Vacuum switching valve
MPV3 series

- For use with vacuum pump system
- All in one unit

  Vacuum sensor, integrated filter, solenoid valve for vacuum and blow–off
- Manifold option available

  Up to 8 units

How to order

Keep blank in case of unit type

①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪
MPV3	S	2	N	AB	24	B	L	3	1	2	L

① Body type

S	Single unit
M	Manifold unit

② Vacuum port

2	Rc1/8 type

③ Vacuum flow control

N	Adjustable type

④ Pressure sensor

	Sensor type	Pressure	Display	Switch output	Analog output	Input specification
AB	MVS–030AB	Vacuum	LED	NPN1 point	Without	Without
ABP	MVS–030AB	Vacuum	LED	PNP1 point	Without	Without
35G	MVS–035G	Vacuum	LED	NPN1 point	DC1 ~ 5V	Without
VG	MPS–V23	Vacuum	Digital	NPN2 point	DC1 ~ 5V	Without
VGP	MPS–V23	Vacuum	Digital	PNP2 point	DC1 ~ 5V	Without
RG	MPS–R23	Compound	Digital	NPN2 point	DC1 ~ 5V	Without
RGP	MPS–R23	Compound	Digital	PNP2 point	DC1 ~ 5V	Without
201	MVS–201	Compound	Digital	NPN1 point	Without	Sink
201P	MVS–201	Compound	Digital	PNP1 point	Without	Sink
Z	Without	–	–	–	–	–

⑤ Solenoid valve voltage

12	DC12V ★
24	DC24V
100	AC100V
200	AC200V ★

Note) ★are made to order.

⑥ Vacuum valve function

A	Normally open
B	Normally closed

⑦ Solenoid valve wiring

L	Connector type

Note) Supply more than compressed air 0.3MPa is necessary to operate.

⑧ Number of units (Manifold type only)

1	1 unit★	5	5 units
2	2 units	6	6 units★
3	3 units	7	7 units★
4	4 units	8	8 units★

Note) ★are made to order

⑨ Number of block plates (Manifold type only)

0	none	4	4 units
1	1 unit	5	5 units★
2	2 units	6	6 units★
3	3 units	7	7 units★

Note) ★are made to order

⑩ Number of bodies (Manifold type only)

1	1 unit★	5	5 units
2	2 units	6	6 units★
3	3 units	7	7 units★
4	4 units	8	8 units★

Note) ★are made to order

⑪ Set side (Manifold type only)

R	Placed to the right
L	Placed to the left
Blank	When ⑧&⑩ are same

Please turn the vacuum port towards your side, the unit body you faced could be either left or right upon chosen.

Maintenance parts

● Solenoid valve (with gasket and screw)

①	②	③	④
MC2 – 24	B	5	– V

① Voltage

12	DC12V ★
24	DC24V
100	AC100V
200	AC200V ★

Note 1) AC200 is AC100V connected with a converter
Note 2)★ are made to order

② Valve function

A	Normally open
B	Normally closed

③ Lead wire length

5	500mm
15	1500mm

④ Valve position

V	For vacuum
D	For blow–off

● Manifold base

MPV3 – M – 1

Number of units			
1	1 unit★	5	5 units
2	2 units	6	6 units★
3	3 units	7	7 units★
4	4 units	8	8 units★

∗With plug and screw.
Note)★are made to order

● Vacuum sensor (with O–ring and screw)

MVS–030AB–MPV3
MVS–030ABP–MPV3
MVS–035G–MPV3
MPS–V23C–NGA–MPV3
MPS–V23C–PGA–MPV3
MPS–R23C–NGA–MPV3
MPS–R23C–PGA–MPV3
MVS–201–MPV3–A (Normally open)
MVS–201–MPV3–B (Normally closed)
MVS–201P–MPV3–A (Normally open)
MVS–201P–MPV3–B (Normally closed)

Note) Please check details p.349

● Vacuum filter

MC2 – E

E	Element
F	Filter kit (with element)

● Block plate for manifold

MPV3 – MM

Solenoid Vacuum Valves Direct Acting Type

2-,3-port, Single Solenoid

Specifications

Item \ Basic model		V062E1	SV062E1	V126E1
Media		Vacuum	Vacuum, air	Vacuum
Operation type		Direct acting		
Number of ports		2, 3 ports	3 ports (Both vacuum and pressure type)	2 ports
Valve function		Normally closed (NC, standard), Normally open (NO, optional)		
Effective area〔Cv〕	mm²	2.5〔0.12〕		5.5〔0.27〕
Port size	Rc	1/4		
Lubrication		Not required		
Operating pressure range	kPa {mmHg} [in.Hg]	0～−100 {0～−750} [0～−29.53]		
Operating temperature range	°C [°F]	5～60 [41～140]		
Voltage type	V	Standard AC100 (50/60Hz), AC200 (50/60Hz) For other voltage, see p.960.		
Voltage fluctuations	%	±10		
Current[Note] A	100V	50Hz→0.14, 60Hz→0.13		
	200V	50Hz→0.070, 60Hz→0.067		
Insulation type		B type		
Lead wire length	mm [in.]	Approximately 300 [11.8]		
Mounting direction		Any		
Mass	kg [lb.]	0.3 [0.66]		

Note: The starting current and energizing current values are virtually identical, and fall within these values.

Handling

1. When using in dusty ambient atmospheres, install a filter between the vacuum pad and the solenoid valve, and at the R port.
2. See p.983 for how to use SV062E1.

Solenoid Vacuum Valve Order Codes

		Basic model	Option: Valve function 2-port	Option: Valve function Normally open (NO)	Option: Mounting base	Solenoid option: Conduit type	Voltage
Direct piping	2-, 3-port	**V062E1**	**-2**	**-11**	**-21**	**-37**	**AC100V AC200V**
	3-port	**SV062E1**					
	2-port	**V126E1**					

●**Blank:** 3-port
(**SV062E1:** 3-port only
V126E1: Blank and 2-port only)

Manifold Order Codes

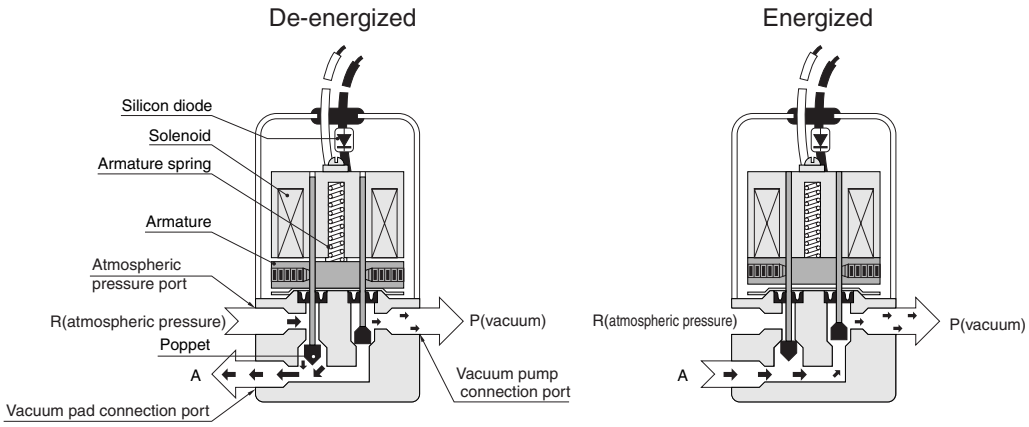
Manifold model			Station	Valve model: Basic model	Option: 2-port	Solenoid option: Conduit type	Voltage
MM	**1 ⋮ 10**	**A**	**stn.□ ⋮ stn.□**	**MV062E1**	**-2**	**-37**	**AC100V AC200V**

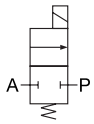
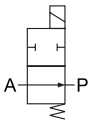
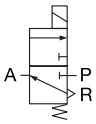
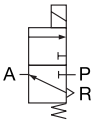
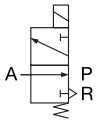
●**Blank:** Side port only
A: With bottom piping port

●Valve mounting location from the left-hand side

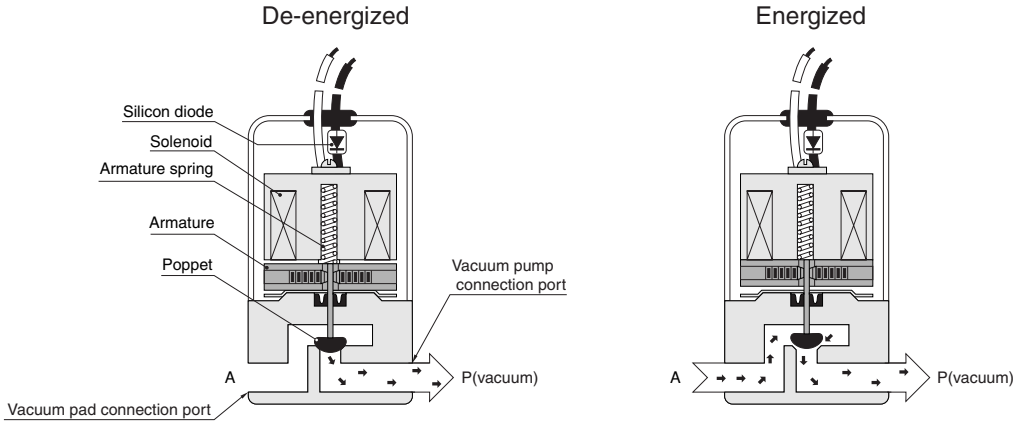
●Enter **-BP** when closing a station with a block-off plate without mounting a valve.

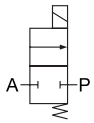
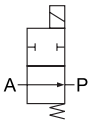
V062E1



2-port NC	2-port NO	3-port NC	3-port NC	3-port NO
				
V062E1-2	**V062E1-2-11**	**V062E1**	**SV062E1**	**V062E1-11**

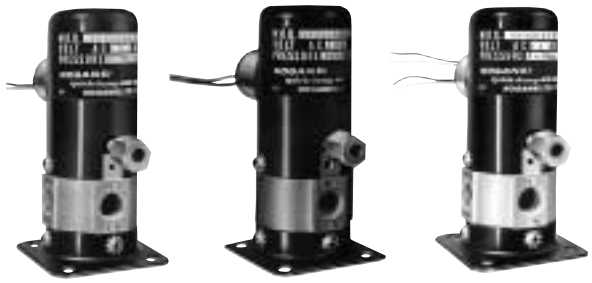
V126E1



2-port NC	2-port NO
	
V126E1	**V126E1-11**

Solenoid Vacuum Valves 250 Series

3-port, External Pilot Type



Specifications

Item \ Basic model	VA250AE1	VA2503AE1	VV250AE1	VV2503AE1	VA250AE2	VA2503AE2
Media	Vacuum, air					
Operation type	Indirect acting					
Number of ports	3 ports (Cannot be used as a 2-port valve in terms of construction)					
Valve function	Single solenoid Normally closed (NC, standard), Normally open (NO, optional)				Double solenoid Normally closed (NC), Normally open (NO)	
Effective area〔Cv〕 mm²	15〔0.76〕					
Port size Rc	1/4	3/8	1/4	3/8	1/4	3/8
Lubrication	Not required					
Operating pressure range kPa{mmHg} [in.Hg]	0～−100 {0～−750} [0～−29.53]		−51～−100 {−380～−750} [−14.96～−29.53]		0～−100 {0～−750} [0～−29.53]	
External pilot pressure	Recommended pilot air pressure 0.2～0.3MPa [29～44psi.] MAX.0.7MPa [102psi.]		Pilot vacuum −51～−100kPa [−14.96～−29.53in.Hg]		Recommended pilot air pressure 0.2～0.3MPa [29～44psi.] MAX.0.7MPa [102psi.]	
External pilot port size	φ6 [0.236in.] flareless fitting (For nylon tube)					
Operating temperature range °C [°F]	5～60 [41～140]					
Voltage type V	Standard AC100 (50/60Hz), AC200 (50/60Hz) For other voltages, see p.960.					
Voltage fluctuations %	±10					
Current[Note] A AC100V	50Hz→0.14, 60Hz→0.13					
Current[Note] A AC200V	50Hz→0.070, 60Hz→0.065					
Energizing type	Continuous energizing					
Insulation type	B type					
Wiring connection type	Conduit					
Lead wire length mm [in.]	Approximately 300 [11.8]					
Mounting direction	Any					
Mass kg [lb.]	0.5 [1.1]				0.6 [1.3]	

Note: The starting current and energizing current values are virtually identical, and fall within these values.

Handling Instructions and Precautions

1. When using in dusty atmospheres, install a filter between the vacuum pad and the solenoid valve, and at the R port.
2. For the wiring instructions of VA250AE2, see p.960.
3. Maintain the pilot vacuum at −51kPa {−380mmHg} [−14.96in.Hg] or more for VV250AE1.

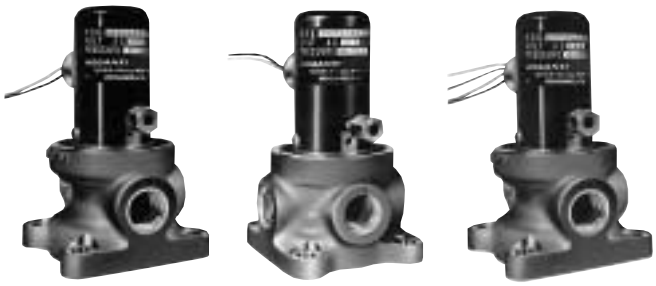
Solenoid Vacuum Valve Order Codes

		Basic model	Option: Valve function Normally open (NO)	Option: With barbed fitting for pilot	Voltage
Single solenoid	Air pilot	**VA250AE1**	**-11**		**AC100V AC200V**
Single solenoid	Air pilot	**VA2503AE1**	**-11**		**AC100V AC200V**
Single solenoid	Vacuum pilot	**VV250AE1**	**-11**	**-62**	**AC100V AC200V**
Single solenoid	Vacuum pilot	**VV2503AE1**	**-11**	**-62**	**AC100V AC200V**
Double solenoid	Air pilot	**VA250AE2**			**AC100V AC200V**
Double solenoid	Air pilot	**VA2503AE2**			**AC100V AC200V**

- For inner diameter φ6 [0.236in.] rubber tube
- Single solenoid only
- **Blank:** Normally closed (NC)
  E2: Both normally closed (NC) and normally open (NO)

Solenoid Vacuum Valves 500 Series

3-port, External Pilot Type



Specifications

Item \ Basic model		VA500AE1	VV500AE1	VA500AE2
Media		Vacuum, air		
Operation type		Indirect acting		
Number of ports		3 ports		
Valve function		Single solenoid Normally closed (NC, standard), Normally open (NO, optional)		Double solenoid Normally closed (NC), Normally open (NO)
Effective area〔Cv〕	mm²	55〔2.7〕		
Port size	Rc	1/2		
Lubrication		Not required		
Operating pressure range	kPa{mmHg} [in.Hg]	0～−100 {0～−750} [0～−29.53]	−51～−100 {−380～−750} [−14.96～−29.53]	0～−100 {0～−750} [0～−29.53]
External pilot pressure		Recommended pilot air pressure 0.2～0.3MPa [29～44psi.] MAX.0.5MPa [73psi.]	Pilot vacuum −51～−100kPa [−14.96～−29.53in.Hg]	Recommended pilot air pressure 0.2～0.3MPa [29～44psi.] MAX.0.7MPa [102psi.]
External pilot port size		φ6 [0.236in.] flareless fitting (For nylon tube)		
Operating temperature range	°C [°F]	5～60 [41～140]		
Voltage type	V	Standard AC100 (50/60Hz), AC200 (50/60Hz), For other voltages, see p.960.		
Voltage fluctuations	%	±10		
Current[Note] A	AC100V	50Hz → 0.14, 60Hz → 0.13		
	AC200V	50Hz → 0.070, 60Hz → 0.065		
Energizing type		Continuous energizing		
Insulation type		B type		
Wiring connection type		Conduit		
Lead wire length	mm [in.]	Approximately 300 [11.8]		
Mounting direction		Any		
Mass	kg [lb.]	0.85 [1.87]		0.95 [2.09]

Note: The starting current and energizing current values are virtually identical, and fall within these values.

Solenoid Vacuum Valve Order Codes

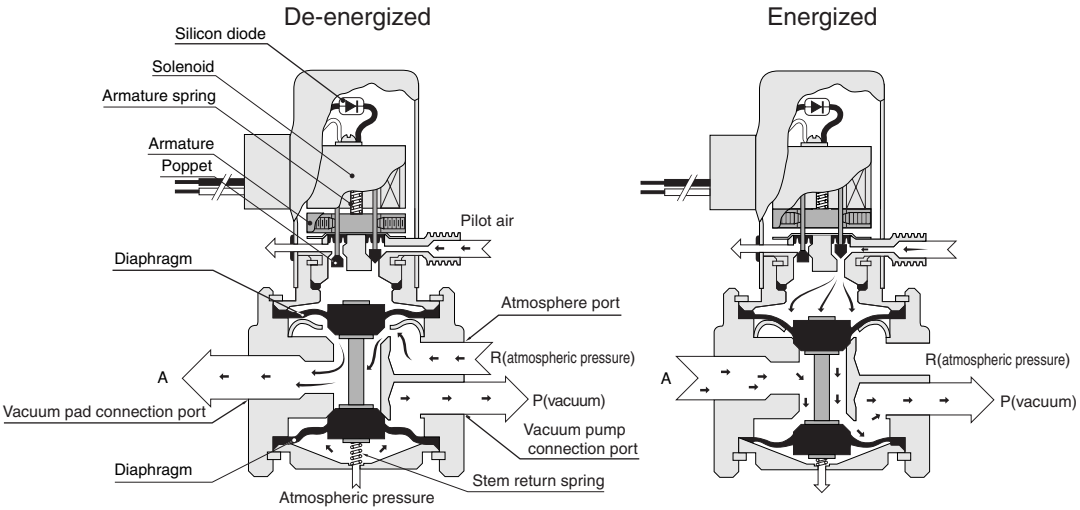
		Basic model	Option: Valve function Normally open (NO)	Option: With barbed fitting for pilot	Voltage
Single solenoid	Air pilot	**VA500AE1**	**-11**		**AC100V** **AC200V**
	Vacuum pilot	**VV500AE1**		**-62**	
Double solenoid	Air pilot	**VA500AE2**			

- For inner diameter φ6 [0.236in.] rubber tube
- Single solenoid only
- **Blank:** Normally closed (NC)
  E2: Both normally closed (NC) and normally open (NO)

Handling Instructions and Precautions

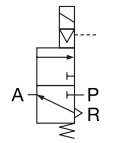
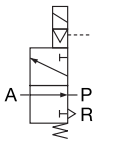
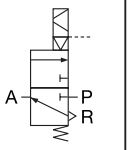
1. When using in dusty atmospheres, install a filter between the vacuum pad and the solenoid valve, and at the R port.
2. For the wiring instructions of VA500AE2, see p.960.
3. Maintain pilot vacuum at −51kPa {−380mmHg} [−14.96in.Hg] or more for the VV500AE1.

External air pilot type (VA500AE1)

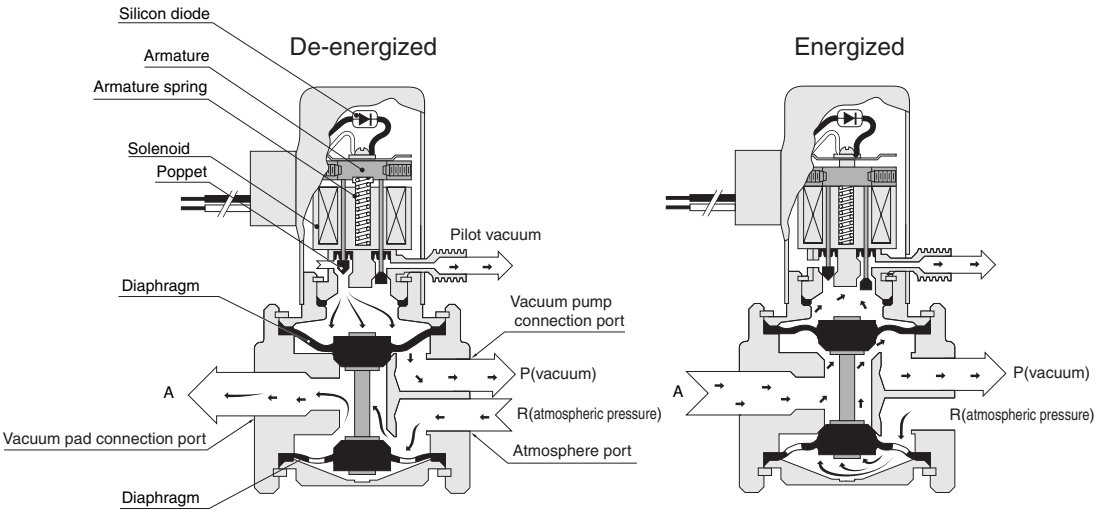


Explanation of operation

- When de-energized, the armature is separated from the solenoid by the armature spring. The right-side poppet directly connected to the armature closes, while the left-side poppet opens, making the pressure on the upper surface of the upper diaphragm atmospheric pressure. Therefore, the lower diaphragm is pulled up by the stem return spring and the vacuum (main) applied to the upper surface of the lower diaphragm, closing the P port, and connecting the A port and R port.
- When energized, the armature is attracted to the solenoid, opening the right-side poppet and closing the left-side poppet, bringing pilot air to the upper surface of the upper diaphragm. The diaphragm is therefore pushed downward, closing the R port, and connecting the P port and A port.

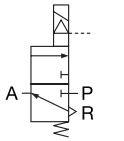
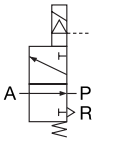
NC	NO	NC/NO
		
VA500AE	**VA500AE-11**	**VA500AE2**

External vacuum pilot type (VV500AE1)



Explanation of operation

- When de-energized, the armature is separated from the solenoid by the armature spring. The right-side poppet directly connected to the armature closes, and the left-side poppet opens, and the upper diaphragm is pulled downward by the vacuum (main) applied to the bottom surface of the upper diaphragm, closing the P port, and connecting the A port and R port.
- When energized, the armature is attracted to the solenoid, opening the right-side poppet and closing the left-side poppet, applying pilot vacuum to the upper surface of the upper diaphragm. The diaphragm is therefore pulled up, closing the R port, and connecting the P port and A port.

NC	NO
	
VV500AE1	**VV500AE1-11**