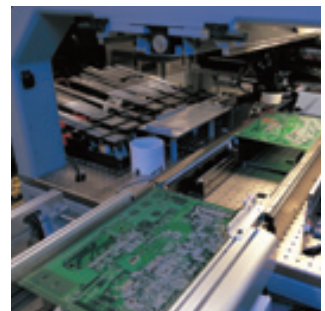




aerospace  
 climate control  
 electromechanical  
 filtration  
 fluid & gas handling  
 hydraulics  
**pneumatics**  
 process control  
 sealing & shielding



# Miniature Direct-acting Solenoid Valves VA01 Series 10mm width



**KURODA**



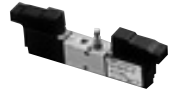

ENGINEERING YOUR SUCCESS.

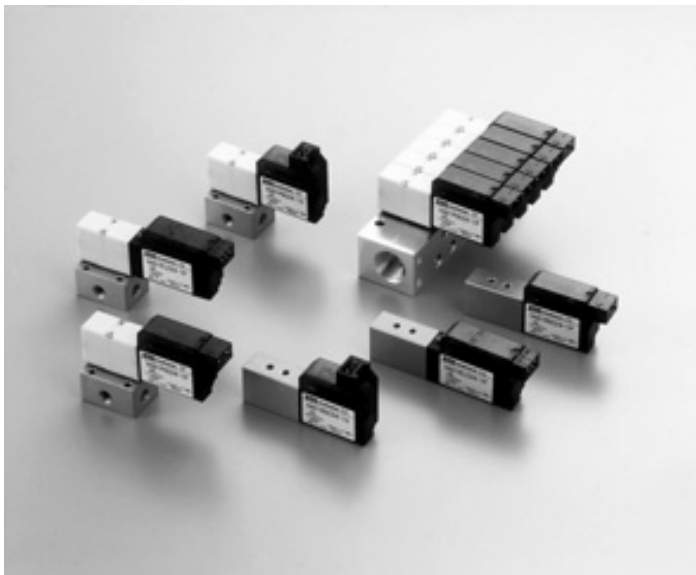
# Miniature Direct-acting Solenoid Valves

## VA01 Series

10mm width



 <p>P.11</p>	<p>3-port 2-position VA01 23 Series</p>
 <p>P.17</p>	<p>4-port 2-position VA01 24 Series</p>
 <p>P.33</p>	<p>3-port 3-position VA01 33 Series</p>
 <p>P.38</p>	<p>4-port 3-position VA01 34 Series</p>








# FOR SAFETY USE

Be sure to read the following instructions before use.

For common and individual instructions, refer to the text of this catalog.

The following safety precautions are provided to prevent damage and danger to personnel and to provide instructions on the correct usage of this product. These precautions are classified into 3 categories; “CAUTION”, “WARNING” and “DANGER” according to the degree of possible injury or damage and the degree of impendence of such injury or damage.

Be sure to comply with all precautions along with JIS B8370<sup>(※1)</sup> and ISO 4414<sup>(※2)</sup>, as they include important content regarding safety.

 <b>CAUTION</b>	Indicates a potentially hazardous situation which may arise due to improper handling or operation and could result in personal injury or property-damage-only accidents.
 <b>WARNING</b>	Indicates a potentially hazardous situation which may arise due to improper handling or operation and could result in serious personal injury or death.
 <b>DANGER</b>	Indicates an impending hazardous situation which may arise due to improper handling or operation and could result in serious personal injury or death.

(※1) JIS B8370 : General Rules for Pneumatic Systems

(※2) ISO 4414 : Pneumatic fluid power-General rules relating to systems



## WARNING

● **The applicability of vacuum equipment to the intended system should be judged by the pneumatic system designer or the personnel who determined specifications for such system.**

As operating conditions for products contained in this catalog are diversified, the applicability of vacuum equipment to the intended system should be determined by the pneumatic system designer or the personnel who determined specifications for such system after conducting an analysis or testing as necessary.

The system designer shall be responsible for assuring the intended system performance and safety.

Before making a system, the system designer should thoroughly examine all specifications for such a system and also take into consideration the possibility of any trouble with the equipment.

● **The vacuum equipment should be handled by persons who have sufficient knowledge and rich experience.**

**Inproper handling of compressed air and vacuum will result in danger.**

Assembling, operation and maintenance of machinery using vacuum equipment should be performed by persons who have sufficient knowledge and rich experience.

● **Never operate machinery nor remove the equipment until safety is assured.**

- Before checking or servicing machinery and equipment, be sure to check that steps for prevention of dropping or runaway of the driven component have been completely taken.
- When removing the equipment, make sure that the above-mentioned safety measures have been done beforehand. Then turn off air supply and power to the system and purge compressed air in the system.
- When restarting machinery and equipment, check that proper prevention of malfunction has been provided for and then restart carefully.

● **When using the vacuum equipment in the following conditions or environments, take the proper safety measures and consult KURODA Pneumatics beforehand.**

- Conditions and environments other than specified and outdoor use.
- Applications to nuclear power equipment, railroads, aircraft, vehicles, medical equipment, equipment connected with food and drink, amusement facilities and safety devices such as emergency interruption devices, clutch/brake circuits for a press and the likes.
- Applications which require extreme safety and will also greatly affect men and property.



## SOLENOID VALVES FOR VACUUM/COMMON INSTRUCTIONS ①

Be sure to read them before use.  
Also refer to Par. "For Safety Use" and instructions mentioned for each series of solenoid valves.

### DESIGN



#### WARNING

- **Power failure and trouble of air supply will lead to vacuum down ; this sometimes results in an accident.**

Take a safety measure against such accident.

If vacuum pad loses its sucking force due to vacuum down, the workpiece being carried will drop, endangering the human body and machine. Provide prevention against the drop of a workpiece or take a proper safety measure.

- **Do not use for emergency shutoff valves.**

Solenoid valves listed in this catalogue are not designed for use in emergency shutoff valves and other safety applications.

When using the solenoid valve for such applications, provide an independent means to assure safety.

- **Exhausting residual air**

Provide a residual air exhausting function in due consideration of maintenance and inspection.

- **Use in vacuum**

In order to prevent sucking foreign matters from the suction pad and exhaust port, provide an inline filter and air muffler between the suction pad and solenoid valve and at the exhaust port.

- **Applying current continuously for long time**

When using a solenoid valve while applying current to it continuously for a long period of time, contact KURODA Pneumatics beforehand.

- **Remodeling the solenoid valve**

Do not remodel the solenoid valve.



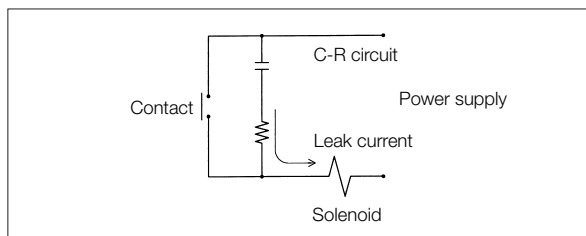
#### CAUTION

- **Leak current**

When a C-R element is used in the contact protective circuit (surge voltage protection), leak current will flow through the C-R element.

If this leak current becomes large, a malfunction will occur.

Therefore, reduce leak current to less than 1 mA.



### DESIGN



#### CAUTION

- **Use at low temperature**

When using a solenoid valve at 5°C or below, provide an air dryer or other proper means to prevent moisture from solidifying or freezing.

- **Shock and vibration**

Reduce shocks and vibrations applied to the solenoid valve to less than the prescribed value. (refer to specifications.)

Applying shocks and vibrations exceeding the prescribed value may result in a malfunction of the solenoid valve.

### SELECTION



#### WARNING

- **Check the specifications.**

Solenoid valves listed in this catalog are designed for vacuum or compressed air. Avoid using other fluid than vacuum or compressed air. Do not use a solenoid valve at any pressure and temperature outside the range of specifications, otherwise resulting in a breakdown or malfunction.



## SOLENOID VALVES FOR VACUUM/Common INSTRUCTIONS ②

Be sure to read them before use.

Also refer to Par. "For Safety Use" and instructions mentioned for each series of solenoid valves.

### MOUNTING



#### WARNING

- When mounting the solenoid valve, firmly fix it while using care to prevent the stationary part and joint from loosening.

If the solenoid valve is mounted with insufficient strength, it may sometimes come off.

- Do not start the system until it is ensured that equipment works properly.

After mounting the solenoid valve, connect power supply and then perform a functional test and a leak test. Check that it has been correctly mounted and works properly, before starting the system.

- Coating with paint

When coating the resin portion with paint, it may be adversely affected by paint and solvent. For the propriety of painting, contact KURODA Pneumatics beforehand.

Do not peel off the nameplate affixed on the solenoid valve and do not erase or smear out the letter on it.

- Provide space for maintenance and inspection.



#### CAUTION

- Do not wipe off the model name inscribed on a nameplate etc, with organic solvent.

The inscribed indication may be erased.

- Fit an air muffler to the exhaust port of the solenoid valve.

Dust or foreign matter that enters it may cause a malfunction of the solenoid valve.

### PIPING



#### CAUTION

- Avoid spiral pipe laying.

When spiral pipe laying is used in a vacuum line, it may sometimes delay attaining vacuum due to the resistance of piping or cause vacuum down at the suction end ; resulting in the malfunction of the vacuum sensor.

- For manifold with solenoid valves, pay attention to piping diameter.

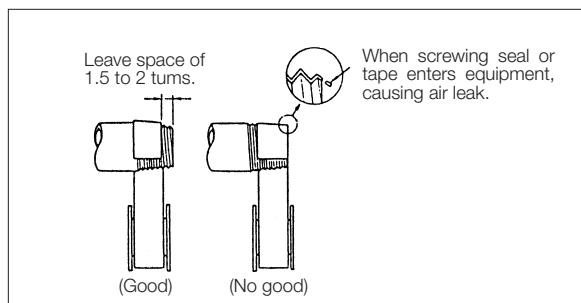
When increasing the number of manifold stations, flow may be insufficient according to circumstances. In this case, supply and exhaust air from both sides of the manifold.

- Before piping

Thoroughly flush the inside of each pipe to remove chips, coolant, dust, etc. before piping.

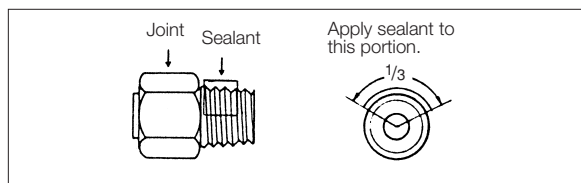
- How to wind a seal tape

When winding a seal tape around the threaded portion, leave space of 1.5 to 2 thread turns.



- How to apply liquid sealant

When applying liquid sealant to the threaded portion, apply a proper amount to about 1/3 of the periphery of the threaded portion and then screw it.



- Avoid wrong piping.

When connecting a pipe to each equipment, be careful not to mistake the supply port etc. by referring to the nameplate affixed to the product or the product catalog.



## SOLENOID VALVES FOR VACUUM/COMMON INSTRUCTIONS ③

Be sure to read them before use.  
Also refer to Par. "For Safety Use" and instructions mentioned for each series of solenoid valves.

### PIPING



#### CAUTION

##### • Screw of pipe and joint

When screwing the pipe and joint, use care to prevent chips and sealant from entering the pipe and joint.

Tighten them within a proper range of tightening torque.

Port size	Tightening torque (N·m)
M3	0.3~0.5
M5	1.5~2.0
R, Rc 1/8	7.0~9.0
R, Rc 1/4	12~14

### APPLICABLE TUBES



#### CAUTION

- **Used nylon tubes or polyurethane tubes made by KURODA Pneumatics for Instant Joints. When using tubes made by other companies, check the diametral accuracy.**

There are some commercially available tubes that do not satisfy the specified diametral accuracy.

- **Do not extremely bend the tube near the joint ; otherwise resulting in the break or bucking of the tube.**

When using the tube with it bent, use at more than minimum bend radius.

- **When using with other fluid than air, consult KURODA Pneumatics.**

### CONNECTION AND DISCONNECTION OF TUBE



#### CAUTION

##### How to connect a tube

- When using a tube, cut it at right angles axially with the special tool (Tube Cutter/TC-16). Cutting it with scissors or nippers to cause a deformation may result in air leak or coming off.
- Fully insert the tube up to the tube end.
- Pull the tube lightly and check that it does not come off from the joint.

##### How to disconnect a tube

- Pull out the tube while pushing the release ring in parallel. Before pulling out the tube, be sure to discharge residual pressure.
- When reusing the disconnected tube, cut off the bitten portion of the tube.

### WIRING



#### WARNING

- **When doing wiring work, be sure to turn off compressed air, vacuum and power supplies beforehand.**

Wiring work without turning off air, vacuum and power supplies may cause an electric shock or malfunction, this sometimes results in an injury to the human body or a damage to property.

- **Avoid mis-wiring.**

Some solenoid valves have polarity : Those operating on DC with built-in indicator light and those equipped with surge protective circuit.

When wiring to a solenoid valve, check whether or not it has polarity.

For a solenoid valve having polarity, check the lead wire color and symbol of the polarity by the catalog or actual article beforehand and then make correct wiring.

- **Avoid applying stress and tensile force to lead wire repeatedly.**

Wiring made in such a manner that stress and tensile force are repeatedly applied to the lead wire will result in the breaking of wire. Provide some degree of margin for wiring.

- **Check that there is no insulation failure.**

If an insulation failure occurs in the lead wire connection, extension cable and terminal base, an excess flows to the switching element of the solenoid valve or control unit, sometimes resulting in a damage.

- **Do not mistake applied voltage.**

Mistake in applied voltage in case of wiring to a solenoid valve will cause an operation failure or burn out the coil.

- **After completion of wiring, check for wrong connection before turning on power.**

- **Do not supply power at the same time.**

Do not supply power to both double solenoid type valve and latch type solenoid valve at the same time.



## SOLENOID VALVES FOR VACUUM/COMMON INSTRUCTIONS ④

Be sure to read them before use.  
Also refer to Par. "For Safety Use" and instructions mentioned for each series of solenoid valves.

### OPERATING ENVIRONMENTS



#### DANGER

- Do not use solenoid valve in an explosive environment.



#### WARNING

- Do not use a solenoid valve in atmospheres containing corrosive gases, chemicals, seawater, water and vapor and in places where a solenoid valve contacts these matters.
- Do not use a solenoid valve in a place where vibrations or shocks are directly applied to it.
- When a solenoid valve is exposed to the direct sunlight, fit a protective cover to the solenoid valve.
- When a solenoid valve is located around a heat source, shut off the radiant heat.
- When installing a solenoid valve in the control panel, take proper heat-radiating measures so that the inside temperature may be kept within the specified temperature range.
- When using a solenoid valve in a place where it is exposed to welding spatters, provide a protective cover or other proper prevention.

Welding spatters may burn out the plastic parts of the solenoid valve, sometimes resulting in a fire.

### QUALITY OF AIR



#### WARNING

- Use pure air.

Compressed air containing corrosive gases, chemicals, salt, etc. causes a breakdown or operation failure. So do not use such air.



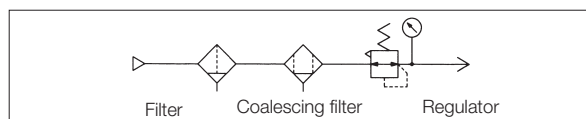
#### CAUTION

- Fit an air filter with filtration of 5  $\mu\text{m}$  or fine.
- Install an air dryer.

Compressed air containing much drainage causes the operation failure of pneumatic equipment. Install an air dryer, lower the temperature and reduce drainage.

- Take proper countermeasures against sludge.

If sludge produced in compressor oil enters pneumatic equipment, it will cause the operation failure of pneumatic equipment. It is recommendable to use compressor oil (NISSEKI FAIRCALL A68, IDEMITSU DAPHUNY SUPER CS68) featuring minimized sludge production or use a coalescing filter to prevent sludge from entering the pneumatic equipment.



### MAINTENANCE AND INSPECTION



#### WARNING

- Inspection before maintenance

First check that load drop prevention has been provided.  
Then shut off air and power supplies to the system and exhaust residual air in the system beforehand.

- Inspection after maintenance

When restarting the system, check that preventive measures against flying-out of the actuator have been taken. Then connect compressed air supply to the pneumatic system, and perform a proper functional test and a leak test to check that it works safely without fail, before starting the system.

- Operation at low frequency

To prevent an operation failure, perform the switching action of the solenoid valve once per 30 days. (Be careful of air supply.)

- Manual operation

When the solenoid valve is manually operated, the system connected to it is also operated. Make sure safety before operation.

- Disassembly of solenoid valve

When disassembling the solenoid valve, contact KURODA Pneumatics beforehand.



#### CAUTION

- Draining

To keep the quality of air to a certain level, drain the air filter at periodical intervals.

- Check and clean the vacuum filter and silencer everyday, and also change the element periodically.

Silting will deteriorate the performance.



## VA01 SERIES/INDIVIDUAL INSTRUCTIONS ①

Be sure to read them before use.  
Also refer to Par. "For Safety Use" and common instructions.

### MOUNTING



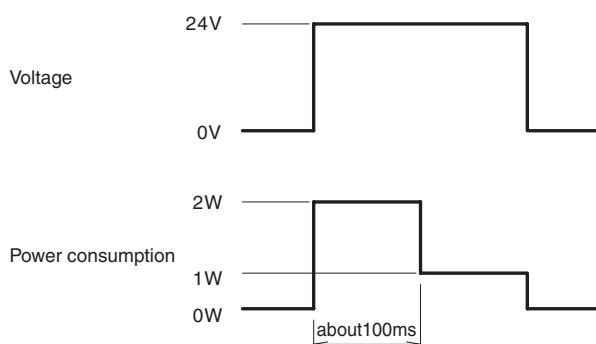
#### CAUTION

- When valve is mounted on sub-base or manifold, tighten set screws by the following clamping torque.

Valve No.	Screw size	Tightening torque (N·m)
VA01PSV23	M1.7	0.10~0.14
VA01PSP23		
VA01PLV23		
VA01PLP23		
VA01PEP34A	M1.7	0.12~0.20
VA01RDP33		
VA01PSC24	M2	0.12~0.20
VA01PLC24		

### ELECTRICAL WAVEFORM

- In order to realize quick response time, electrical waveform of VA01PSV23, VA01PSP23 and VA01PEP34A are the following.



### SIMULTANEOUS ENERGIZING



#### CAUTION

- Do not energize terminal 12 and 14 at the same time in case of using latching solenoid valve.

Latching solenoid valve has interlock circuit. In case of simultaneous energizing, the switching position is held, however, please note that indicator light is sometimes switched on.

For example, if electricity is turned on for terminal 12 (green), and then it is turned on for terminal 14 without turning off for terminal 12, valve keeps the air way position of terminal 12 side, however, indicator light of terminal 14 (red) side might be switched on.

In this case, turn off electricity for terminal 14 and indicator light of terminal 12 side will be switched on.

### CONTINUOUS ENERGIZING



#### WARNING

- Do not energize continuously for long time to VA01PS□23/24 (standard) and VA01PL□23/24.

In case of continuous energizing to the valve or continuous operating in short tact time, solenoid will generate heat, and seal and gasket will be damaged.

Therefore, air leak or wrong operation might be caused.

If continuous energizing or continuous operating in short tact time operation is necessary for those valves, please contact KURODA Pneumatics.



#### CAUTION

- Latching solenoid valve requires no continuous supply of power.

After switching by pulse signal, that position is held until reverse direction signal is input. However, set input signal at minimum required energizing time (50ms) or over.

### VACUUM BREAK ON VA01PEP34A



#### CAUTION

- Vacuum break with low air pressure

If operating pressure is less than 0.05MPa, enough vacuum break pressure will not output because of air leakage from atmospheric release port. (VA01PEP34A type valve has atmospheric release port, and leakage from atmospheric release port is originally on the assumption.)

### KEEPING VACUUM PRESSURE



#### CAUTION

- The solenoid valve cannot keep vacuum pressure for a long period of time when electricity is OFF.

As the solenoid valve is designed to allow a certain small degree of air leak, it cannot be used to keep vacuum pressure for a long period of time during electrical power is not supplied to the valve.



## VA01 SERIES/INDIVIDUAL INSTRUCTIONS ②

Be sure to read them before use.  
Also refer to Par. "For Safety Use" and common instructions.

### WIRING SPECIFICATIONS

#### • L type

Lead wire (AWG26 length 300 mm)



#### • P type

Connector with lead wire (AWG26 length 500 mm), side outlet (with indicator light & surge suppressor)



#### • U type

Connector with lead wire (AWG26 length 500 mm), upside outlet (with indicator light & surge suppressor)

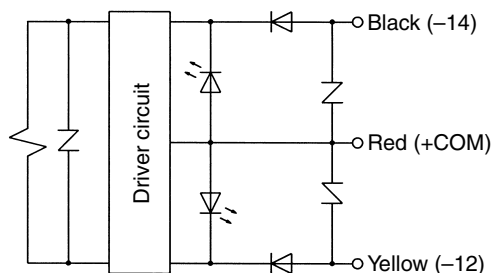


### CAUTION

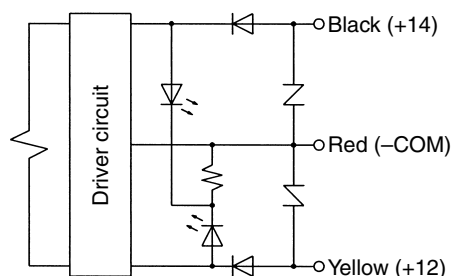
• Make connection by adjusting polarity to to  $\oplus$  and  $\ominus$  signs on the lamp cover.

#### • VA01PL□23, VA01PLC/RLC24

NPN type

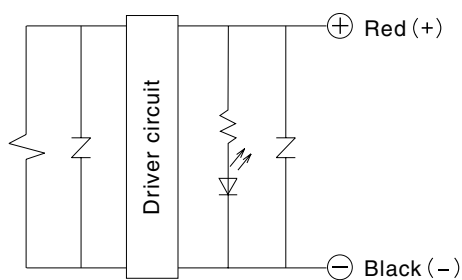


PNP type

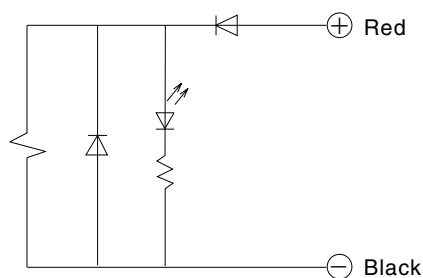


### INTERNAL CIRCUIT OF P & U TYPE

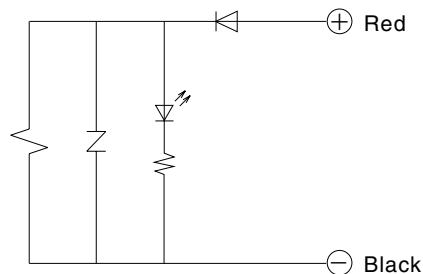
#### • VA01PSP23/VA01PSV23/VA01PEP34A



#### • VA01PSC24/VA01RDP33



#### • VA01HPSC24





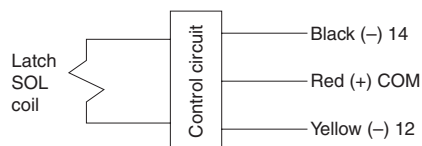
## VA01 SERIES/INDIVIDUAL INSTRUCTIONS ③

Be sure to read them before use.  
Also refer to Par. "For Safety Use" and common instructions.

### RELATION BETWEEN INPUT ELECTRIC SIGNAL AND VALVE OUTPUT

#### ⚠ CAUTION

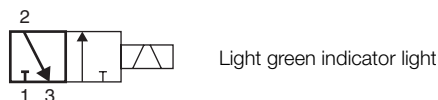
- Relation between input electric signal and valve output is as follows :



#### <Power supply and connection of solenoid valve>

##### • VA01PL□23

- ① Power is supplied to red (+) lead wire and yellow (-) lead wire.  
Port 1 will be closed.



- ② Power is supplied to red (+) lead wire and black (-) lead wire.  
Air way is connected between port 1 and port 2.



##### • VA01PLC/RLC24

- ① Power is supplied to red (+) lead wire and yellow (-) lead wire.  
Air way is connected between port 1 and port 2,  
and port 4 and port 3/5.



- ② Power is supplied to red (+) lead wire and black (-) lead wire.  
Air way is connected between port 1 and port 4,  
and port 2 and port 3/5.



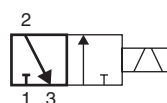
### MANUAL OPERATION

#### ⚠ CAUTION

- If valve is manually operated, the application will be started. Confirm that there is no problem or danger on the application before manual operation of valve.

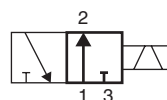
##### • VA01PL□23 valve is switched the air way position by the following manual operation.

- ① Push blue manual button on the valve body.  
Port 1 will be closed.



- ② Push white manual button on the valve body.

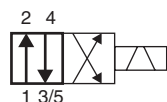
Air way is connected between port 1 and port 2.



##### • VA01PLC/RLC24 valve is switched the air way position by the following manual operation.

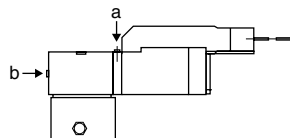
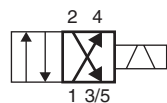
- ① Push manual button "a" (blue) on the valve body.

Air way is connected between port 1 and port 2,  
and port 4 and port 3/5.



- ② Push manual button "b" on the valve body.

Air way is connected between port 1 and port 4,  
and port 2 and port 3/5.





## VA01 SERIES/INDIVIDUAL INSTRUCTIONS ④

Be sure to read them before use.  
Also refer to Par. "For Safety Use" and common instructions.

### OPERATING PRINCIPLE OF LATCH TYPE SOLENOID VALVE

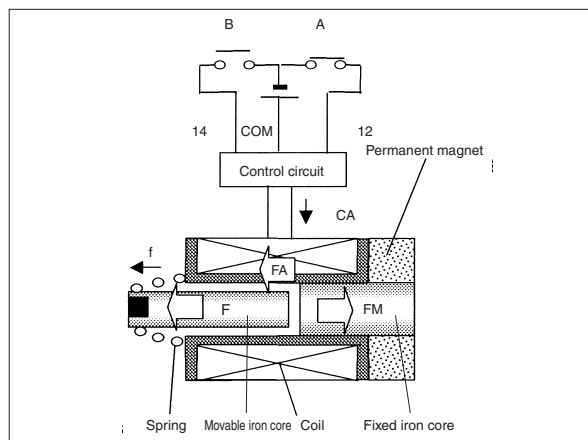
#### • Supplying power to Control Circuit 12

When turning on Contact A and supplying power to Control Circuit 12, force FA is generated to separate the movable iron core from the fixed iron core.

Force to which spring force f is added exceeds the attractive force FM of the permanent magnet, thereby separating the movable iron core from the fixed iron core by the force of  $F=FA+f-FM$ .

#### • No supplying power to Control Circuit 12

When turning off Contact A with the movable iron core separated from the fixed iron core, the movable iron core holds that state by spring force f.



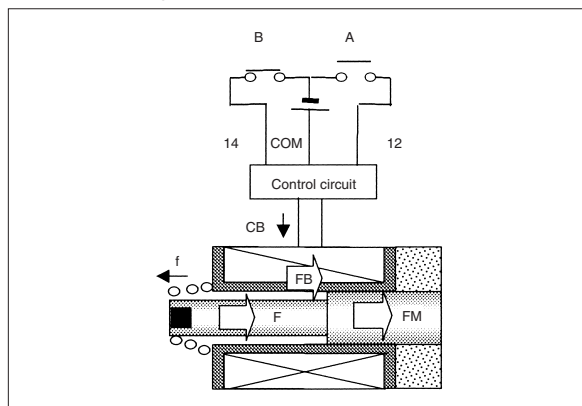
#### • Supplying power to Control Circuit 14

When turning on Contact B and supplying power to Control Circuit 14, force FB is generated to attract the movable iron core to the fixed iron core.

Force to which the attractive force FM of the permanent magnet is added exceeds the spring force, and thus the movable iron core is attracted to the fixed iron core by the force of  $F=FB+FM-f$ .

#### • No supplying power to Control Circuit 14

When turning off Contact B with the movable iron core attracted to the fixed iron core, the movable iron core is kept attracted by the permanent magnet.



## For vacuum and positive pressure control/ blow off operation



Miniature size 3-port 2-position direct-acting solenoid valve

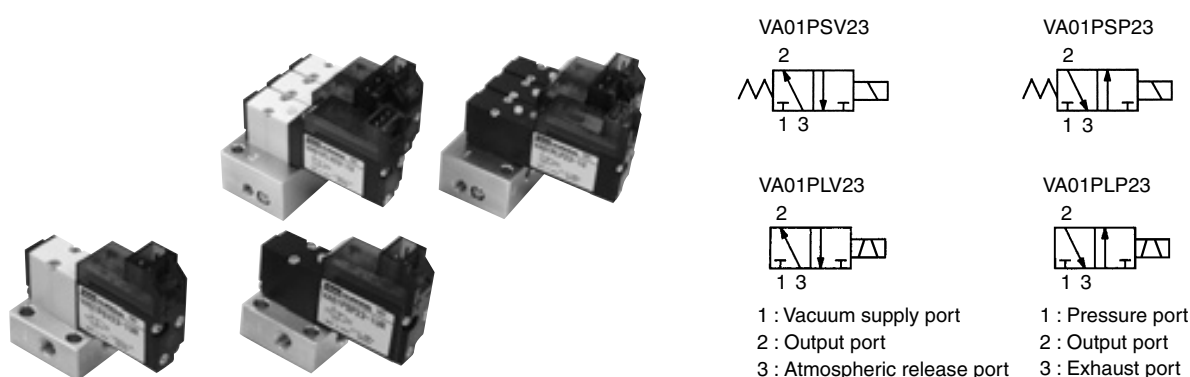
### VA01PSV23 for vacuum

### VA01PSP23 for positive pressure

Miniature size 3-port 2-position direct-acting latching solenoid valve

### VA01PLV23 for vacuum

### VA01PLP23 for positive pressure



- **Two types of models for vacuum control (white body) and positive pressure (black body)**

Easy to figure out vacuum control or positive pressure valve from valve body color.

- **Ultra quick response time**

Response time of latch type solenoid is 2ms and single solenoid is 3ms for turning on. Reliable stable operation is available. (VA01PSV23-1\_R/VA01PSP 23-1\_R)

Renewal electric circuit make response time up. Valve react high response by order.

- **Low power consumption**

New single solenoid valve mount low energy circuit and low power consumption is realized.

Hold is 1W (Inrush: 2W).

Keep the solenoid heat as low temperature and apply continuous energizing.

Compact valve is large flow (Cv 0.054).

- **Compact, light weight and large flow**

Very compact plastic body in 10mm width, weighting only 25g. (with sub-base)

Light and compact valve contribute for compact and light unit when valves are mounted on mounting head.

- **Oil free type is standardized.  
Extremely low particle.**

The original poppet structure, which as no friction parts without lubricating oil, realizes the extremely low particle from the valve.

- **One coil latch type solenoid**

Newly developed one coil latch type solenoid is incorporated !

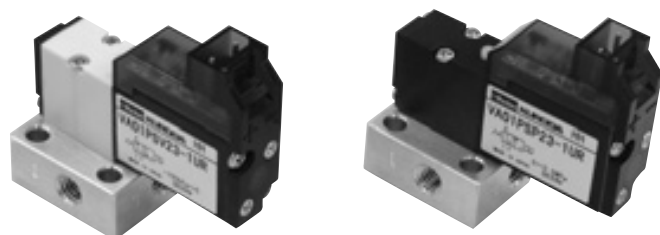
Detent mechanism to hold switching position with permanent magnet in one coil solenoid assures safety operations such as keeping suction by vacuum.

Miniature size 3-port 2-position direct-acting solenoid valve for vacuum 

**VA01PS/LV23** for vacuum

**VA01PS/LP23** for vacuum break (positive pressure)

**Poppet seal/Sub-base piping type**



## Specifications

Model No.	Unit	VA01PSV23	VA01PSP23	VA01PLV23	VA01PLP23
Fluid		Vacuum	Non-lubricated air	Vacuum	Non-lubricated air
Port size		M5			
Sonic conductance (C)	dm <sup>3</sup> (s·bar)	0.2	0.12	0.2	0.12
Effective area (Reference)	mm <sup>2</sup>	1.0	0.6	1.0	0.6
Cv value (Reference)		0.054	0.033	0.054	0.033
Pressure range		-100~0kPa	0~0.5MPa	-100~0kPa	0~0.5MPa
Ambient temperature	°C	-10~50		-5~50	
Response time	ON	ms	3	3	
	OFF	ms	3	—	
Min. energizing time	ms	—		50	
Shock resistance/vibration resistance	m/s <sup>2</sup>	150/50		150/50	
Mass	g	25		30	

(Note) • When using the valve for vacuum break at less than 5°C by supplying compressed air, use dry air passing through an air dryer to prevent dew condensation and freezing.

## Electrical Specifications

Model No.	Unit	VA01PSV23	VA01PSP23	VA01PLV23	VA01PLP23
Rated voltage	V	DC24			
Allowable voltage fluctuation	%	±10			
Heat resistance grade		JIS grade B			
Power consumption	W	1 (Holding), 2 (Inrush)		2	
Wiring	g	Lead wire, connector with lead wire		Connector with lead wire	

# Miniature size 3-port 2-position direct-acting solenoid valve

## Ordering instruction

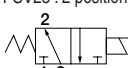
### Solenoid valve

VA01 PSV23 - 1 L - L5

①                      ② ③ ④                      ⑤

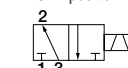
#### ① Function

PSV23 : 2 position single solenoid/for vacuum



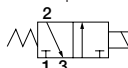
1:Vacuum supply port  
2:Output port  
3:Atmospheric release port

PLV23 : 2 position latching solenoid/for vacuum



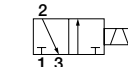
1:Vacuum supply port  
2:Output port  
3:Atmospheric release port

PSP23 : 2 position single solenoid/for vacuum break



1:Pressure port  
2:Output port  
3:Exhaust port

PLP23 : 2 position latching solenoid/for vacuum break



1:Pressure port  
2:Output port  
3:Exhaust port

#### ② Voltage

1	DC24V
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#### ③ Wiring specifications

##### ● Case of VA01PS□23

L	Lead wire
PR	Connector with lead wire, Side outlet (With indicator light & surge suppressor)
UR	Connector with lead wire, Upside outlet (With indicator light & surge suppressor)

##### ● Case of VA01PL□23

##### NPN type

P	Connector with lead wire, Side outlet (With indicator light & surge suppressor)
U	Connector with lead wire, Upside outlet (With indicator light & surge suppressor)

##### PNP type

PM	Connector with lead wire, Side outlet (With indicator light & surge suppressor)
UM	Connector with lead wire, Upside outlet (With indicator light & surge suppressor)

#### ④ Wiring accessories

No mark	Without connector
E	Connector with lead wire (Length : 500mm)

#### ⑤ Port size

No mark	Without sub-base
L5	M5×0.8 (Sub-base with mounting screw hole, M3)

(Note) Model without sub-base is provided with mounting screws and a base gasket.

### Manifold

MFS   - V01 V3 CC - M5

①                      ② ③ ④

#### ① Number of stations

2	2stations
⋮	⋮
10	10stations

#### ④ Port size

M5	M5×0.8
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#### ② Type of valve

V3	P□V23 for vacuum
P3	P□P23 for positive pressure

#### ③ Manifold specifications

CC	Common SUP, common EXH
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#### Blank plate (with 2 screws and a gasket)

Model No.	V23-BP
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#### Connector with lead wire

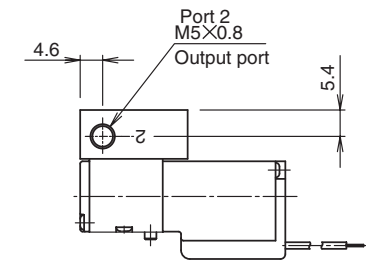
Lead wire length	Model No.	
	PSV/PSP	PLV/PLP
500mm	PC2-D24-CL5 (Standard)	PCL2-D24-CL5 (Standard)
1000mm	PC2-D24-CL10	PCL2-D24-CL10
3000mm	PC2-D24-CL30	PCL2-D24-CL30

# Miniature size 3-port 2-position direct-acting solenoid valve

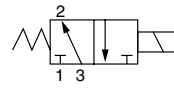
## Ordering instruction

(Unit : mm)

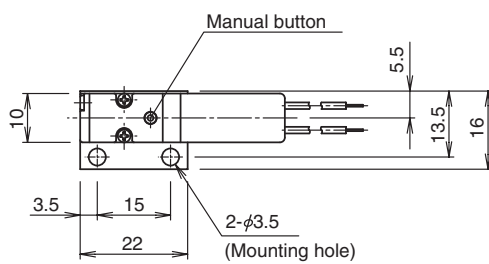
VA01PS□23-1□E-L5 (Sub-base with mounting screw hole, M3)



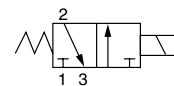
VA01PSV23



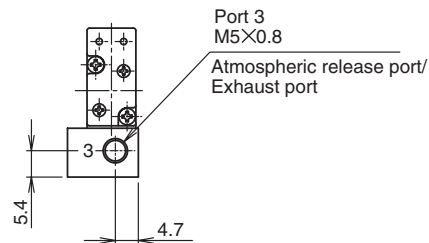
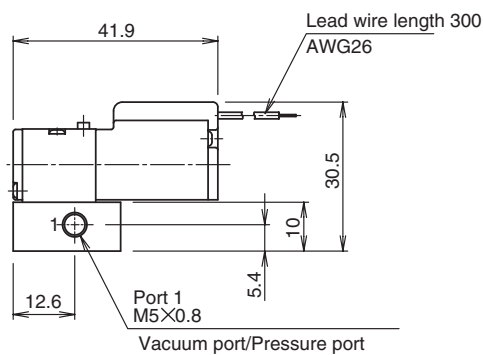
- 1: Vacuum supply port
- 2: Output port
- 3: Atmospheric release port



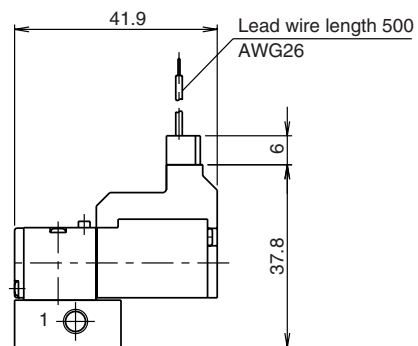
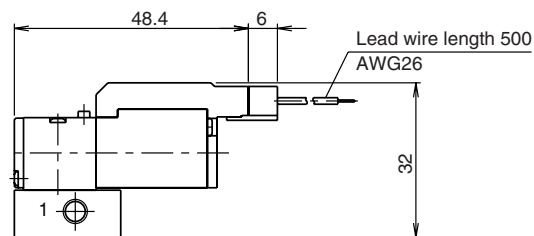
VA01PSP23



- 1: Pressure port
- 2: Output port
- 3: Exhaust port



**L type**



**P type**

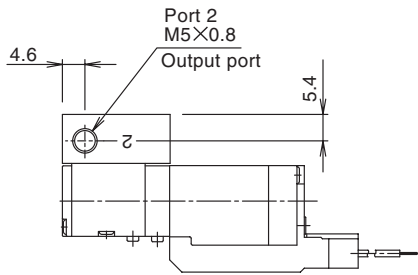
**U type**

# Miniature size 3-port 2-position direct-acting solenoid valve

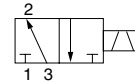
## Dimensions

(Unit : mm)

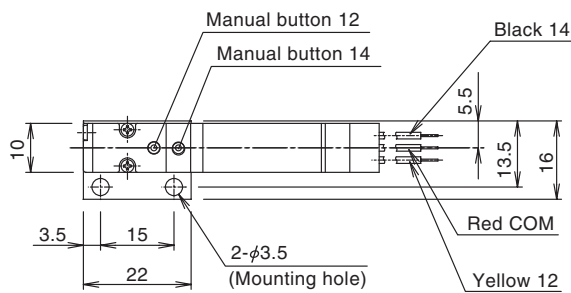
VA01PL□23-1□E-L5 (Sub-base with mounting screw hole, M3)



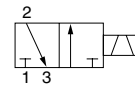
VA01PLV23



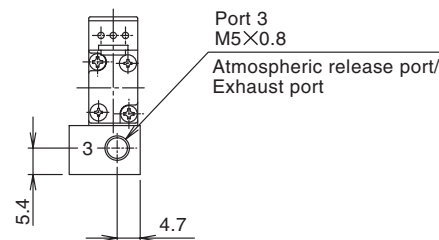
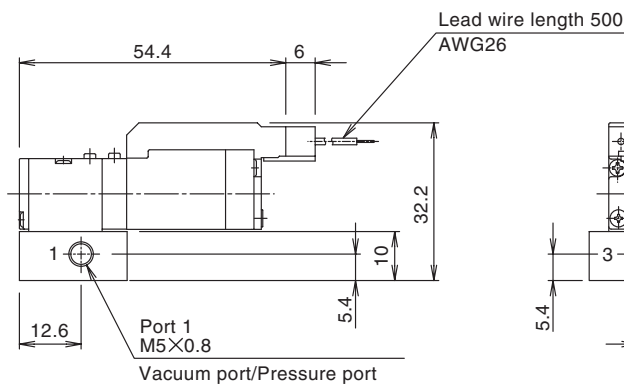
- 1 : Vacuum supply port
- 2 : Output port
- 3 : Atmospheric release port



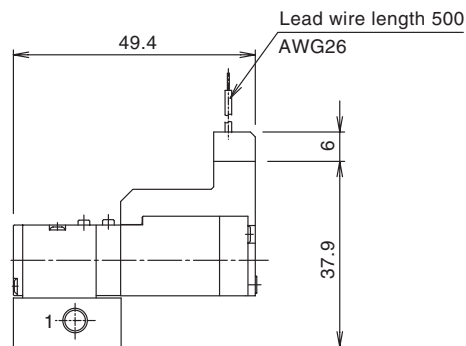
VA01PLP23



- 1 : Pressure port
- 2 : Output port
- 3 : Exhaust port



**P type**



**U type**

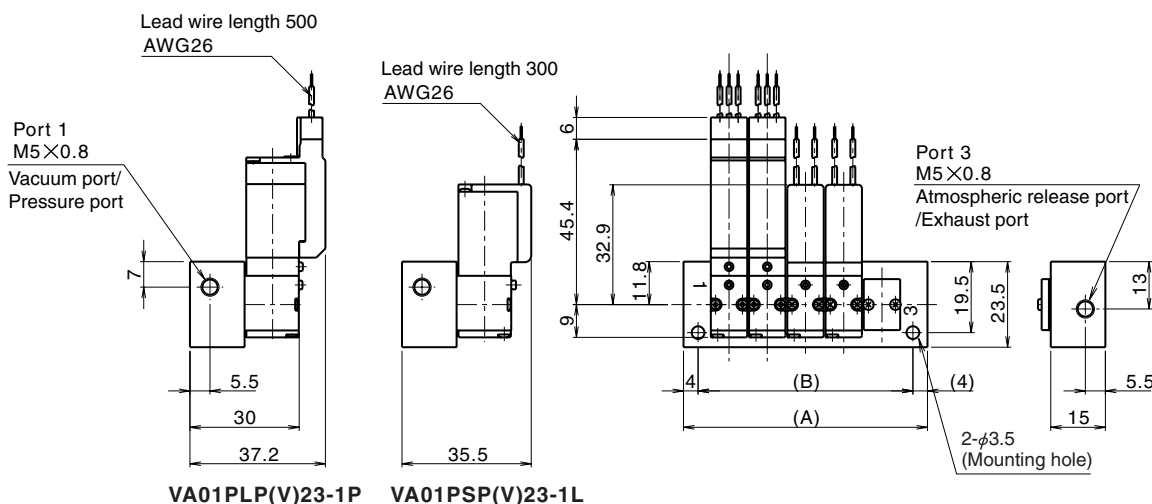
# Miniature size 3-port 2-position direct-acting solenoid valve

## Dimensions

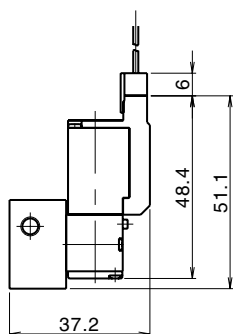
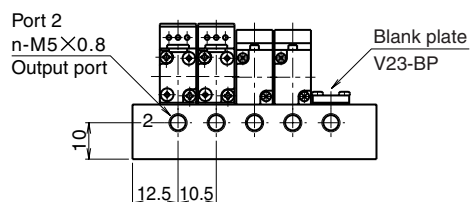
Manifold

(Unit : mm)

MFS□-V01



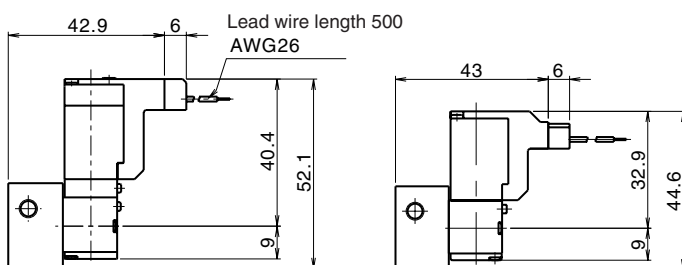
VA01PLP(V)23-1P VA01PSP(V)23-1L



VA01PSP(V)23-1PR

n	A	B
2	35.5	27.5
3	46	38
4	56.5	48.5
5	67	59
6	77.5	69.5
7	88	80
8	98.5	90.5
9	109	101
10	119.5	111.5

n : Number of stations



VA01PLP(V)23-1U

VA01PSP(V)23-1UR

# For vacuum, positive pressure control/blow off operation and air cylinder control operation

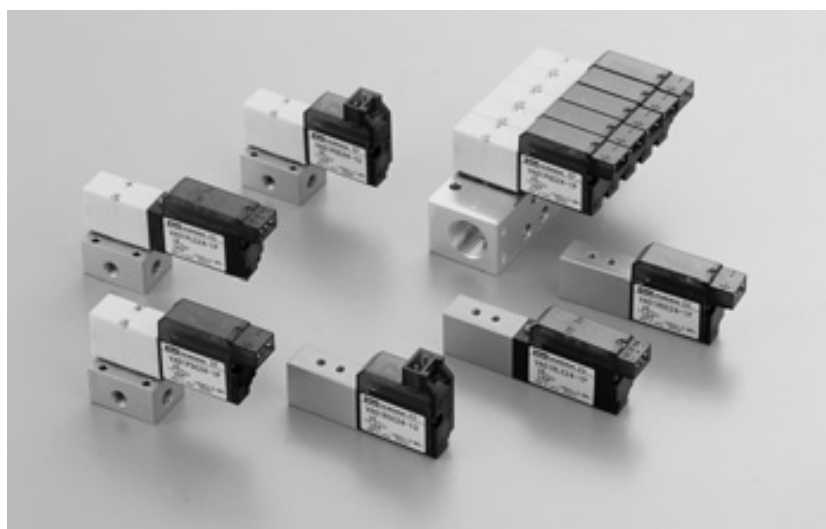
Miniature size 4-port 2-position direct-acting solenoid valve

**VA01PSC24** Single solenoid, Sub-base piping type

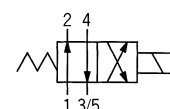
**VA01PLC24** Latching solenoid, Sub-base piping type

**VA01RSC24** Single solenoid, In-line piping type

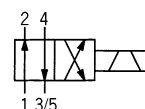
**VA01RLC24** Latching solenoid, In-line piping type



VA01PSC24/RSC24



VA01PLC24/RLC24



- **Exceedingly long life. 500 million cycles. (Under the test condition of KURODA Pneumatics.)**

The reliable double poppets structure, which has the reliance over many years in "PC1 series" is applied.

- **Ultra quick response time/Stable operation**

Balanced poppets and direct solenoid mechanism make it available for quick and stable response time.

(Latch solenoid type: ON/OFF  $2\pm 1$ ms, Single solenoid type: ON/OFF  $3\pm 1$ ms (VA01HPSC24). Under the test condition of KURODA Pneumatics.)

- **Compact/Light weight/Large flow**

Compact valve (Body width 10mm) is possible to operate large flow (C value  $0.2\text{dm}^3/(\text{s}\cdot\text{bar})$ ). Furthermore, resin body (Sub-base type) realizes light weight. (Single solenoid type with sub-base: 33.5g)

- **Both vacuum and positive pressure are available.**

Balanced poppets structure operates both vacuum and positive pressure ( $-100\text{kPa}\sim 0.8\text{MPa}$ ) in one valve.

- **Oil free is standardized, and extremely low particle. Clean !!**

Double poppets structure, which has no friction parts without lubricating oil, realizes the extremely clean air blow. Furthermore, the direct operated solenoid has no valve breathing and pilot air exhaust, and the valve does not pollute outside environment.

- **One coil latch type solenoid**

Newly developed one coil latch type solenoid realizes more compact valve body.

(20% less volume. Ratio of KURODA Pneumatics)

Detent mechanism, which holds the air switching positions by permanent magnet, is ideal for keeping vacuum position in case of power cut.

# 4-port 2-position direct-acting solenoid valve CE

## VA01PSC24/PLC24

### Poppet seal/Sub-base piping type



### Specifications

Model No.	Unit	VA01PSC24	VA01HPSC24	VA01PLC24
Fluid		Non-lubricated air		
Port size		M5		
Sonic conductance (C)	dm <sup>3</sup> /(s·bar)	0.2		
Critical pressure ratio		0.3		
Effective area (Reference)	mm <sup>2</sup>	(1)		
Cv value (Reference)		(0.05)		
Ambient temperature	°C	-5~50		
Pressure range		-100kPa~0.8 MPa		
Response time	ON	4.5	3	2
	OFF	1 (4.5)	1.5	2
Manual override		Non-lock type push button		
Min. energizing time	ms	—		50
Mounting position		Free		
Shock resistance/vibration resistance	m/s <sup>2</sup>	150/30		
Mass	g	33.5		36.0

- (Note) • Sonic speed conductance, critical pressure ratio, effective area and Cv value shown above are value between port 1 and 4.  
 • When temperature of valve site goes down below 5°C, complete dry air shall be supplied to prevent from freezing.  
 • Response time in bracket ( ) shows with surge suppressor.

### Electrical Specifications

Model No.	Unit	VA01PSC24	VA01HPSC24	VA01PLC24
Rated voltage	V	DC24		
Allowable voltage fluctuation	%	±10		
Power consumption	W	2	4	2
Heat resistance grade		JIS grade B		
Wiring		Lead wire, Connector with lead wire	Connector with lead wire	
Surge suppressor		Diode	Varistor	
Indicator light		LED		

- (Note) • Surge suppressor and indicator light are not available for Lead wire type.

# 4-port 2-position direct-acting solenoid valve

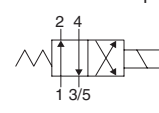
## Ordering instruction

**VA01PSC24 - 1 PE - M5**  

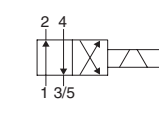
①
②
③
④
⑤

**① Function**

VA01PSC24 : Standard  
VA01HPSC24 : Quick response



VA01PLC24 : Standard



**③ Wiring specifications**

● Case of VA01PSC24, VA01HPSC24

L	Lead wire
P	Connector with lead wire, Side outlet (With indicator light & surge suppressor)
U	Connector with lead wire, Upside outlet (With indicator light & surge suppressor)

● Case of VA01PLC24

NPN type

P	Connector with lead wire, Side outlet (With indicator light & surge suppressor)
U	Connector with lead wire, Upside outlet (With indicator light & surge suppressor)

PNP type

PM	Connector with lead wire, Side outlet (With indicator light & surge suppressor)
UM	Connector with lead wire, Upside outlet (With indicator light & surge suppressor)

**④ Wiring accessories**

No mark	Without connector
E	Connector with lead wire (Length:500mm)

**⑤ Port size**

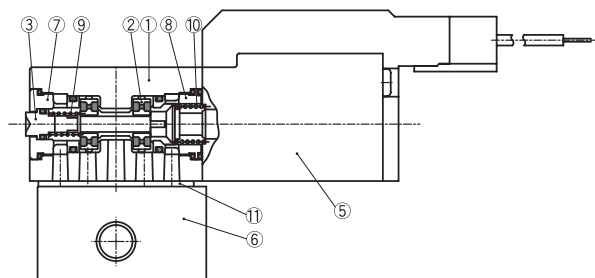
No mark	Without sub-base
M3	Without sub-base, M3X0.5 body ported for manifold MFU type only
M5	M5X0.8 (Sub-base with mounting screw hole, M2)
L5	M5X0.8 (Sub-base with mounting screw hole, M3)

**Connector with lead wire**

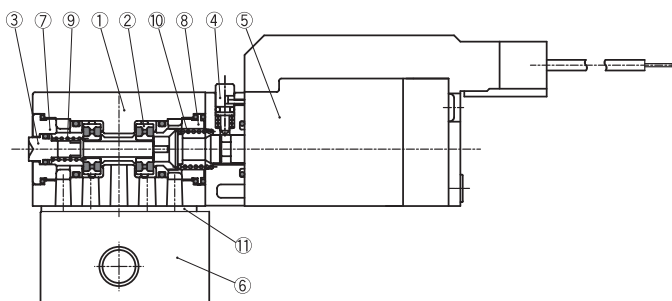
Lead wire length	Model No.	
	PSC	PLC
500mm	PC2-D24-CL5 (Standard)	PLC2-D24-CL5 (Standard)
1000mm	PC2-D24-CL10	PLC2-D24-CL10
3000mm	PC2-D24-CL30	PLC2-D24-CL30

## Constructions

### VA01PSC24



### VA01PLC24



## Main components

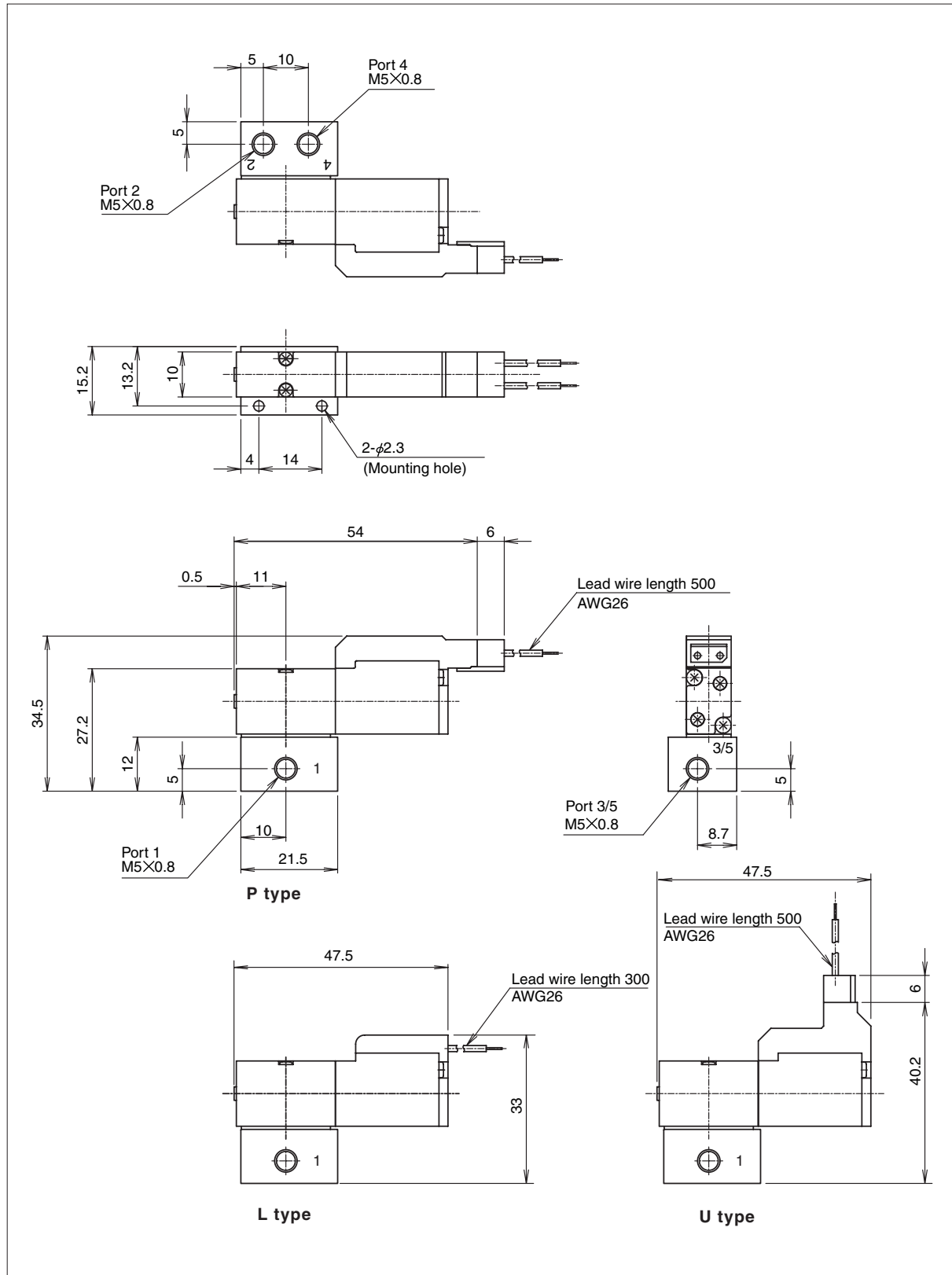
No.	Description	Material
①	Body	Synthetic resins
②	Poppet ass'y	—
③	Manual override 14	Copper alloy
④	Manual override 12	Synthetic resins
⑤	Solenoid ass'y	—
⑥	Sub-base	Aluminium alloy
⑦	Valve seat E	Copper alloy
⑧	Valve seat S	Copper alloy
⑨	Spring V	Stainless steel
⑩	Spring	Stainless steel
⑪	Base gasket	NBR+Stainless steel

# 4-port 2-position direct-acting solenoid valve

## Dimensions

VA01PSC24-1※E-M5, VA01HPSC24-1※E-M5 (Sub-base with mounting screw hole, M2)

(Unit : mm)

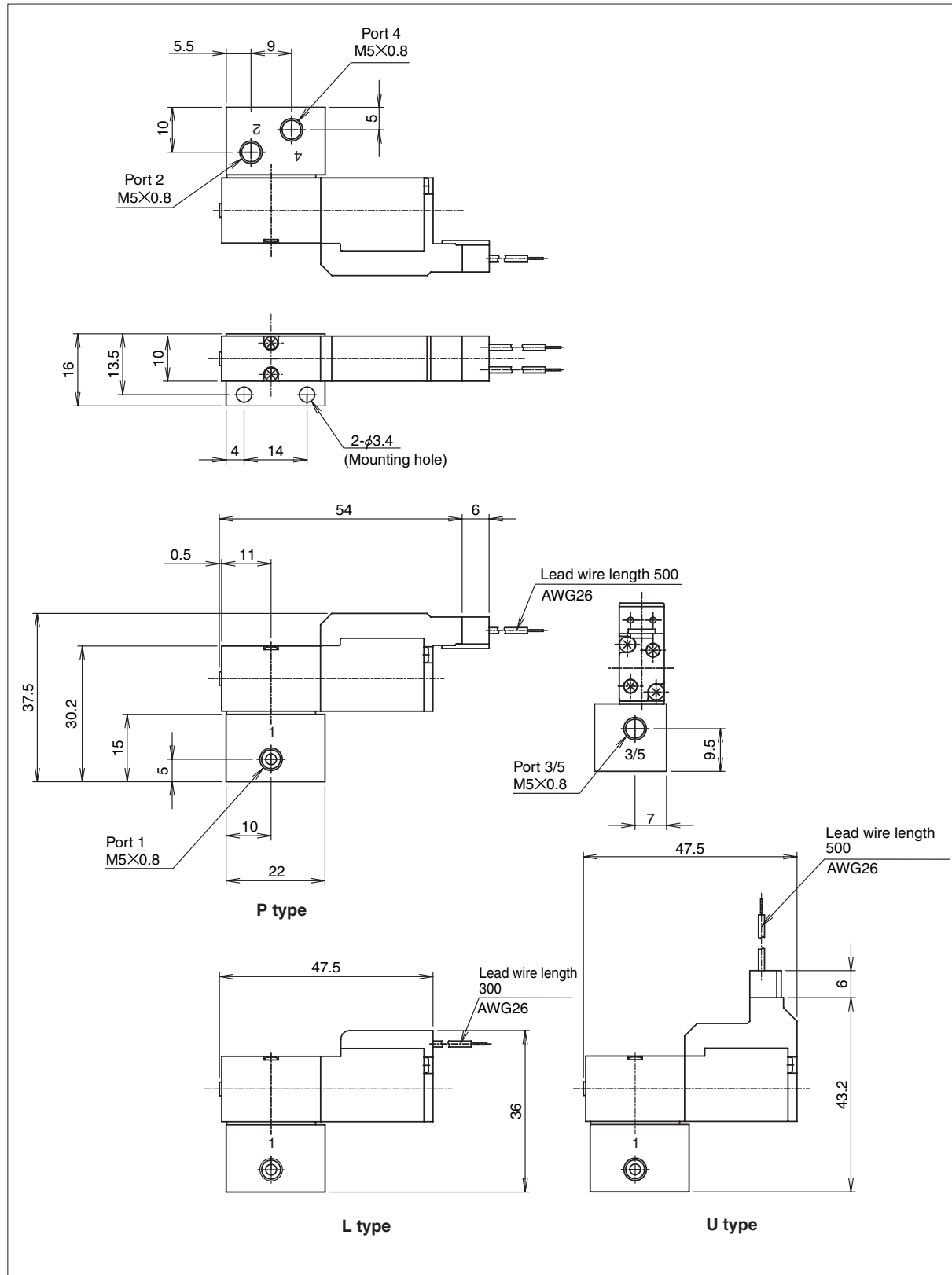


# 4-port 2-position direct-acting solenoid valve

## Dimensions

VA01PSC24-1※E-L5, VA01HPSC24-1※E-L5 (Sub-base with mounting screw hole, M3)

(Unit : mm)

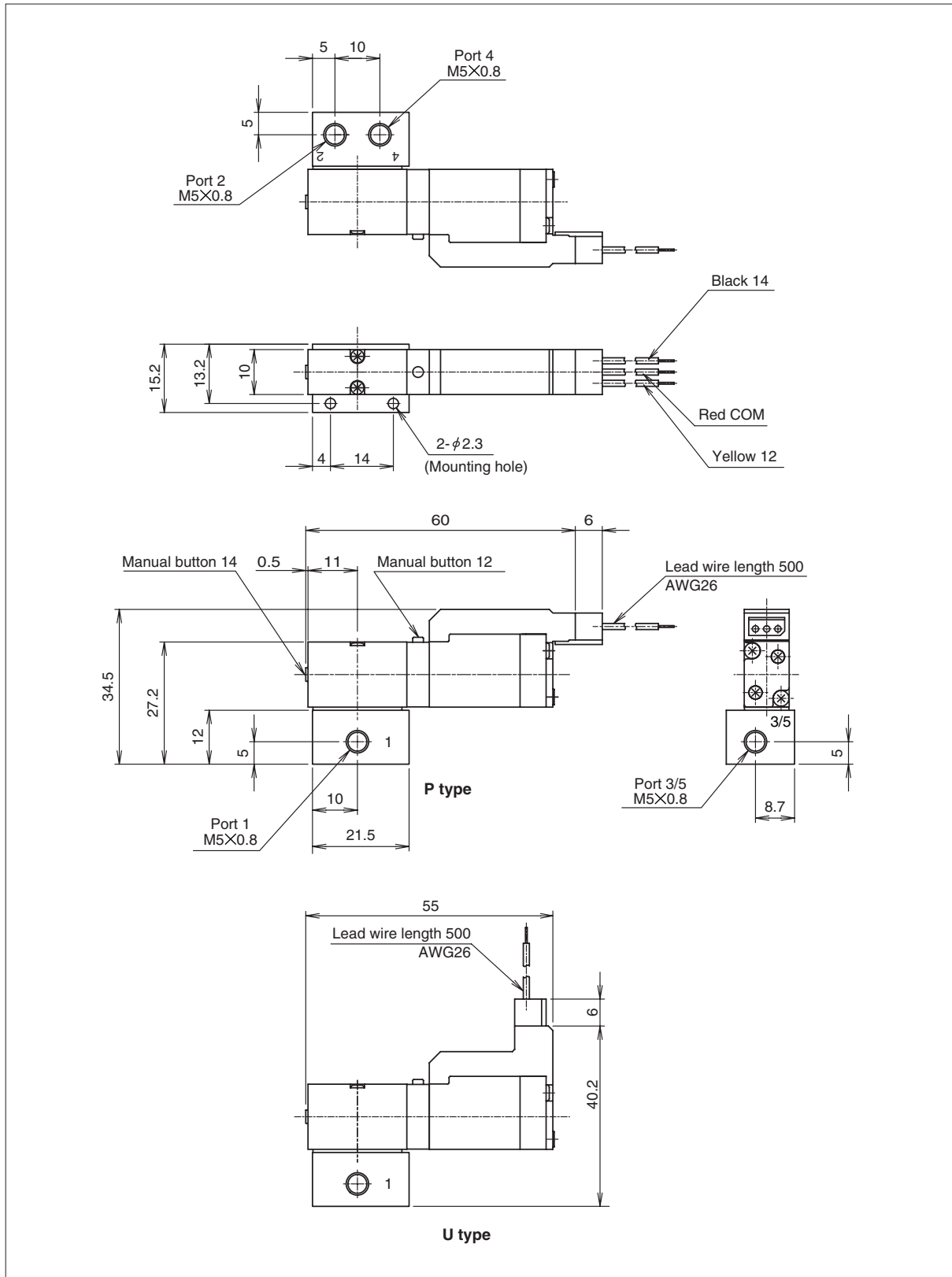


# 4-port 2-position direct-acting solenoid valve

## Dimensions

VA01PLC24-1※E-M5 (Sub-base with mounting screw hole, M2)

(Unit : mm)

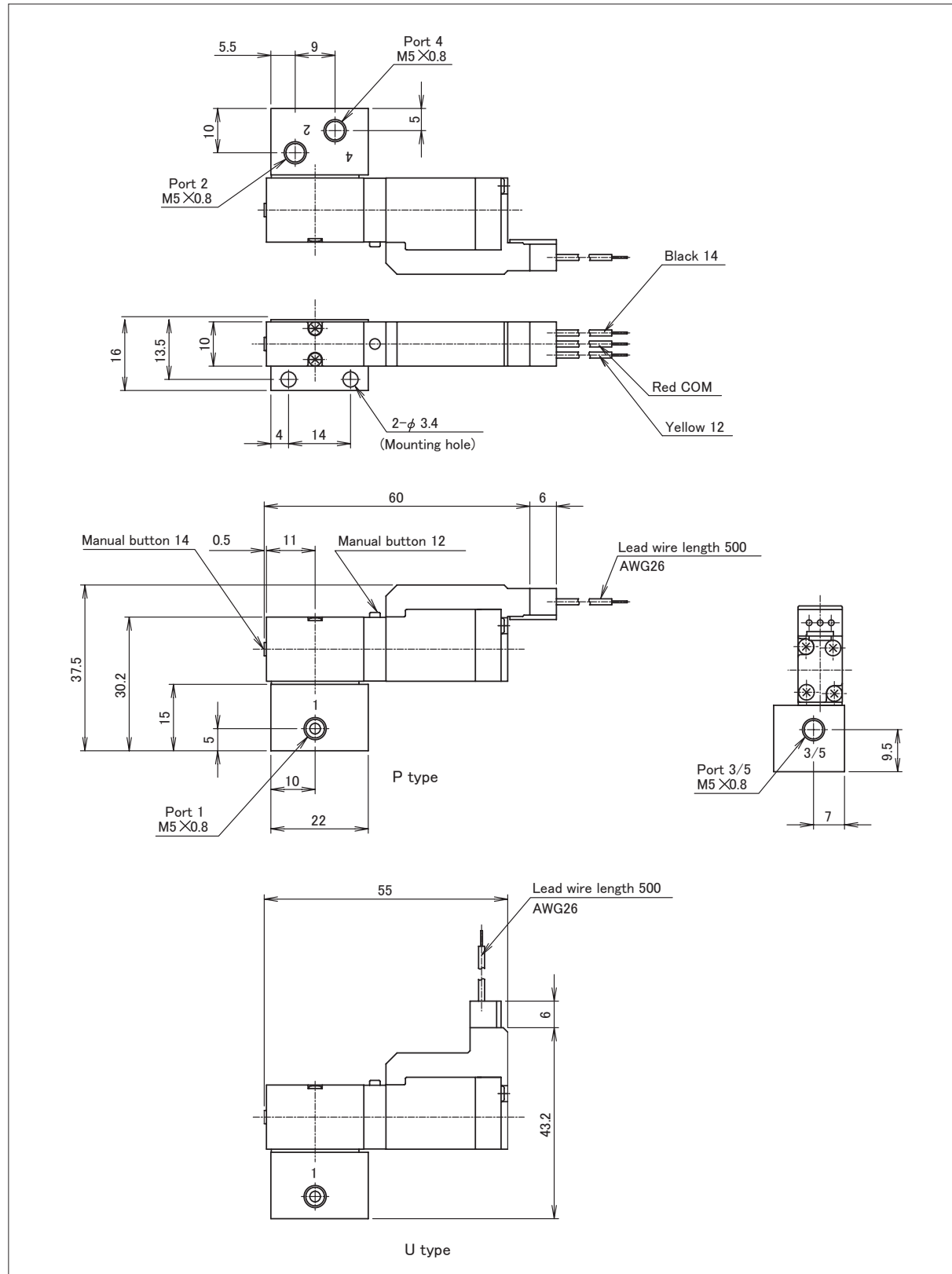


# 4-port 2-position direct-acting solenoid valve

## Dimensions

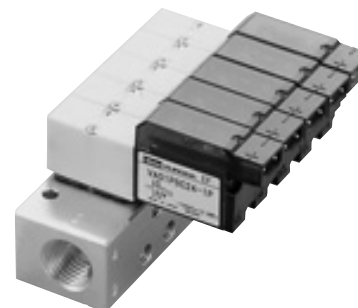
VA01PLC24-1 ※ E-L5 (Sub-base with mounting screw hole, M3)

(Unit : mm)



# Individual Wiring Type Manifold

# MF○-V01



## Manifold specifications

Type of manifold		MFS		MFD
		Common SUP, Common EXH Ports 2 & 4 on side		Common SUP, Common EXH Ports 2 & 4 on side
Port size	Port 1	M5 (Both sides)	Rc1/8(Both sides)	Rc1/4 (One side)
	Port 3/5	M5 (Both sides)	Rc1/8(Both sides)	Rc1/4 (One side)
	Port 2, 4	M3	M5	M5
Number of stations		2~20		
Mountable solenoid valve		VA01PSC24 VA01HPSC24 VA01PLC24		
Blank plate		PC1-BP		

## Ordering instruction

**Manifold**

MFS
10
-
V01PV
CC
-
M5

①
②
③
④
⑤
⑥

**① Type of manifold**

	Port 2, 4
MFS	Manifold body side ported (Ports 1, 3/5 on both sides)
MFD	Manifold body side ported (Ports 1, 3/5 on one side)

**② Number of stations**

2	2 station
⋮	⋮
20	20 station

**③ Mountable solenoid valve**

V01PV	VA01 series
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**④ Manifold specifications**

CC	Common SUP, Common EXH
----	------------------------

**⑤ Option**

No mark	Standard
B	With bracket

**⑥ Port size of port 2, 4**

M3	M3×0.5 (Only MFS)
M5	M5×0.8

**Blank plate (with 2 screws and a gasket)**

Model No.	V24-BP
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## Ordering information

To order the valves with the manifold, use the notation described on the right. Specify model numbers and quantities for manifold and valves.

[Example] MFS5-V01PVCC-M5  
VA01PSC24-1P—2pcs.  
VA01PLC24-1P—3pcs.

# 4-port 2-position direct-acting solenoid valve

## Ordering instruction

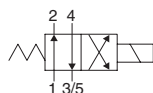
Mountable solenoid valve

VA01PSC24 - 1 P E

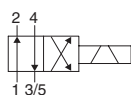
①                      ② ③ ④

### ① Function

VA01PSC24 : Standard  
VA01HPSC24 : Quick response



VA01PLC24 (Standard)



### ② Voltage

1	DC24V
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### ③ Wiring

#### ● Case of VA01PSC24, VA01HPSC24

L	Lead wire (For VA01PSC24)
P	Connector with lead wire, Side outlet (With indicator light & surge suppressor)
U	Connector with lead wire, Upside outlet (With indicator light & surge suppressor)

#### ● Case of VA01PLC24

##### NPN type

P	Connector with lead wire, Side outlet (With indicator light & surge suppressor)
U	Connector with lead wire, Upside outlet (With indicator light & surge suppressor)

##### PNP type

PM	Connector with lead wire, Side outlet (With indicator light & surge suppressor)
UM	Connector with lead wire, Upside outlet (With indicator light & surge suppressor)

### ④ Wiring accessories

No mark	Without connector
E	Connector with lead wire (Length:500mm)

### Connector with lead wire

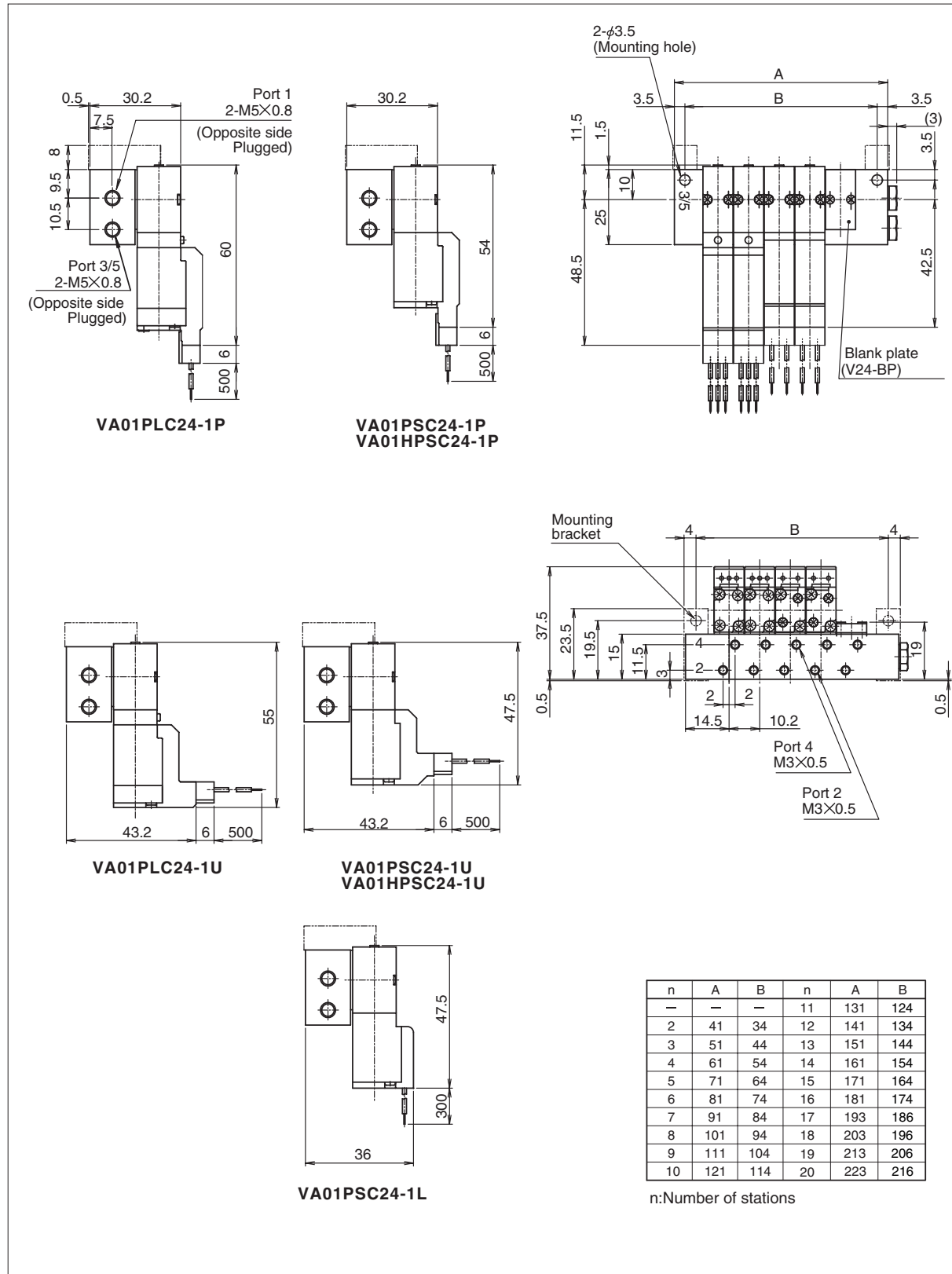
Lead wire length	Model No.	
	PSC	PLC
500mm	PC2-D24-CL5 (Standard)	PLC2-D24-CL5 (Standard)
1000mm	PC2-D24-CL10	PLC2-D24-CL10
3000mm	PC2-D24-CL30	PLC2-D24-CL30

# 4-port 2-position direct-acting solenoid valve

## Dimensions

MFS□-V01PVCC(B)-M3

(Unit : mm)

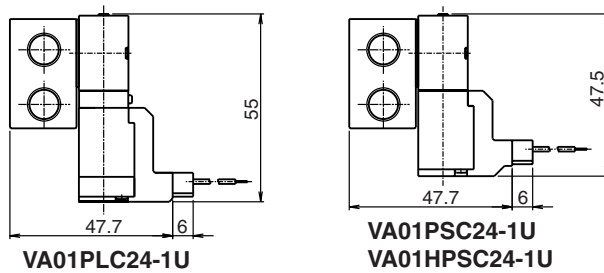
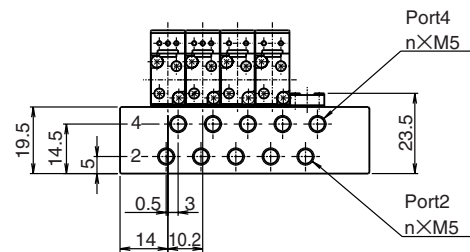
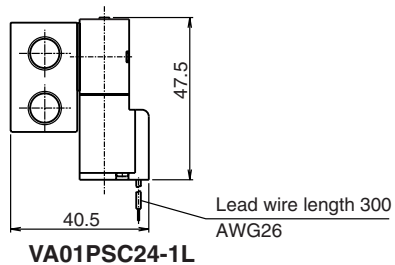
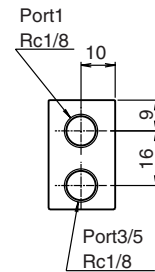
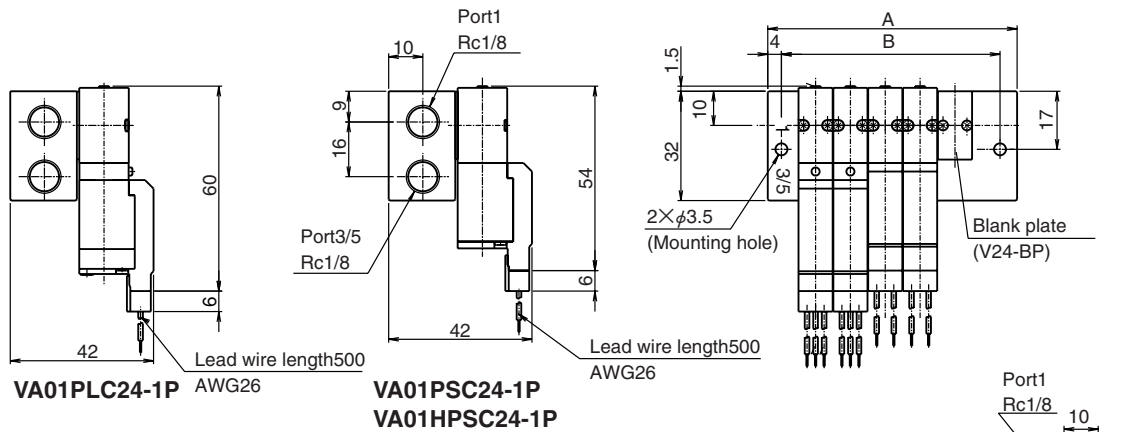


# 4-port 2-position direct-acting solenoid valve

## Dimensions

MFS□-V01PVCC-M5

(Unit : mm)



n	A	B	n	A	B
—	—	—	11	133	124
2	43	34	12	143	134
3	53	44	13	153	144
4	63	54	14	163	154
5	73	64	15	174	164
6	83	74	16	184	174
7	93	84	17	194	186
8	103	94	18	204	196
9	113	104	19	214	206
10	123	114	20	225	216

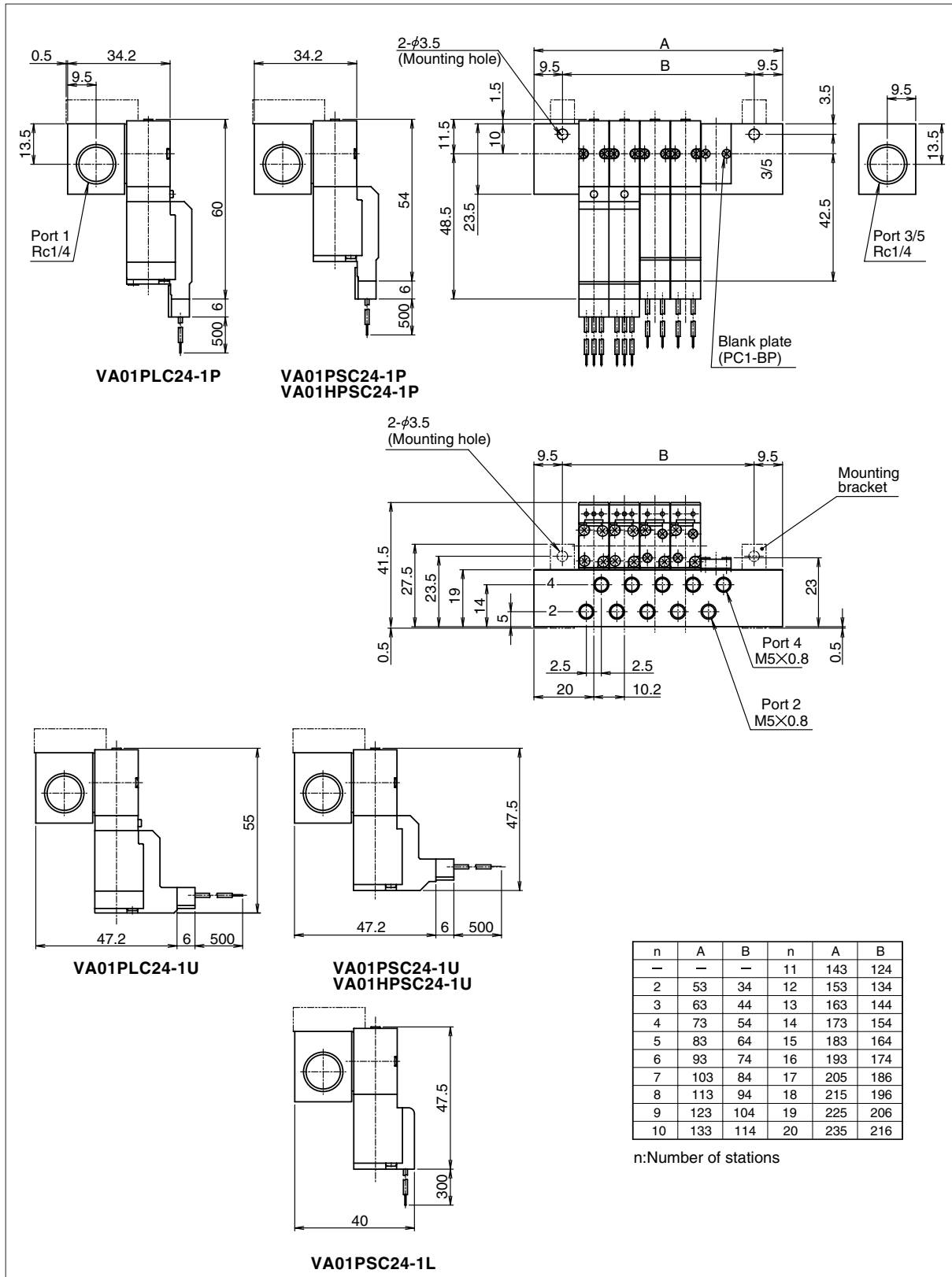
n: Number of stations

# 4-port 2-position direct-acting solenoid valve

## Dimensions

MFD□-V01PVCC(B)-M5

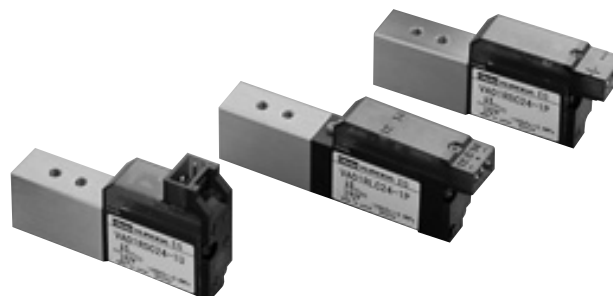
(Unit : mm)



# 4-port 2-position direct-acting solenoid valve CE

# VA01RSC24/RLC24

## Poppet seal/In-line piping type



### Specifications

Model No.	Unit	VA01RSC24	VA01HRSC24	VA01RLC24
Fluid		Non-lubricated air		
Port size		M3		
Sonic conductance (C)	dm <sup>3</sup> /(s·bar)	0.2		
Critical pressure ratio		0.3		
Effective area (Reference)	mm <sup>2</sup>	(1)		
Cv value (Reference)		(0.05)		
Ambient temperature	°C	-5~50		
Pressure range		-100kPa~0.8 MPa		
Response time	ON	4.5	3	2
	OFF	1 (4.5)	1.5	2
Manual override		Non-lock type push button		
Min. energizing time	ms	—		50
Mounting position		Free		
Shock resistance/vibration resistance	m/s <sup>2</sup>	150/30		
Mass	g	26.3		28.9

- (Note) • Sonic speed conductance, critical pressure ratio, effective area and Cv value shown above are value between port 1 and 4.  
 • When temperature of valve site goes down below 5°C, complete dry air shall be supplied to prevent from freezing.  
 • Response time in bracket ( ) shows with surge suppressor.

### Electrical Specifications

Model No.	Unit	VA01RSC24	VA01HRSC24	VA01RLC24
Rated voltage	V	DC24		
Allowable voltage fluctuation	%	±10		
Power consumption	W	2	4	2
Heat resistance grade		JIS grade B		
Wiring		Lead wire, Connector with lead wire	Connector with lead wire	
Surge suppressor		Diode	Varistor	
Indicator light		LED		

- (Note) • Surge suppressor and indicator light are not available for Lead wire type.

# 4-port 2-position direct-acting solenoid valve

## Ordering instruction

**VA01RSC24** - **1** **PE** - **M3** - **B**

①
②
③
④
⑤

**① Function**

VA01RSC24 : Standard  
VA01HRSC24 : Quick response

2 4  
1 3/5

---

VA01RLC24 : Standard

2 4  
1 3/5

**③ Wiring specifications**

● Case of VA01RSC24, VA01HRSC24

L	Lead wire (For VA01PSC24)
P	Connector with lead wire, Side outlet (With indicator light & surge suppressor)
U	Connector with lead wire, Upside outlet (With indicator light & surge suppressor)

● Case of VA01RLC24

NPN type

P	Connector with lead wire, Side outlet (With indicator light & surge suppressor)
U	Connector with lead wire, Upside outlet (With indicator light & surge suppressor)

PNP type

PM	Connector with lead wire, Side outlet (With indicator light & surge suppressor)
UM	Connector with lead wire, Upside outlet (With indicator light & surge suppressor)

**④ Wiring accessories**

No mark	Without connector
E	Connector with lead wire (Length:500mm)

**⑤ Port size**

M3	M3X0.5
----	--------

**⑥ Option**

No mark	Standard
B	With mounting bracket

**② Voltage**

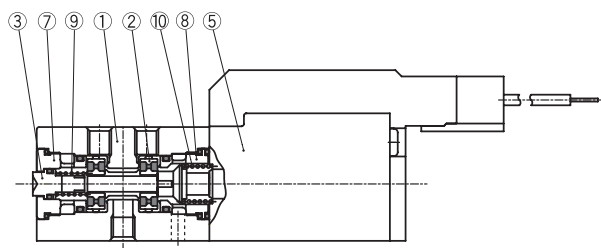
1	DC24V
---	-------

**Connector with lead wire**

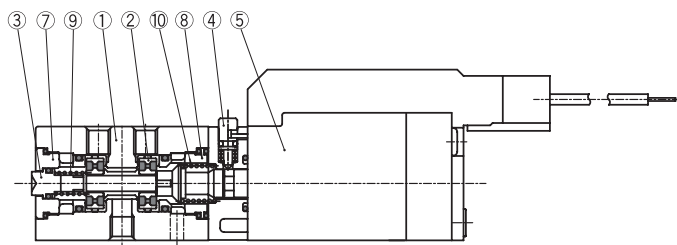
Lead wire length	Model No.	
	RSC	RLC
500mm	PC2-D24-CL5 (Standard)	PCL2-D24-CL5 (Standard)
1000mm	PC2-D24-CL10	PCL2-D24-CL10
3000mm	PC2-D24-CL30	PCL2-D24-CL30

## Constructions

### VA01RSC24



### VA01RLC24



## Main components

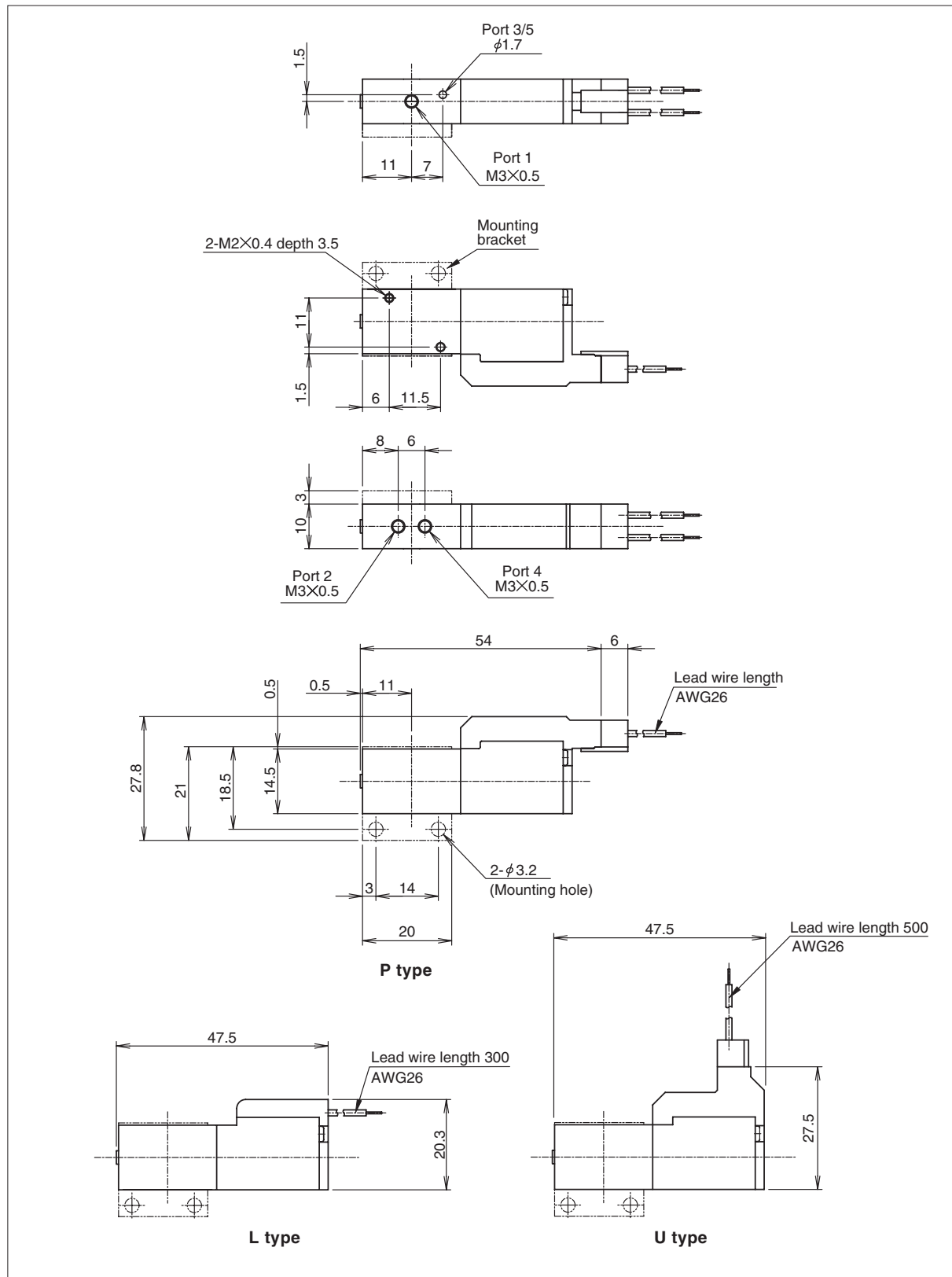
No.	Description	Material
①	Body	Aluminium alloy
②	Poppet ass'y	-
③	Manual override 14	Copper alloy
④	Manual override 12	Synthetic resins
⑤	Solenoid ass'y	-
⑦	Valve seat E	Copper alloy
⑧	Valve seat S	Copper alloy
⑨	Spring V	Stainless steel
⑩	Spring	Stainless steel

# 4-port 2-position direct-acting solenoid valve

## Dimensions

VA01RSC24, VA01HRSC24

(Unit : mm)

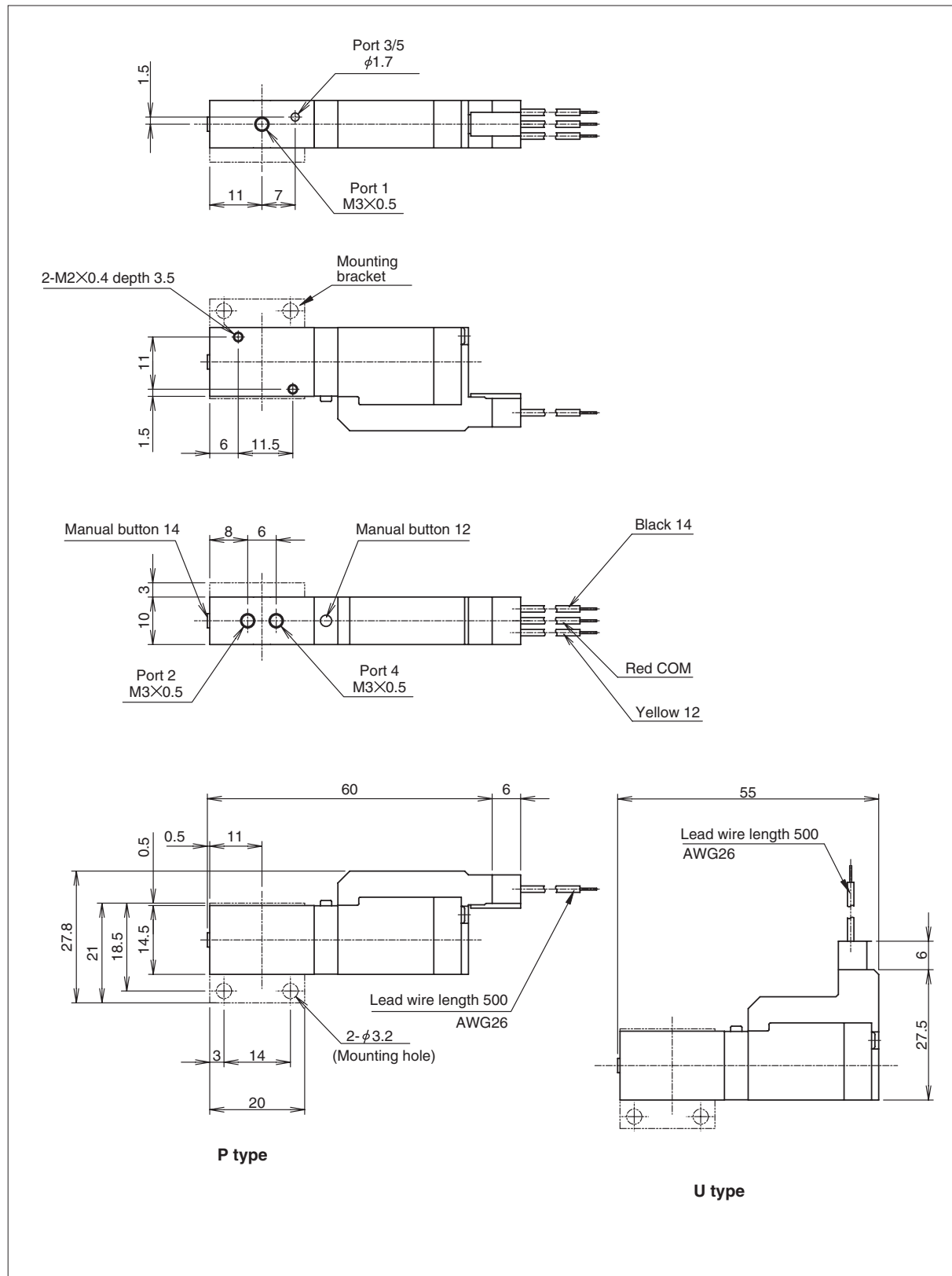


# 4-port 2-position direct-acting solenoid valve

## Dimensions

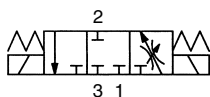
VA01RLC24

(Unit : mm)

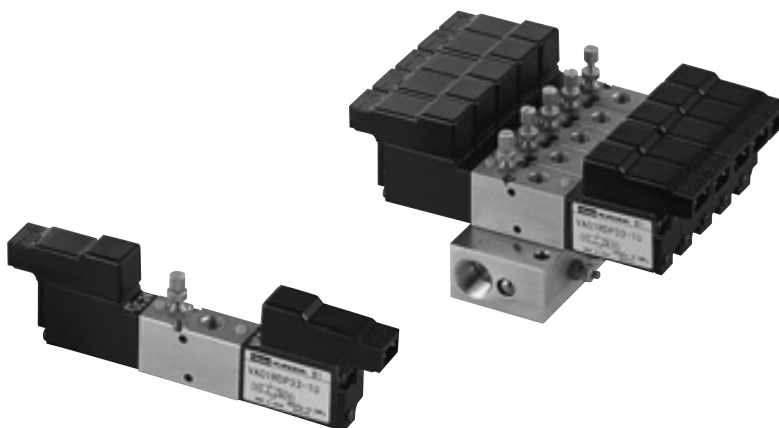


# Most suitable for vacuum and vacuum break in vacuum pump lines !

## 3-port 3-position direct-acting solenoid valve for vacuum and vacuum break **VA01RDP33**



- 1 : Positive pressure supply port
- 2 : Output port
- 3 : Vacuum supply port



- **Light weight and compact**

Body width 10 mm, weight 45 g

- **One unit works for both vacuum control and vacuum break controls.**

Vacuum control valve and vacuum break control valve (pressure : 0.2 MPa max.) are united.

- **Holds vacuum at intermediate position**

Solenoid valve returns to intermediate position at the time of power failure and emergency stop, and holds attraction with vacuum pad.

- **Quick response time**

5 ms response time and stable action at the time of turning on/off

- **Needle valve for vacuum break flow control**

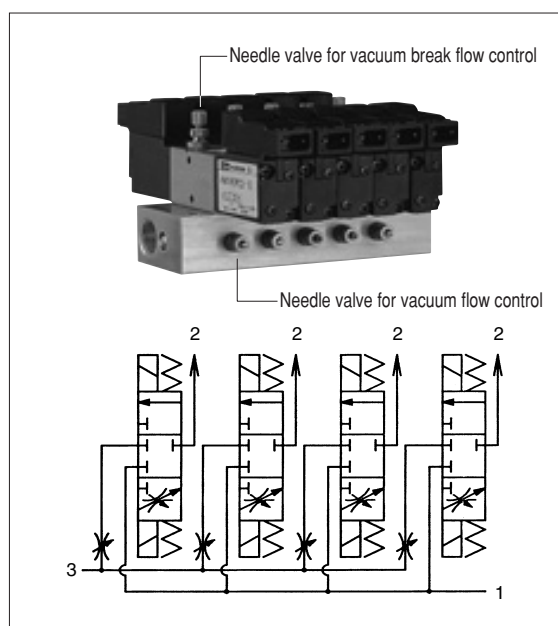
Air flow for vacuum break can be controlled according to work by a needle valve in the flow path for vacuum break.

- **Manifold is available**

Vacuum port for common or individual manifolds are available up to 10 stations.

- **Manifold with Needle valve for vacuum flow control**

Vacuum flow can be controlled according to work by a needle valve in the flow path to each solenoid valve in the manifold.

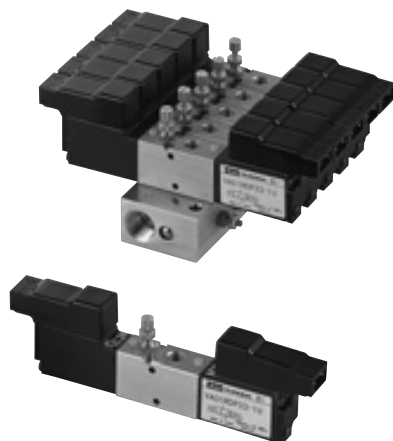


# 3-port 3-position direct-acting solenoid valve



# VA01RDP33 for vacuum and vacuum break

## Poppet seal/In-line piping type



### Specifications

Model No.	Unit	VA01RDP33
Fluid		Air
Port size		M5
Flow	Vacuum	ℓ /min (ANR) 10 at -90kPa (Port 3→2)
	Vacuum break	ℓ /min (ANR) 8 at 0.2MPa (Port 1→2)
Pressure range	Vacuum	kPa -100~0
	Vacuum break	MPa 0~0.2
Ambient temperature	°C	-10~50
Response time	ms	ON : 5 or less OFF : 5 (20) or less
Rated voltage	V	DC24
Allowable voltage fluctuation	%	±10
Heat resistance grade		JIS grade B
Power consumption	L type	W 0.5
	P, U type	W 0.55
Wiring		Lead wire, connector with lead wire
Vibration resistance/Shock resistance	m/s <sup>2</sup>	150/50
Mass	g	45

(Note) • When using the valve for vacuum break at less than 5 °C by supplying compressed air, use dry air passing through an air dryer to prevent dew condensation and freezing.  
• Response time in bracket ( ) shows with surge suppressor.

### Ordering instruction

Solenoid valve	Manifold										
<b>VA01</b> <span style="border: 1px solid black; padding: 2px;">R</span> <span style="border: 1px solid black; padding: 2px;">DP3</span> <span style="border: 1px solid black; padding: 2px;">3</span> - <span style="border: 1px solid black; padding: 2px;">1</span> <span style="border: 1px solid black; padding: 2px;">L</span> - <span style="border: 1px solid black; padding: 2px;">M5</span> - <span style="border: 1px solid black; padding: 2px;"> </span>	<b>MFU</b> <span style="border: 1px solid black; padding: 2px;">5</span> - <b>V01R3</b> <span style="border: 1px solid black; padding: 2px;">CC</span> <span style="border: 1px solid black; padding: 2px;">V</span> - <span style="border: 1px solid black; padding: 2px;">M5</span>										
① Type of piping <span style="border: 1px solid black; padding: 2px;">R</span> In-line piping	① Number of stations <table border="1"> <tr><td>2</td><td>2 stations</td></tr> <tr><td>:</td><td>:</td></tr> <tr><td>10</td><td>10 stations</td></tr> </table>	2	2 stations	:	:	10	10 stations				
2	2 stations										
:	:										
10	10 stations										
② Function <span style="border: 1px solid black; padding: 2px;">DP3</span> 3-position closed center Double solenoid	④ Port size <table border="1"> <tr><td>M5</td><td>M5×0.8</td></tr> </table>	M5	M5×0.8								
M5	M5×0.8										
③ Voltage <table border="1"> <tr><td>1</td><td>DC24V</td></tr> </table>	1	DC24V	② Manifold specifications <table border="1"> <tr><td>CC</td><td>Common 1 (Positive pressure), Common 3 (Vacuum)</td></tr> <tr><td>CI</td><td>Common 1 (Positive pressure), Individual 3 (Vacuum)</td></tr> </table>	CC	Common 1 (Positive pressure), Common 3 (Vacuum)	CI	Common 1 (Positive pressure), Individual 3 (Vacuum)				
1	DC24V										
CC	Common 1 (Positive pressure), Common 3 (Vacuum)										
CI	Common 1 (Positive pressure), Individual 3 (Vacuum)										
④ Wiring specifications Bipolar type <table border="1"> <tr><td>L</td><td>Lead wire</td></tr> <tr><td>P</td><td>Connector with lead wire, Side outlet (With indicator light &amp; surge suppressor)</td></tr> <tr><td>U</td><td>Connector with lead wire, Upside outlet (With indicator light &amp; surge suppressor)</td></tr> </table>	L	Lead wire	P	Connector with lead wire, Side outlet (With indicator light & surge suppressor)	U	Connector with lead wire, Upside outlet (With indicator light & surge suppressor)	③ Needle valve for vacuum flow control <table border="1"> <tr><td>No mark</td><td>No needle valve</td></tr> <tr><td>V</td><td>Needle valve for vacuum flow control (Only for CC specification)</td></tr> </table>	No mark	No needle valve	V	Needle valve for vacuum flow control (Only for CC specification)
L	Lead wire										
P	Connector with lead wire, Side outlet (With indicator light & surge suppressor)										
U	Connector with lead wire, Upside outlet (With indicator light & surge suppressor)										
No mark	No needle valve										
V	Needle valve for vacuum flow control (Only for CC specification)										
⑤ Wiring accessories <table border="1"> <tr><td>No mark</td><td>No connector</td></tr> <tr><td>E</td><td>Connector with lead wire (Length : 500 mm)</td></tr> </table>	No mark	No connector	E	Connector with lead wire (Length : 500 mm)	(Note) Solenoid valve with needle valve for vacuum flow control is to be made to order.						
No mark	No connector										
E	Connector with lead wire (Length : 500 mm)										
⑥ Port size <table border="1"> <tr><td>M5</td><td>M5×0.8</td></tr> </table>	M5	M5×0.8	<b>Blank plate (with 2 screws and a gasket)</b> <table border="1"> <tr><td>Model No.</td><td>V33-BP</td></tr> </table>	Model No.	V33-BP						
M5	M5×0.8										
Model No.	V33-BP										
⑦ For mounting manifold <table border="1"> <tr><td>MF</td><td>For mounting manifold (With mounting screws, gasket)</td></tr> </table>	MF	For mounting manifold (With mounting screws, gasket)	<b>Connector with lead wire</b> <table border="1"> <tr><td>Lead wire length</td><td>Model No.</td></tr> <tr><td>500mm</td><td>PC2-D24-CL5 (Standard)</td></tr> <tr><td>1000mm</td><td>PC2-D24-CL10</td></tr> <tr><td>3000mm</td><td>PC2-D24-CL30</td></tr> </table>	Lead wire length	Model No.	500mm	PC2-D24-CL5 (Standard)	1000mm	PC2-D24-CL10	3000mm	PC2-D24-CL30
MF	For mounting manifold (With mounting screws, gasket)										
Lead wire length	Model No.										
500mm	PC2-D24-CL5 (Standard)										
1000mm	PC2-D24-CL10										
3000mm	PC2-D24-CL30										



### CAUTION

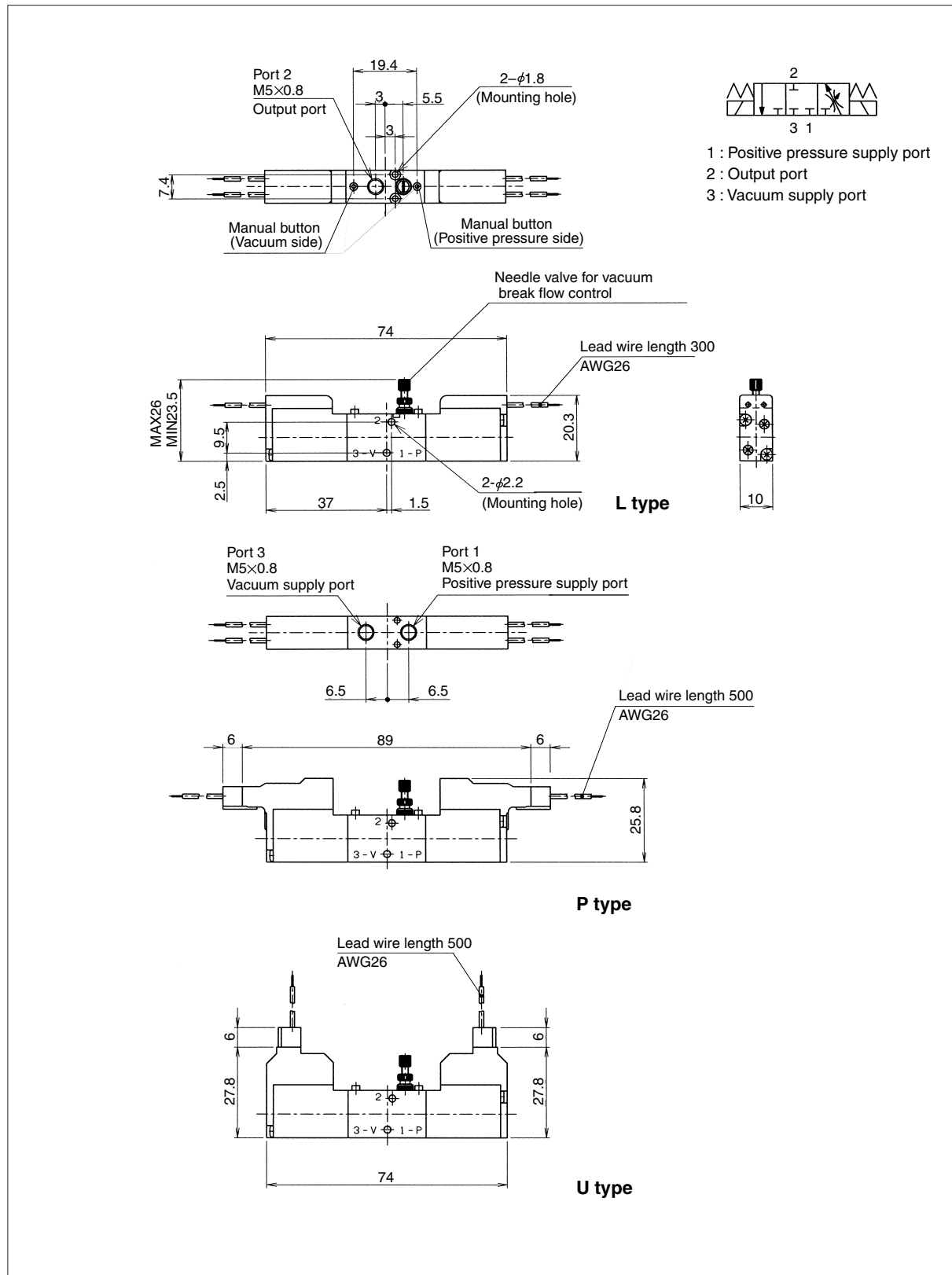
• Use positive pressure for port 1 within pressure range of 0 to 0.2 MPa. Do not supply vacuum pressure.  
• Use vacuum pressure for port 3 within pressure range of -100 to 0 kPa. Do not supply positive pressure.

# 3-port 3-position direct-acting solenoid valve for vacuum and vacuum break

## Dimensions

VA01RDP33

(Unit : mm)



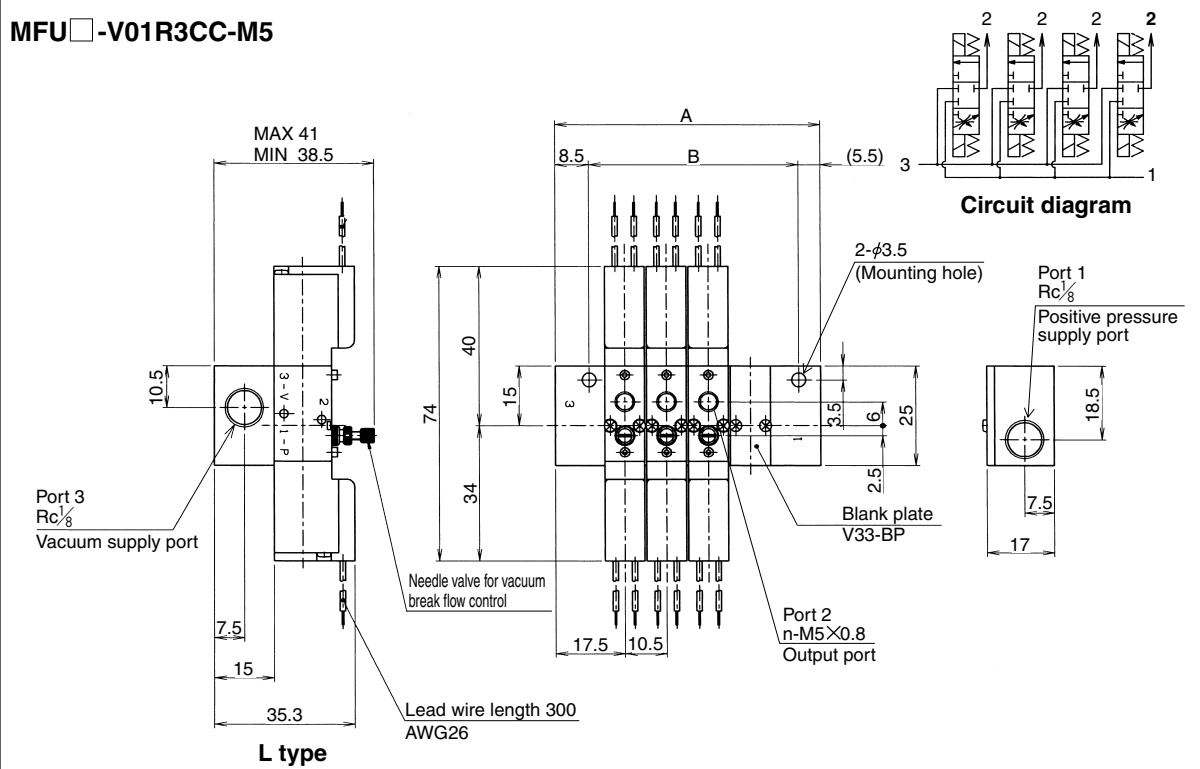
# 3-port 3-position direct-acting solenoid valve for vacuum and vacuum break

## Dimensions

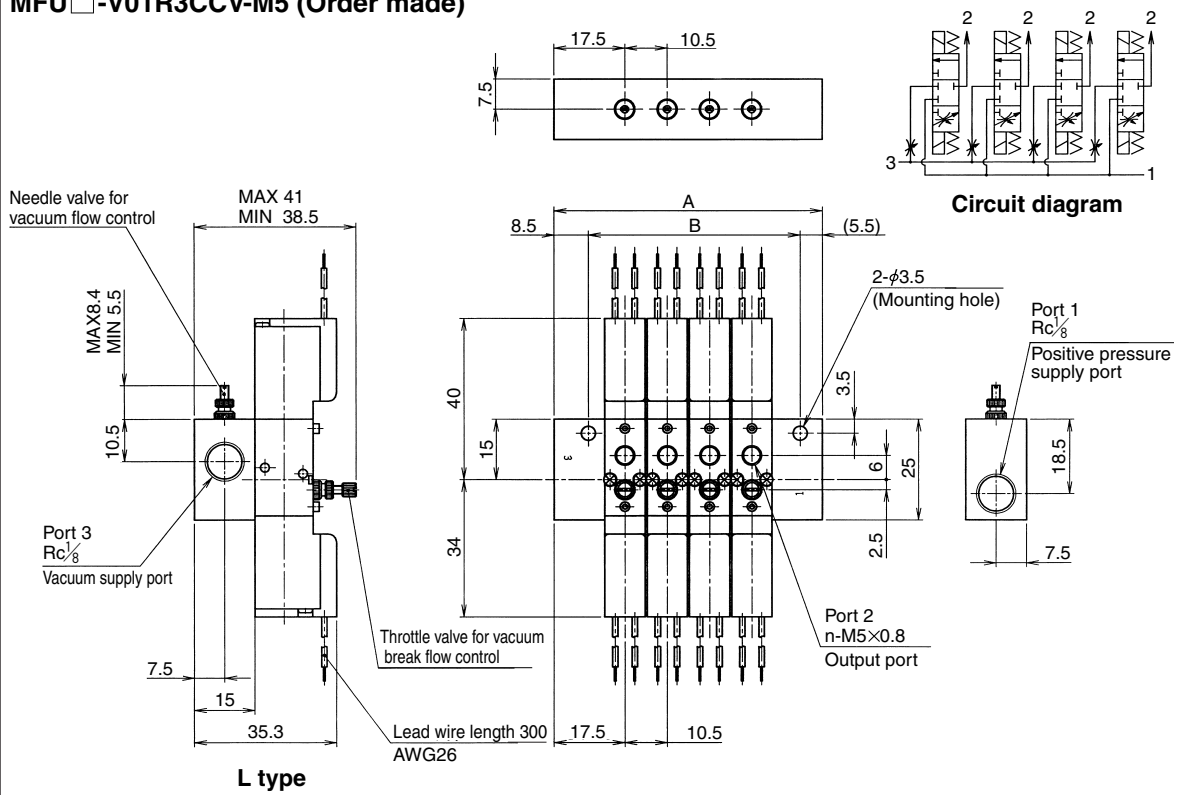
Manifold

(Unit : mm)

MFU□-V01R3CC-M5



MFU□-V01R3CCV-M5 (Order made)

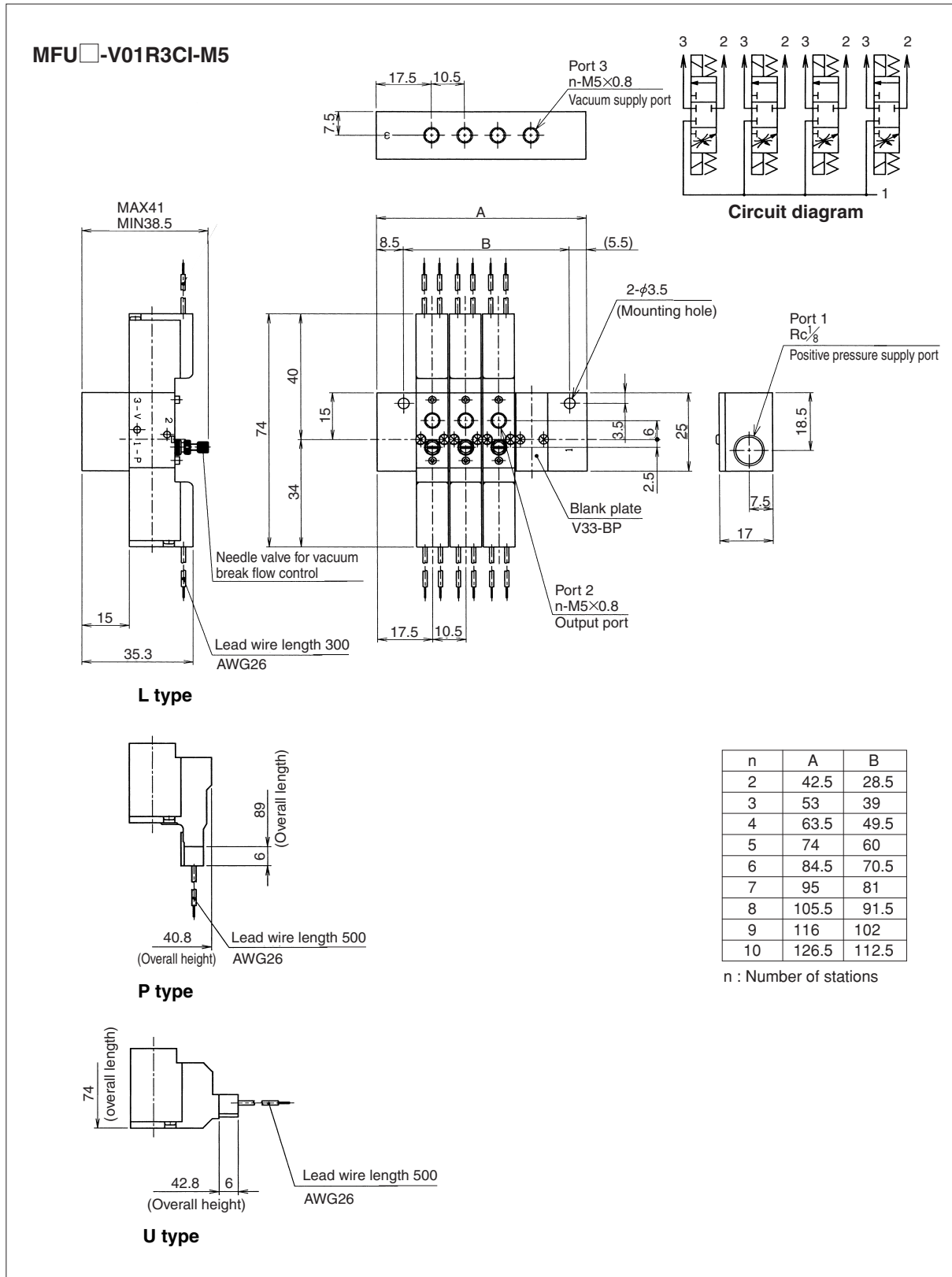


# 3-port 3-position direct-acting solenoid valve for vacuum and vacuum break

## Dimensions

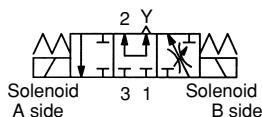
Manifold

(Unit : mm)

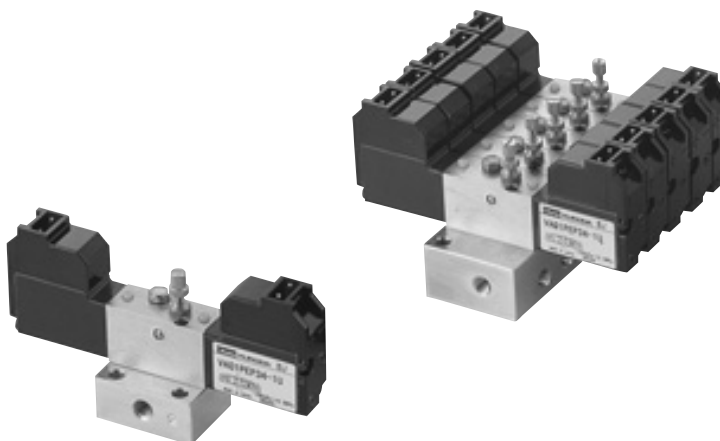


# Most suitable for vacuum and vacuum break of very small work !

## 4-port 3-position direct-acting solenoid valve for vacuum and vacuum break **VA01PEP34A**



- 1 : Positive pressure supply port
- 2 : Output port
- 3 : Vacuum supply port
- Y : Atmospheric release port



### ● Light weight and compact

Body width 10 mm, weight 56 g

### ● One unit works for both vacuum control and vacuum break controls.

Vacuum control valve and vacuum break control valve (pressure : 0.5MPa max.) are united.

### ● Quick response time

5 ms response time and stable action at the time of turning on/off.

### ● Needle valve for vacuum break flow control

Air flow for vacuum break can be controlled according to work by a needle valve in the flow path for vacuum break.

### ● Atmospheric release mechanism

It serves to release the suction side pressure to the atmospheric air once and then supply air for vacuum break, when doing vacuum break from the vacuum state. This feature will be highly effective for loading and unloading very small work quickly in a stable state.

### ● Manifold is available

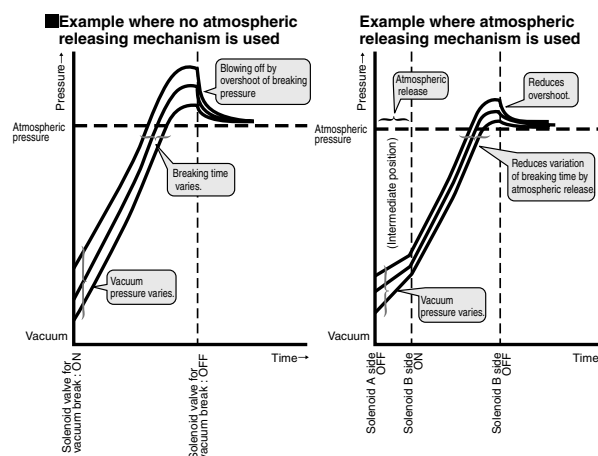
Vacuum port for common or individual manifolds are available up to 10 stations.

## To customers having the following problems in pick and place very small work ;

- Parts around vacuum-breaking air are blown off, when work is detached.
- Timing of detaching work tends to vary.
- Re-sacking occurs after work is detached.
- Two solenoid valves are required to set up an atmospheric release circuit.



## Using VA01PEP34A will cut down these problems.

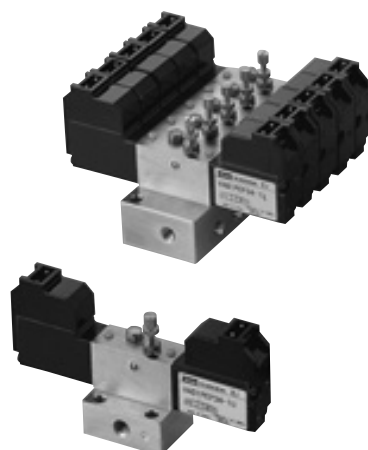


# 4-port 3-position direct-acting solenoid valve



# VA01PEP34A for vacuum and vacuum break

## Poppet seal/Sub-base piping type



### Specifications

Model No.	Unit	VA01PEP34A	
Fluid		Air	
Port size		M5	
Flow	Vacuum	ℓ /min (ANR)	20 at -100kPa (Port 3→2)
	Vacuum break	ℓ /min (ANR)	14 at 0.5MPa (Port 1→2)
Pressure range	Vacuum	kPa	-100~-30
	Vacuum break	MPa	0.05~0.5
Ambient temperature	°C	-10~50	
Response time	ms	ON : 5 or less OFF : 5 or less	
Rated voltage	V	DC24	
Allowable voltage fluctuation	%	±10	
Heat resistance grade		JIS grade B	
Power consumption	W	1 (Holding), 2 (Inrush)	
Wiring		Lead wire, connector with lead wire	
Vibration resistance/Shock resistance	m/s <sup>2</sup>	150/30	
Mass	g	56	

(Note) • When using the valve for vacuum break at less than 5 °C by supplying compressed air, use dry air passing through an air dryer to prevent dew condensation and freezing.

### Ordering instruction

Solenoid valve	Manifold								
VA01 <b>P</b> <b>EP3</b> <b>4A</b> - <b>1</b> <b>U</b> - <b>M5</b> -	MFS - V01P4 <b>CC</b> - <b>M5</b>								
① ②                      ③ ④ ⑤                      ⑥ ⑦	①                      ②                      ③								
<b>① Type of piping</b> P Sub-base piping	<b>① Number of stations</b> 2 2 stations : : 10 10 stations								
<b>② Function</b> EP3 3-position with atmospheric release mechanism Double solenoid	<b>② Manifold specifications</b> CC Common 1 (Positive pressure), Common 3 (Vacuum) CI Common 1 (Positive pressure), Individual 3 (Vacuum)								
<b>③ Voltage</b> 1 DC24V	<b>③ Port size</b> M5 M5×0.8								
<b>④ Wiring specifications</b> U Connector with lead wire, Upside outlet (With indicator light & surge suppressor)	<b>⑦ Option</b> No mark No option F Atmospheric release port with filter								
<b>⑤ Wiring accessories</b> No mark No connector E Connector with lead wire (Length : 500 mm)	<b>Filter for atmospheric release port</b> Model No. V34-F <b>Blank plate (with 2 screws and a gasket)</b> Model No. V34-BP								
	<b>Connector with lead wire</b> <table border="1"> <thead> <tr> <th>Lead wire length</th> <th>Model No.</th> </tr> </thead> <tbody> <tr> <td>500mm</td> <td>PC2-D24-CL5 (Standard)</td> </tr> <tr> <td>1000mm</td> <td>PC2-D24-CL10</td> </tr> <tr> <td>3000mm</td> <td>PC2-D24-CL30</td> </tr> </tbody> </table>	Lead wire length	Model No.	500mm	PC2-D24-CL5 (Standard)	1000mm	PC2-D24-CL10	3000mm	PC2-D24-CL30
Lead wire length	Model No.								
500mm	PC2-D24-CL5 (Standard)								
1000mm	PC2-D24-CL10								
3000mm	PC2-D24-CL30								

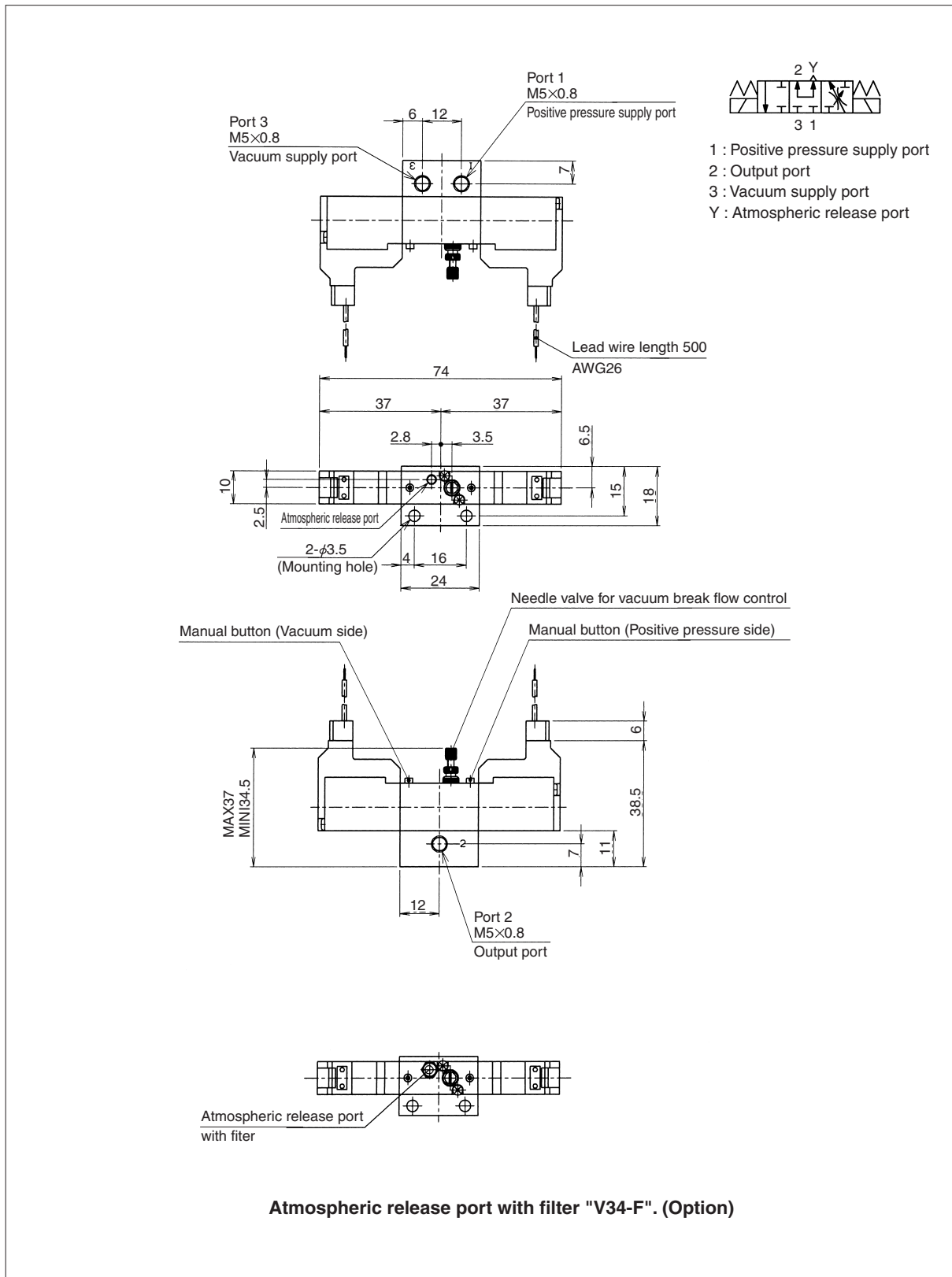
**CAUTION** • Use positive pressure for port 1 within pressure range of 0.05 to 0.5 MPa. Do not supply vacuum pressure.  
 • Use vacuum pressure for port 3 within pressure range of -100 to -30 kPa. Do not supply positive pressure.

# 4-port 3-position direct-acting solenoid valve for vacuum and vacuum break

## Dimensions

VA01PEP34A

(Unit : mm)



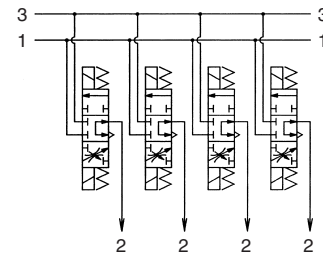
# 4-port 3-position direct-acting solenoid valve for vacuum and vacuum break

## Dimensions

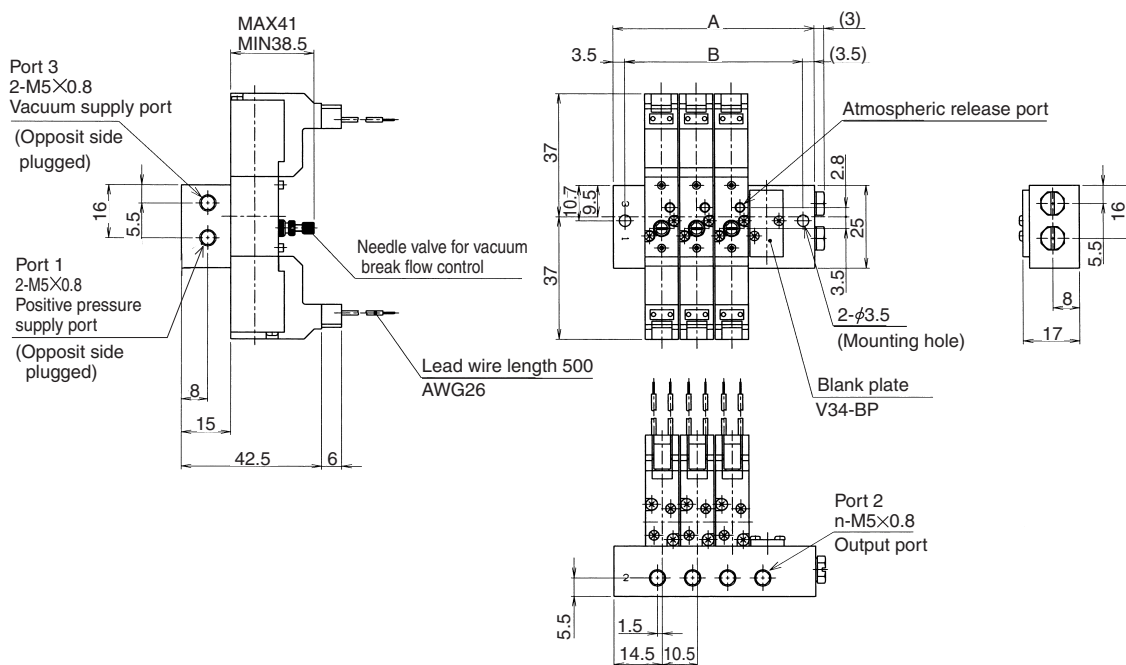
Manifold

(Unit : mm)

MFS□-V01P4CC-M5



Circuit diagram



n	A	B
2	39.5	32.5
3	50	43
4	60.5	53.5
5	71	64
6	81.5	74.5
7	92	85
8	102.5	95.5
9	113	106
10	123.5	116.5

n : Number of stations

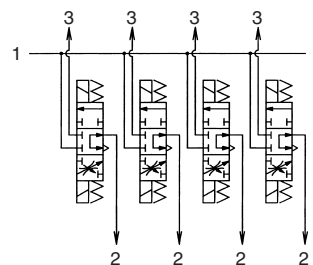
# 4-port 3-position direct-acting solenoid valve for vacuum and vacuum break

## Dimensions

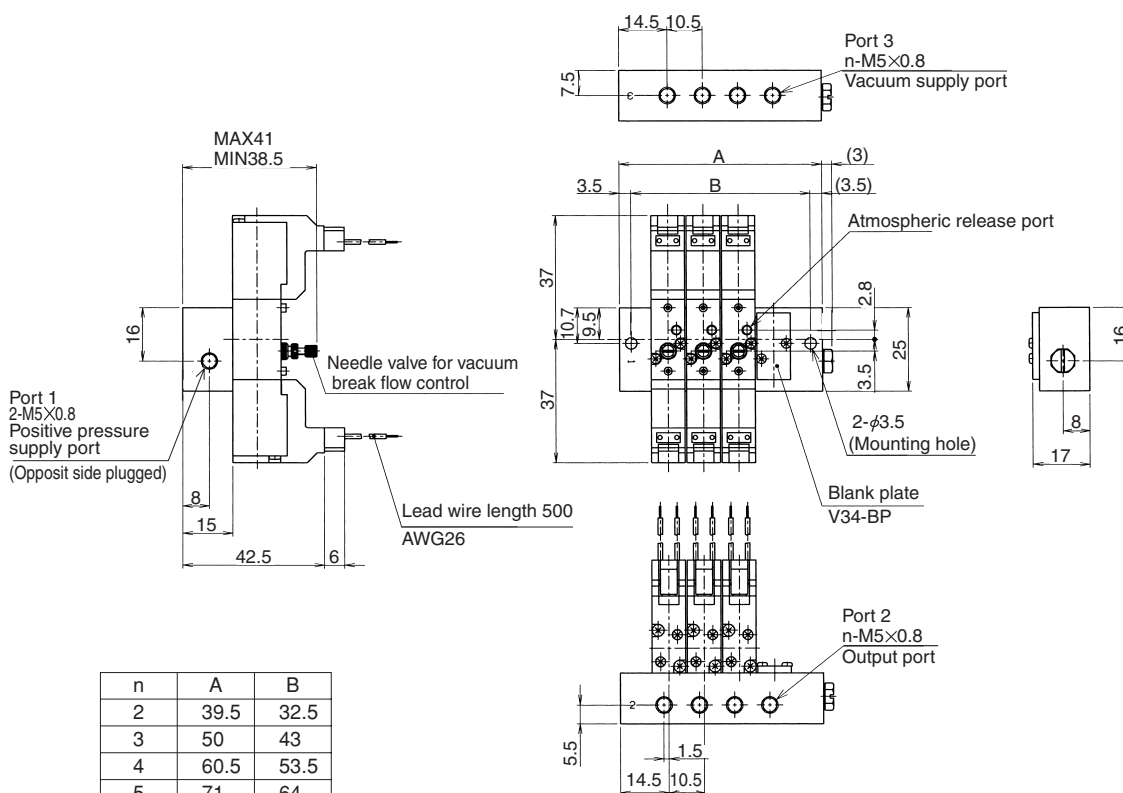
Manifold

(Unit : mm)

MFS□-V01P4CI-M5



Circuit diagram



n	A	B
2	39.5	32.5
3	50	43
4	60.5	53.5
5	71	64
6	81.5	74.5
7	92	85
8	102.5	95.5
9	113	106
10	123.5	116.5

n : Number of stations

For vacuum, positive pressure control/blow off operation and air cylinder control operation 

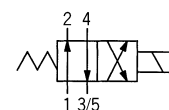
Miniature size 4-port 2-position direct-acting solenoid valve

**VA05PSC24** Single solenoid, Sub-base piping type

**VA05RSC24** Single solenoid, In-line piping type



VA05PSC24/RSC24



● **Compact Large flow**

Compact valve (Body width 15mm) is possible to operate large flow (C value 0.7dm<sup>3</sup>/(s·bar)).

● **Quick response time/Stable operation**

Balanced poppets and direct solenoid mechanism make it available for quick and stable response time. Single solenoid type: ON 5.5ms/OFF 3ms. Under the test condition of KURODA Pneumatics.)

● **Oil free is standardized, and extremely low particle. Clean !!**

Double poppets structure, which has no friction parts without lubricating oil, realizes the extremely clean air blow. Furthermore, the direct operated solenoid has no valve breathing and pilot air exhaust, and the valve does not pollute outside environment.

● **Both vacuum and positive pressure are available.**

Balanced poppets structure operates both vacuum and positive pressure (-100kPa~0.8MPa) in one valve.

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All dimensions subject to alteration without notice.

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