

MV 304

Electric Diaphragm Valves



The MV304 are modular products that can be upgraded online from manual valves for automated applications. It can also be used as an automatic valve in brand new occasions. The smooth flow channel combined with the high-precision electric actuator has excellent linear adjustment performance.

Easy installation and maintenance

- * The automation module adopts a clip-type connection, which is easy to disassemble and assemble
- * All-plastic appearance structure, beautiful and corrosion-resistant
- * Precise screw fit clearance, smooth operation and maintenance-free
- * Does not depend on the presence of a compressed air system
- * Integrated LED visual interface, easy to set and observe
- * No need to interrupt the production line when upgrading manually

High safety performance

- * Stronger housing and can be used in more corrosive environments
- * Suspended air-avoiding diaphragm coupling mechanism fully protects the diaphragm
- * All product torques are independently verified to ensure long product life

High Flexibility

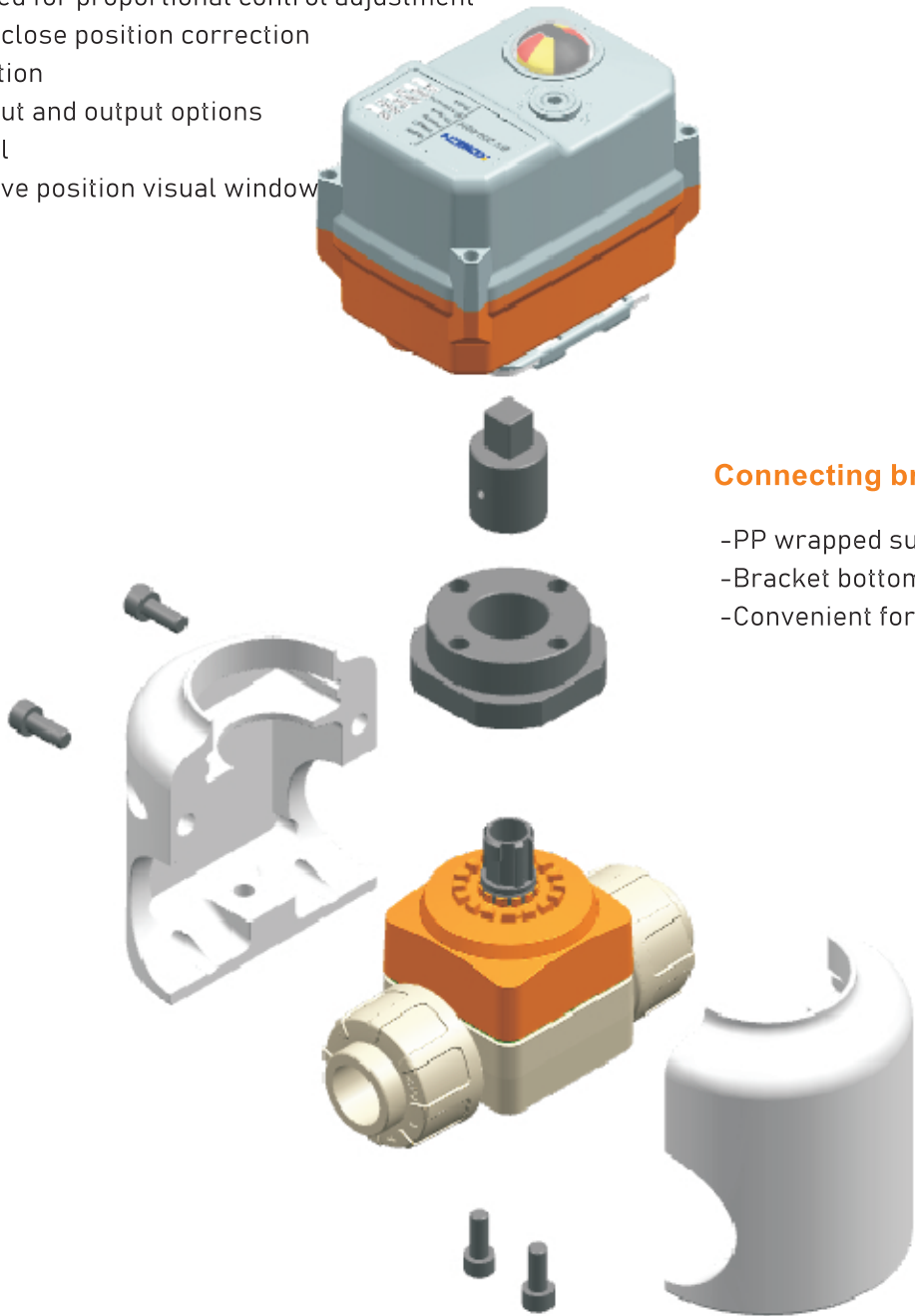
- * The connection form includes by-order socket, by-order butt welding
- * Interface standards include metric, Japanese, and American standards
- * Diaphragm EPDM, FPM, EPDM-PTFE
- * Valve body PVC-U, PVC-C, PP-H, PP-N, PVDF
- * Some products have oil-free options



+ Product structure

Electric actuator

- The manual diaphragm valve on the original pipeline system can be upgraded and expanded
- It can be installed online without stopping the line
- It can be used for proportional control adjustment
- With online close position correction
- IP67 protection
- Multiple input and output options
- Plastic shell
- Intuitive valve position visual window



Connecting bracket

- PP wrapped support
- Bracket bottom with mounting fixing nut
- Convenient for manual online expansion

Diaphragm valve body

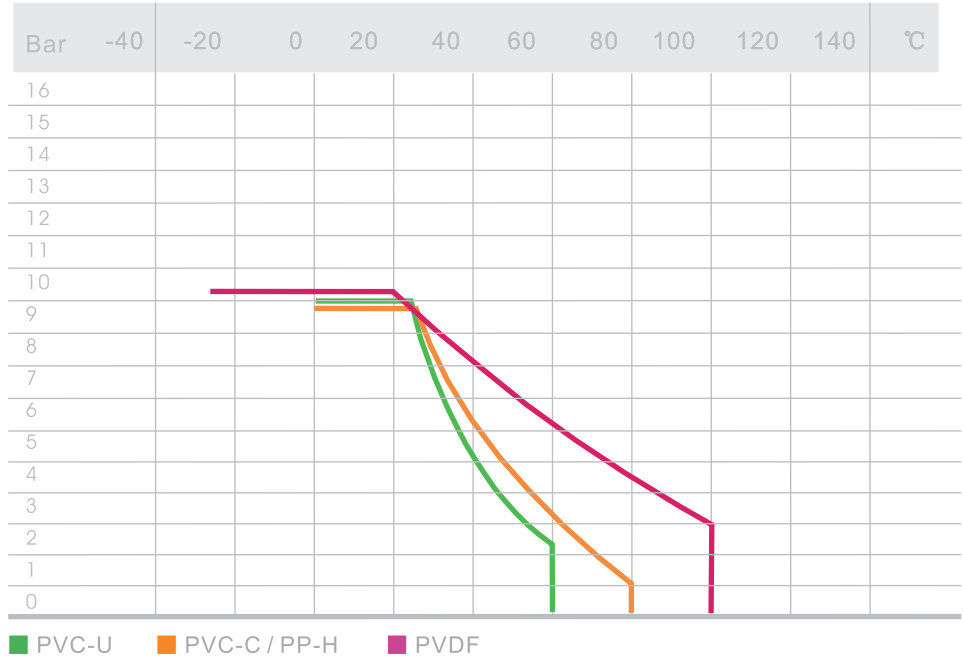
- Superior flow channel makes the linear characteristics of the fluid more precise and controllable
- The smooth and excessive curved channel has smaller pressure loss, and brings double flow capacity compared with the traditional diaphragm valve
- Suitable for liquids with small amounts of particles and solids
- There is no dead zone at the joint of diaphragm and valve body
- It can be applied to the switch and regulation control of negative pressure systems

+ Technical characteristics

Pressure temperature curve

All data based on water for consider -ring 25 years safe life time

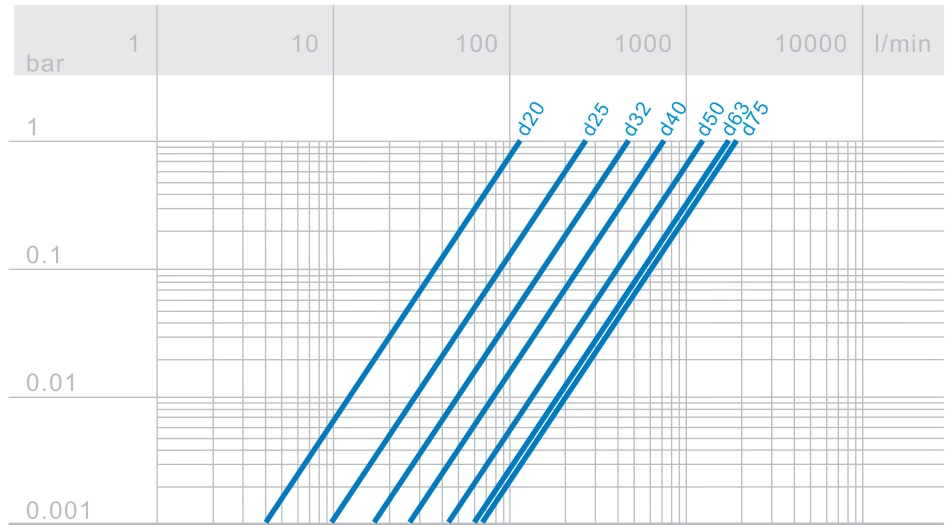
Other liquids request to reduce the temperature and pressure accordingly



Flow capacity

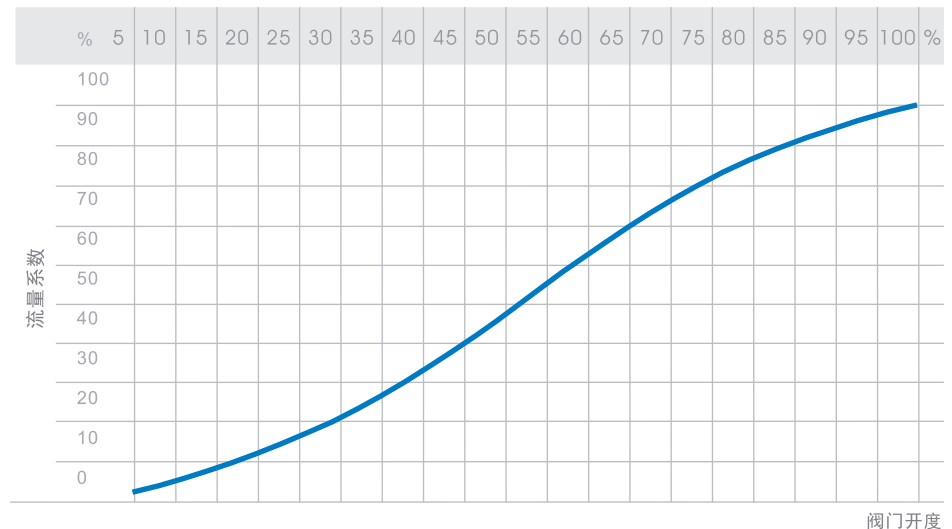
All data are for 20°C water with 1 bar pressure difference

- $C_v = k_v \times 0,07$
- $F_v = k_v \times 0,0585$
- Kv (l/min)
- Cv (gal/min) US
- Fv (gal/min) GB



Line chart for relative flow rate

The linear coefficient of relative flow refers to the flow change as a function of valve opening stroke



+ Order code

Electric Diaphragm Valves

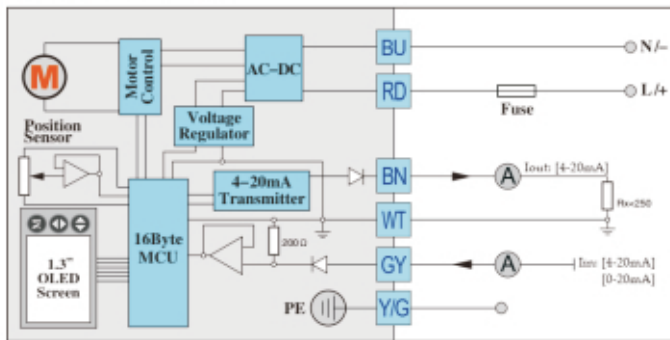
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Series												
	3	0	4									
Valve body material												
PVC-U				0								
PVC-C				2								
PP-H				4								
PP-Natural				5								
PVDF				6								
Diaphragm material												
EPDM (Per)								20				
FPM (70)								40				
EPDM-PTFE								70				
Connection mode												
Union Socket-end											1	
Union Spigot Butt-IR											3	
Connection standard												
DIN											0	
JIS											2	
ANSI											4	
Interface size												
d20, DN15											20	
d25, DN20											25	
d32, DN25											32	
d40, DN32											40	
d50, DN40											50	
d63, DN50											63	
Voltage												
AC 220V (95-265V)												41
AC/DC 24V												42
Input control												
4-20 mA												0
0-20 mA												1
0-10 V												2
2-10 V												3
0-5 V												4
1-5 V												5
Fault feedback *												
												A

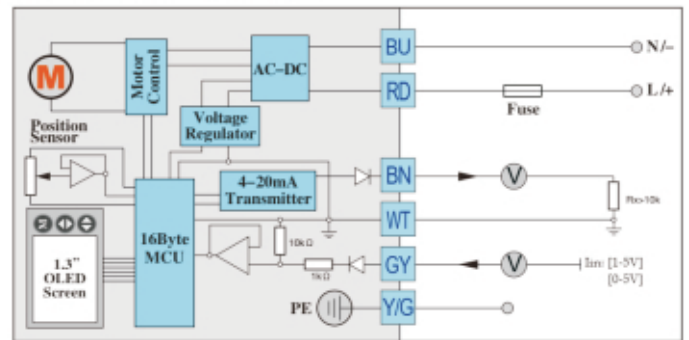
* 空白: 无故障反馈信号要求

Wiring diagrams

4-20mA/0-20mA



0-5V/1-5V/0-10V/2-10V



Control instructions - [No Alert! 7-core] :

- 1 BU, RD are power supply.
- 2 GY, WT, BN are Zontrol input and feedback output.
※ They are forbidden to connect the power supply, otherwise it will damage the control module.
- 3 Make sure voltage practicable range, ※ otherwise it will damage the control module.
- 4 GY is feedback current input: 4-20mA, 0-20mA, 0-5V, 0-10V, 2-10V, input impedance refers to relevant wiring diagram.
- 5 BN is control current output 4-20mA.
- 6 Vout=Iout R_x.
△ R_x is recommended to use low TCN resistor.
△ V_{OUT}=8V, so R_{bs}=400Ω (recommended V_{out}=5V, R_x=250Ω, 0.25W)
- 7 ※ For "4-20mA/1-5V/2-10V" control, from "user setting", user can set no control signal valve to full-open, full-close or keep. For other control (0-20mA, 0-10V, 0-5V), such setting is invalid.
- 8 When actuator is stuck or other working failures, output failure signal.
Contactor loading capacity: 0.1A/DC24V, 50mA/230V.



Figure 1 (7wiring diagram)

Anti-condensation heater



- ※ Notice 1: The range of power is 2W-3W;
- ※ Notice 2: The range of constant temperature heating is 25°C ± 20%.

Interface

- Intelligent modulating model
- Intelligent Bus model interface



+ Actuator parameters and precautions

Common failures and processing methods

	Fault phenomenon	Fault cause	Processing methods
□1	Actuator no action	△1 power not connected	Connect power
		△2 voltage below level or incorrect	Check whether voltage is within the normal range
		△3 overload protection of motor after 3s	Check whether valve gets stuck or torque value is too big
		△4 terminal loose or poor contact	Check and correctly connect terminal
		△5 starting capacitance poor run	Contact the manufacturer to get repair
□2	No feedback signal	△1 line barrier of user acquisition signal	Connect user acquisition signal
		△2 4-20mA deviation is too big	Adjust the reference value of PWM-4mA by the menu
		△3 4-20mA transducing circuit damage	Contact the manufacturer to get repair
□3	Actuator not fully closed	△1 use feedback signal to control actuator	Receive feedback signal doesn't mean actuator is fully closed, so don't cut power off
		△2 return difference increases due to abrasion between actuator and valve rod	1 Adjust valve-off position to realize deviation by the menu 2 Contact the manufacturer to get repair
□4	Actuator interior water ingress	△1 OD of incoming line cable non-standard	Contact the manufacturer to get repair
		△2 waterproof treatment of incoming line incomplete	
		△3 actuator lens wearout	
		△4 screws on connection cover/head cover /slide cover loose	

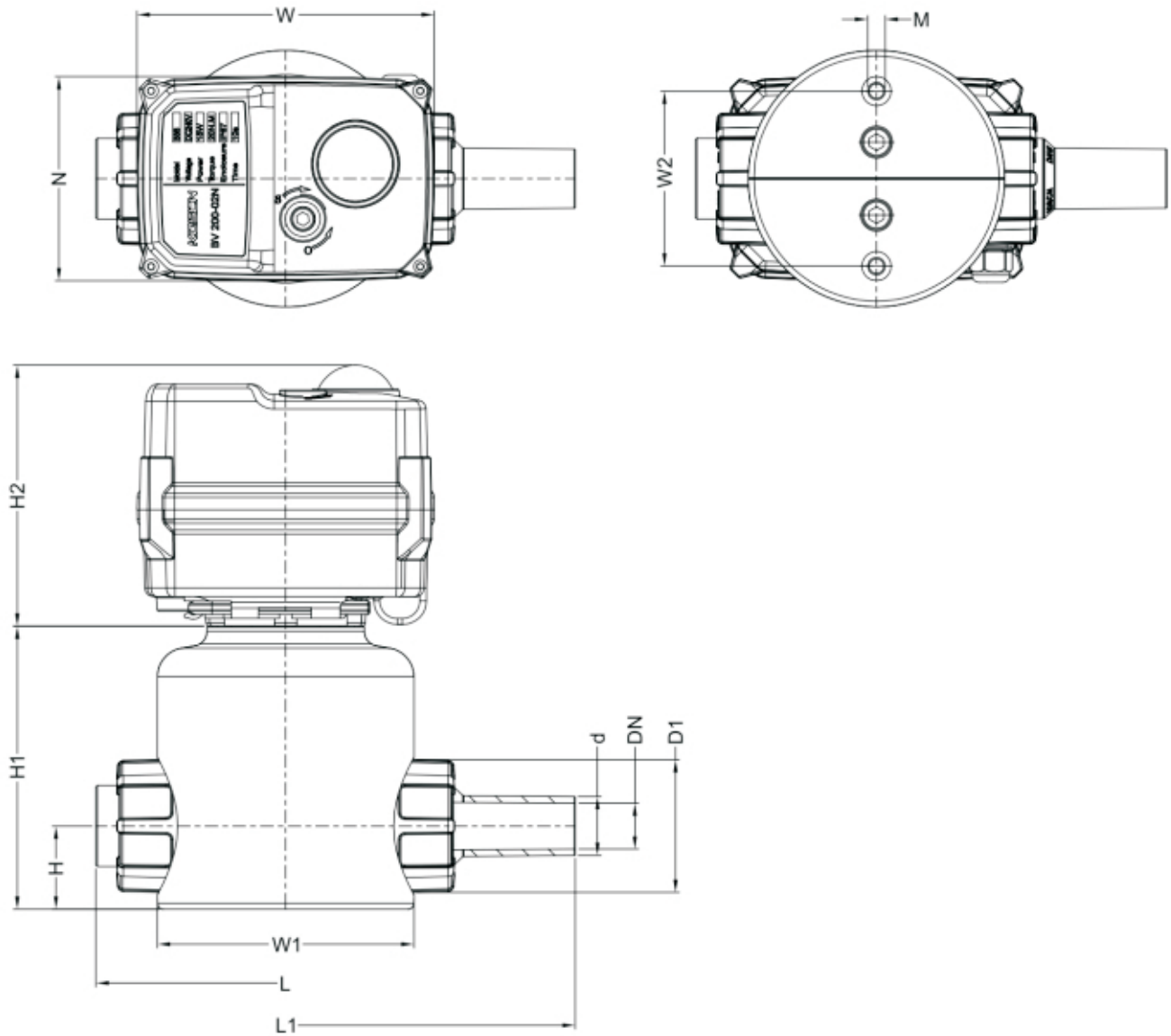
Working environment

- Indoor and outdoor are both optional.
- Not explosion proof products, ⚠ do not use them in flammable and explosive environment.
- You need to install protective device for the actuator if it is exposed to the rain or sunshine.
- Please pay attention to the ambient temp.
- When installing, you need to consider the reserved space for wiring and repairing.
- When power on, ⚠ it is not allowed to dismantle actuator and valve.
- When power on, ⚠ it is not allowed to do wiring.
- ※ Absolutely no falling down the ground, which will hit the device and lead to improper operation.
- ※ Absolutely no standing on the device, which will cause device malfunction or personal accident.
- ※ It is forbidden to do wiring project in rainy day or when there is water splash.

Safety notice

- In order to use the device safely for a long term, please pre-read the manual carefully to ensure correct use.
- Notice item: Please understand the product specification and using method clearly to prevent personal safety danger or device damage.
- In order to indicate damage and danger, here we classify them as "warning ⚠" and "notice ※".
- Both of contents are very important, which should be obeyed strictly.
- "Warning ⚠": It will cause death or serious injury if not obeyed.
- "Notice ※": It will cause slight injury or device damage if not obeyed.
- Subject to technical changes.

+ Size data



Unit: mm

d	DN	G	D1	H	H1	H2	L	L1	N	W	W1	W2	M
20	15	1	46	29	97	90	128	196	70	102	89	60	M6
25	20	1-1/4	56	35	109	90	152	221	70	102	112	60	M6
32	25	1-1/2	66	39	143	90	166	234	70	102	139	80	M8
40	32	2	79	44	148	90	192	260	70	102	139	80	M8
50	40	2-1/4	86	53	196	120	222	284	111	132	169	80	M8
63	50	2-3/4	108	63	206	120	266	321	111	132	184	80	M8

**contact**
customer center
www.koscn.cn



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