	1037	1037	
100A	350	350	115	127	105	113	1076	1076	

### Design Features

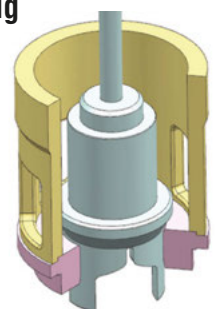
- Plug design: Contour Plug, V-plug <sup>(\*)5</sup>
- Balanced / Unbalanced Plug
- Quick-Change
- Reduced Capacity
- Leakage Class: Leakage IV, V (Metal Seat) and VI (Soft Seat)
- Low Emission Packing
- Bonnet Type: Standard / Extension / Bellows Seal

(\*)5 Please contact us for other types of plug.

Contour



V-plug





# WYECO's Electric Control Valves

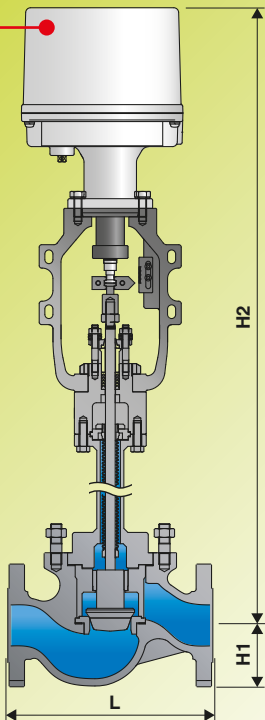
## operation of your plant.

Please see **Guidance 3 on page 8** for the Model No. & Specifications.

### Bellows Type

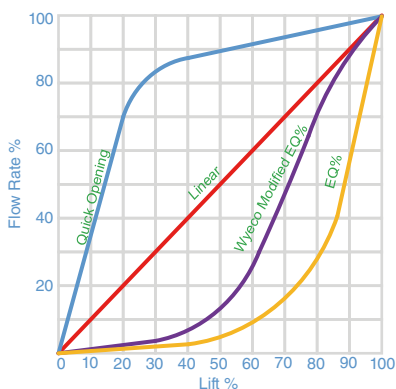
For toxic fluid, precious fluid, non-leakable fluid and high temperature.

Electric Actuator  
PSN Series



ISO BELLOWS TYPE BONNET (IEC bellows type also available)									Unit : mm	
Valve Size	L		ANSI H1		JIS H1		H2			
	CL150	CL300	CL150	CL300	10K	20K	CL150	CL300		
15A	130	130	45	48	48	48	769	769		
20A	150	150	49	59	50	50	769	769		
25A	160	160	54	62	63	63	769	769		
40A	200	200	64	78	70	70	776	776		
50A	230	230	76	83	78	78	802	802		
65A	290	290	89	95	88	88	958	958		
80A	310	310	95	105	93	100	1138	1138		
100A	350	350	115	127	105	113	1146	1146		

### Flow Rate Curve

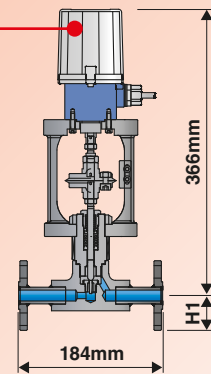


### Micro Flow Control Valve

Extremely micro flow capacity  
Globe style control valve

Providing excellent system regulation.  
For laboratory or trial production applications requiring high accuracy control of extremely micro flow.

Electric Actuator  
MSP Series



150LB	
Valve Size	H1
15A	45mm
20A	49mm
25A	54mm

10K	
Valve Size	H1
15A	48mm
20A	50mm
25A	63mm

### Specifications

- **Body type**  
Globe style
- **Rating**  
Flange end ANSI 150-600  
Thread end ANSI2500
- **End connection**  
Flange RF, RTJ, NPT end  
Internal thread 1/4NPT, 1/2NPT, 3/4NPT  
Butt Weld, Socket Weld
- **Material**  
**Body/Bonnet**  
Standard 316ss  
**Trim**  
Standard 316ss  
**Gland Packing**  
Standard PTFE V-ring  
Optional Graphite  
**Gasket**  
Standard Gylon  
Optional 316ss graphite
- **Electric Actuator**  
MSP Series  
(Made by MG Co., Ltd.)
- **Bonnet type**  
Standard Plane bonnet
- **Leakage**  
Standard Class IV  
Optional Class V
- **Trim type**  
Micro Contour plug
- **Plug**  
Equal percentage  
Linear

### Flow Coefficient Cv

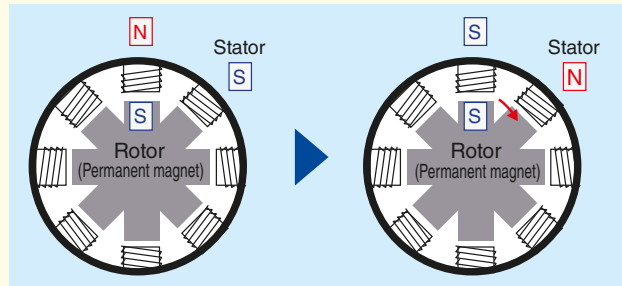
Rated Cv NA	Orifice Dia. (mm)	Rangeability		Stroke (mm)
		Linear	Equal %	
0.3	4	25 : 1	50 : 1	16
0.2	4	25 : 1	50 : 1	16
0.1	4	25 : 1	40 : 1	16

## 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 Model Number for WYECO 8000 Series

Example : **80-25J14**

TRIM TYPE	
80	CONTOUR
81	V-PLUG
82	V-CAGE
83	MULTI-HOLE PLUG
84	MULTI-HOLE CAGE
85	TWO STAGE

BODY SIZE		END CONNECTION		BODY MATERIAL	
15	1/2"	J1	JIS 10K	3	CF8
20	3/4"	J2	JIS 20K	4	CF8M
25	1"	A1	ANSI 150LB	S	WCB
40	1-1/2"	A2	ANSI 300LB	F	FC250
50	2"	A3	ANSI 600LB	6	CF3M
65	2-1/2"	P1	PN16	H	HastelloyC
80	3"	P4	PN40	M	Monel
04	4"	0	Other	0	Other
05	5"				
06	6"				
08	8"				
10	10"				

(\*6)

(\*6) Driven with Diaphragm motors.

Contact

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