

KOGANEI

Air Valve

SOLENOID VALVES 025 SERIES

INSTRUCTION MANUAL Ver.1.0

Handling Instructions and Precautions

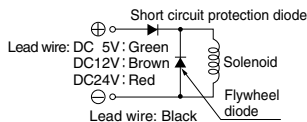


Solenoid

Internal circuit

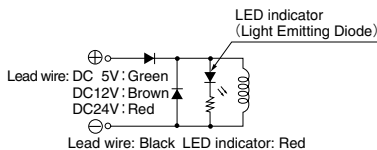
●DC5V, DC12V, DC24V

Standard solenoid (Surge suppression)



Solenoid with LED indicator (Surge suppression)

Order code : -PSL, -PLL



- Cautions:**
1. Do not apply megger between the lead wires.
 2. The DC solenoid will not short circuit even if the wrong polarity is applied, but the valve will not operate.
 3. Leakage current inside the circuit could result in failure of the solenoid valve to return, or in other erratic operation. Always use it within the range of the allowable leakage current. If circuit conditions, etc. cause the leakage current to exceed the maximum allowable leakage current, consult us.
 4. Hold voltage fluctuation to an absolute minimum. In particular, maintain the minimum operating voltage at 90% or more of the rated voltage during solenoid valve operation.

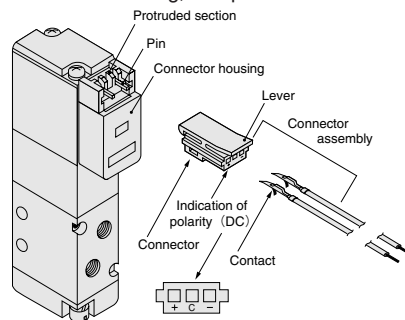


Plug connector

Attaching and removing plug connector

Use fingers to insert the connector into the pin, push it in until the lever claw latches onto the protruded section of the connector housing, and complete the connection.

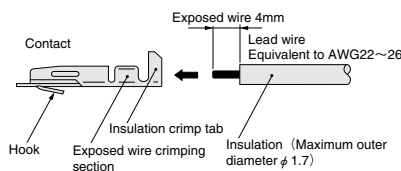
To remove the connector, squeeze the lever along with the connector, lift the lever claw up from the protruded section of the connector housing, and pull it out.



※ Illustration shows the 110 series.

Crimping of connecting lead wire and contact

To crimp lead wires into contacts, strip off 4mm [0.16in.] of the insulation from the end of the lead wire, insert it into the contact, and crimp it. Be sure at this time to avoid catching the insulation on the exposed wire crimping section.

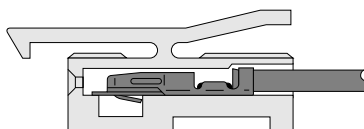


- Cautions:**
1. Do not pull hard on the lead wire.
 2. Always use a dedicated tool for crimping of connecting lead wire and contact.
Contact: Model 702062-2M
Manufactured by Sumiko Tech, Inc.
Crimping tool: Model F1-702062
Manufactured by Sumiko Tech, Inc.

Attaching and removing contact and connector

Insert the contact with lead wire into a plug connector □ hole until the contact hook latches on and is secured to the plug connector. Confirm that the lead wire cannot be easily pulled out.

To remove it, insert a tool with a fine tip (such as a small screwdriver) into the rectangular hole on the side of the plug connector to push up on the hook, and then pull out the lead wire.



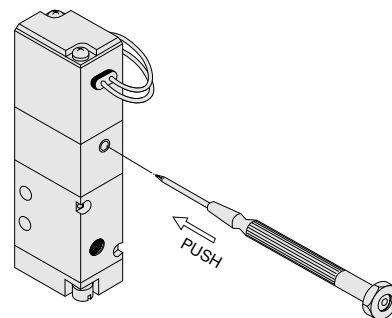
- Cautions:**
1. Do not pull hard on the lead wire. It could result in defective contacts, breaking wires, etc.
 2. If the pin is bent, use a small screwdriver, etc. to gently straighten out the pin, and then complete the connection to the plug connector.



Manual override

Non-locking type

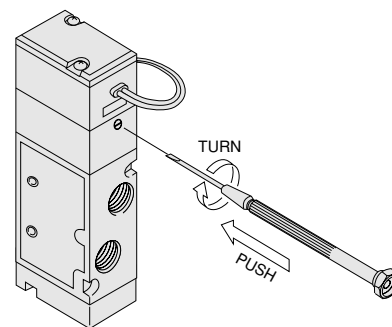
To operate the manual override, press it all the way down. The valve works the same as when in the energized state as long as the manual override is pushed down, and returns to the rest position upon release.



※ Illustration shows the 110 series.

Locking type

To lock the manual override, use a small screwdriver to push down on the manual override all the way and turn it 45 degrees or more. Either turning direction at this time is acceptable. When locked, turning the manual override from the locking position releases a spring on the manual override, returns it to its original position, and releases the lock. When the manual override is not turned, this type acts just like the non-locking type.



※ Illustration shows the 240 series.

- Cautions:**
1. Always release the lock of the locking type manual override before commencing normal operation.
 2. Do not attempt to operate the manual override with a pin or other object having an extremely fine tip. It could damage the manual override button.
 3. Do not turn the adjusting knob more than the amount needed. It could result in defective operation.

SOLENOID VALVES

025 SERIES

Specifications

Item	Basic model	Direct piping, F type manifold	Sub-base piping, A type manifold
		025E1	A025E1
Media	Air		
Operation type	Direct acting type		
Number of solenoids	Single solenoid		
Number of positions	2 positions		
Number of ports	2, 3 ports		
Effective area [Cv]	mm ²	0.5 [0.028]	0.4 [0.022]
Port size	M5×0.8		
Lubrication	Not required		
Operating pressure range	MPa [kgf/cm ²] [psi.]	0~0.7 [0~7.1] [0~102]	
Proof pressure	MPa [kgf/cm ²] [psi.]	1.05 [10.7] [152]	
Operating temperature range (atmosphere and media)	°C [°F]	5~50 [41~122]	
Shock resistance	m/s ² {G}	78.5 {8.0}	
Mounting direction	Any		
Mass	g [oz.]	80 [2.82]	80 [2.82] (110 [3.88]) ^{Note}

Note : The mass of A025E1 includes a sub-base.

Solenoid Specifications

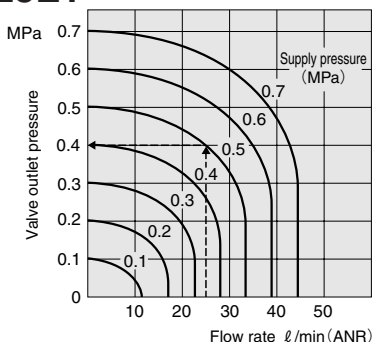
Rated voltage		DC5V	DC12V	DC24V
Item	Type	Flywheel diode incorporated for surge suppression		
Operating voltage range	V	4.5~5.5 (5±10%)	10.8~13.2 (12±10%)	21.6~26.4 (24±10%)
Power consumption	W	0.45	0.53	0.50
	Standard solenoid			
Current (when rated voltage is applied)	mA	90	44	21
	With LED indicator ^{Note2}			
Maximum allowable leakage current	mA	10	3	1.5
Insulation resistance	MΩ	Over 100		
Wiring type and lead wire length	Standard	Grommet type: 300mm [11.8in.]		
	Optional	Plug connector type Straight connector -PSL : 300mm [11.8in.] ^{Note 1} L connector -PLL : 300mm [11.8in.] ^{Note 1}		
Color of lead wire		Green (+), Black (-)	Brown (+), Black (-)	Red (+), Black (-)
Color of LED indicator ^{Note2}		Red		

Note1: 1000 [39in.] and 3000mm [118in.] are also available as options. Place separate orders as -1L : 1000mm [39in.], -3L: 3000mm [118in.] when placing an order.

2: The LED indicator is for the plug connector type solenoid only.

Flow Rate

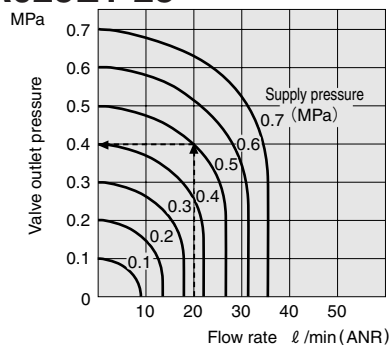
025E1



How to read the graph

When the supply pressure is 0.5MPa [73psi.] and flow rate is 25 l/min [0.88ft³/min.] (ANR), the valve outlet pressure becomes 0.4MPa [58psi.].

A025E1-25



1MPa = 145psi., 1 l/min = 0.0353ft³/min.

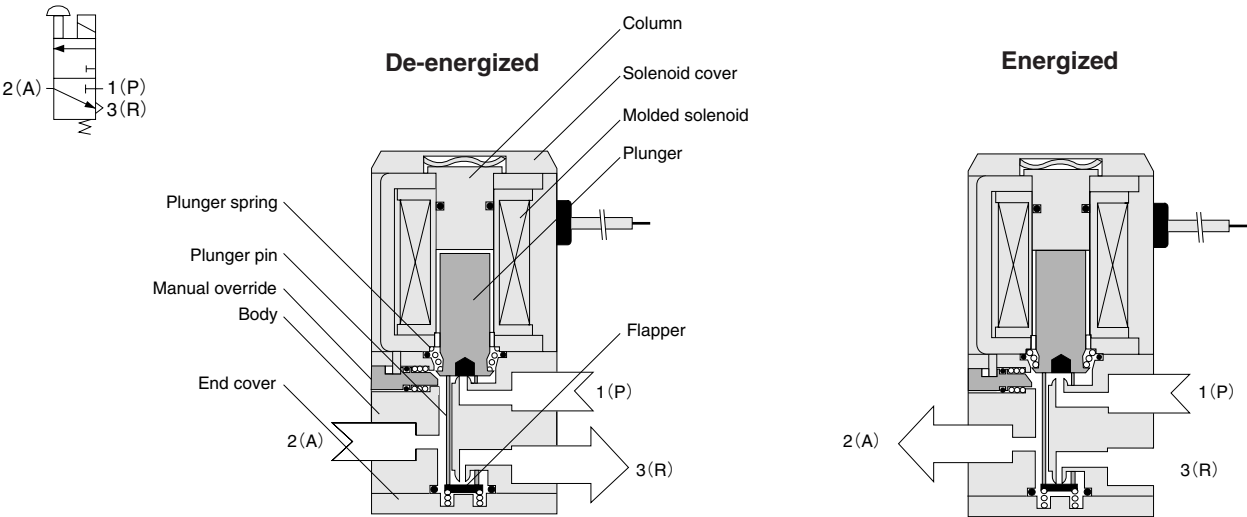
How to read the graph

When the supply pressure is 0.5MPa [73psi.] and flow rate is 20 l/min [0.71ft³/min.] (ANR), the valve outlet pressure becomes 0.4MPa [58psi.].

Operating Principles and Symbols

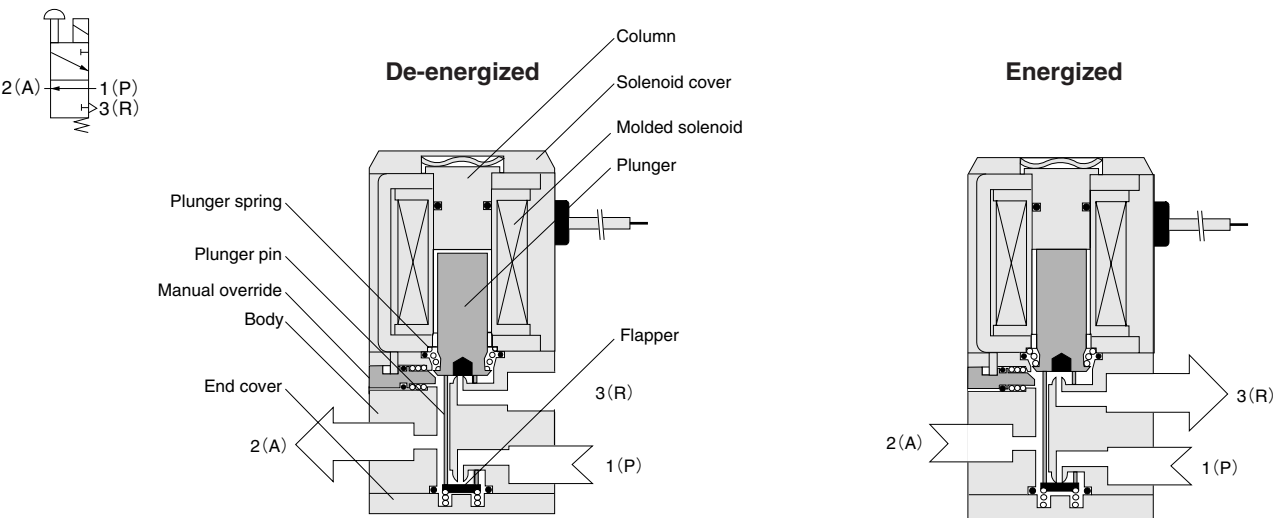
025E1

Normally closed (NC)



025E1-11

Normally open (NO)



Major Parts and Materials

	Parts	Materials
Valve	Body	Aluminum alloy (anodized)
	Flapper	Synthetic rubber
	Plunger	Magnetic stainless steel
	Column	
	Mounting base	Mild steel (zinc plated)
	Sub-base	Aluminum alloy (anodized)
Manifold	Body	Aluminum alloy (anodized)
	Block-off plate	Mild steel (nickel plated)
	Seal	Synthetic rubber

Manifold Port Size

Manifold model		Port	1 (P)	2 (A)	3 (R)
025M□F	Port location	Manifold	Valve	Manifold	
	Port size	Rc1/8	M5×0.8	Rc1/8	
025M□A	Port location	Manifold			
	Port size	Rc1/8	M5×0.8	Rc1/8	

Mass

Manifold model	Mass calculation of each unit (n=number of units)	Mounting valve		Block-off plate
		025E1	A025E1	
025M□F	$(26 \times n) + 10$ [(0.92×n)+0.35]	80 [2.82]	—	13 [0.46]
025M□A	$(31 \times n) + 22$ [(1.09×n)+0.78]	—	80 [2.82]	

g [oz.]

025 Series Solenoid Valve Order Codes

2-, 3-port valve Number of ports	2-, 3-port valve Valve function	Mounting base	Sub-base	Muffler	Manual override	Wiring type				
3-port Blank	Normally closed (NC) Blank	Without mounting base Blank	Without sub-base Blank	Without muffler Blank	Non-locking type Blank	Grommet type Blank				
2-port -2	Normally open (NO) -11	With mounting base -21	With sub-base -25	With muffler -75	Locking type -81	Straight connector with LED indicator -PSL				
						L connector with LED indicator -PLL				
Basic model						Voltage				
Direct piping, F type manifold	025E1	-2	-11	-21		-75	-81	-PSL	-PLL	DC5V DC12V DC24V
Sub-base piping, A type manifold	A025E1				-25					

● -2 : A plug is included at shipping.
(For A025E1, the dedicated plug is
already fitted.)

● -21 : Only for direct piping type (025E1).
Not available for manifold mounting.

● -25 : Only for sub-base piping type
(A025E1). Not available for
manifold mounting.

● -75 : Included at shipping.

025 Series Manifold Order Codes

2-, 3-port valve

Number of ports

3-port

Blank

2-port

-2

2-, 3-port valve

Valve function

Normally closed (NC)

Blank

Normally open (NO)

-11

Manual override

Non-locking type

Blank

Locking type

-81

Wiring type

Lead wire length: 300mm [11.8in.] is standard.

Grommet type

Blank

Straight connector with LED indicator

-PSL

L connector with LED indicator

-PLL

	Manifold model Number of units	Station	Basic model					Voltage		
F type (P,R) manifold	025M	2	F	stn. <input type="checkbox"/>	-025E1	-2	-11	-81	-PSL	DC5V DC12V DC24V
A type (P,A) manifold		10	A	stn. <input type="checkbox"/>	-A025E1				-PLL	

● Valve mounting location from the left-hand side when facing 2(A) port (☐ : 1~10)

● Specify the valve type for each station.
● Enter -BP when closing a station with a block-off plate without mounting a valve.

Options

Mounting base

-21

● For direct piping

Sub-base

-25

● For sub-base piping

Muffler

-75

Locking type manual override

-81

Straight connector with LED indicator

-PSL

L connector with LED indicator

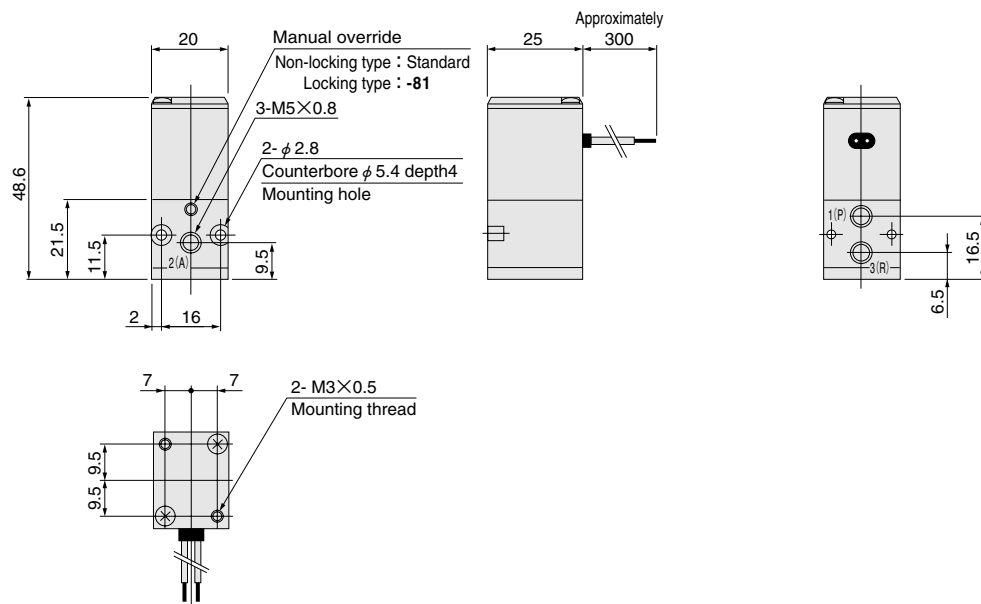
-PLL

Block-off plate

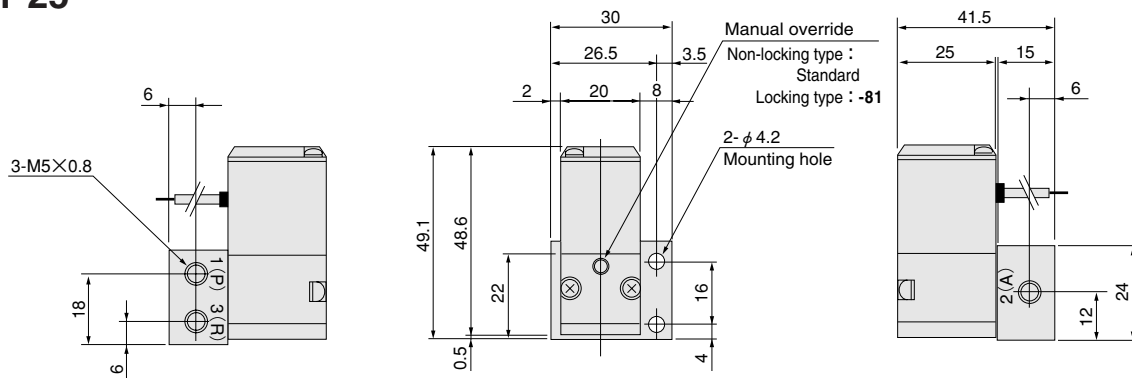
-BP

Dimensions of Solenoid Valve (mm)

●025E1



●A025E1-25

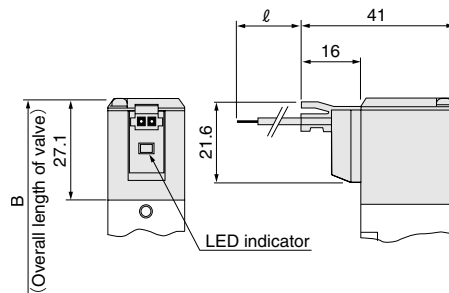
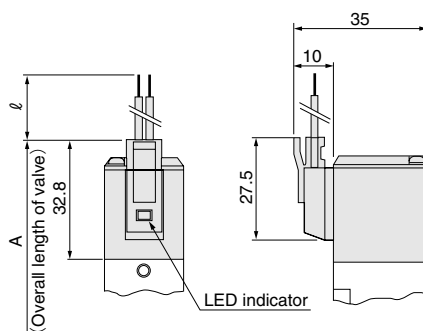
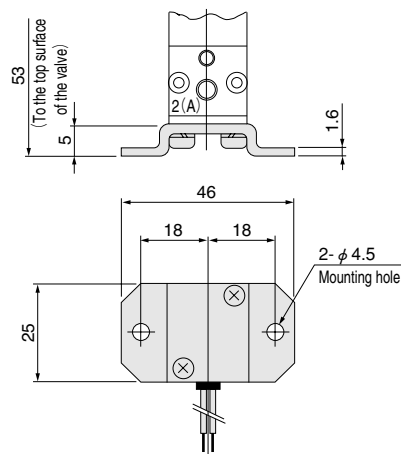


Options

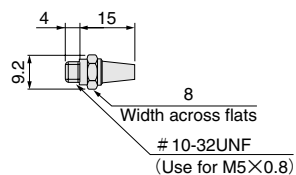
●Mounting base : -21 (Only for 025E1)

●Solenoid with straight connector : -PSL

●Solenoid with L connector : -PLL



●Muffler : -75

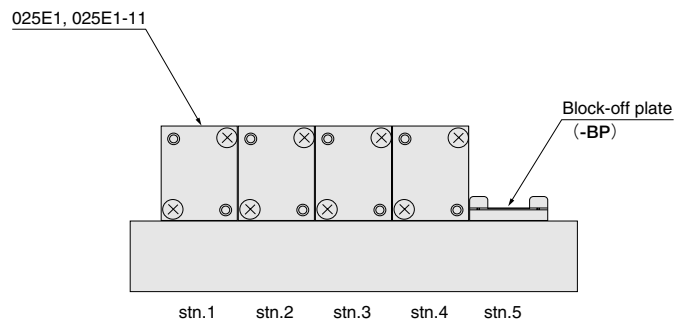
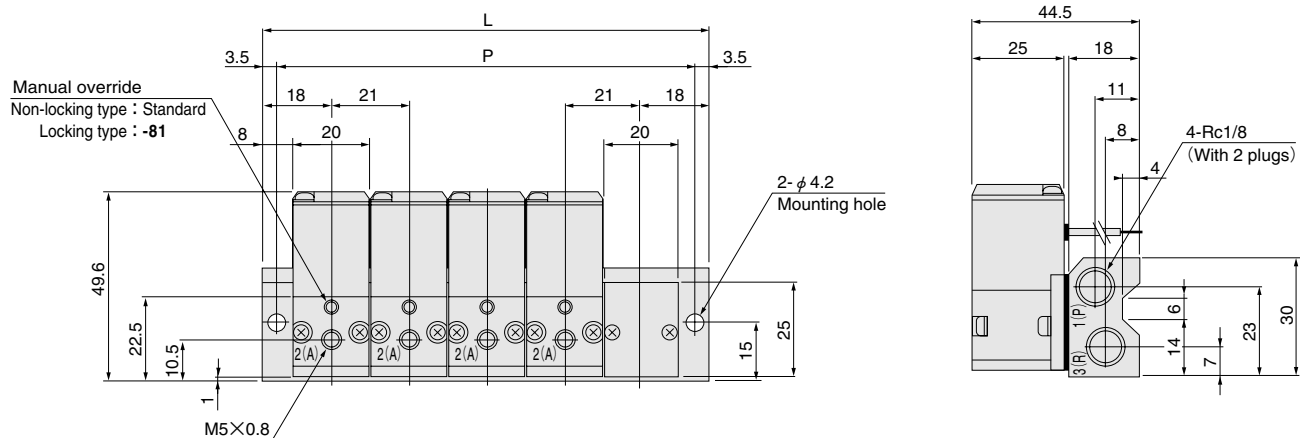


Model	Code	A	B	ℓ (Lead wire length)
025E1		54.3 (To the bottom of the valve)	48.6 (To the bottom of the valve)	Standard: 300
A025E1-25		54.8 (To the bottom of the sub-base)	49.1 (To the bottom of the sub-base)	Optional: -1L: 1000, -3L: 3000

mm

Dimensions of Manifold (mm)

●025M□F



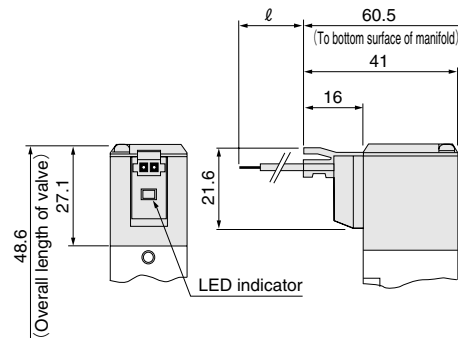
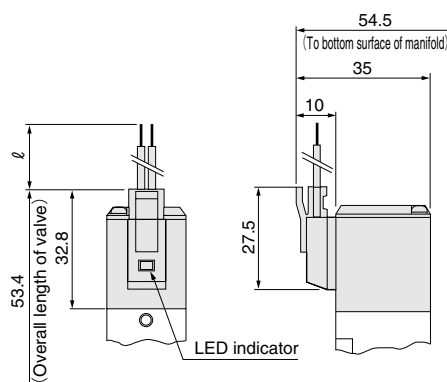
Unit dimensions

Model	P	L
025M2F	50	57
025M3F	71	78
025M4F	92	99
025M5F	113	120
025M6F	134	141
025M7F	155	162
025M8F	176	183
025M9F	197	204
025M10F	218	225

Options

●Solenoid with straight connector : -PSL

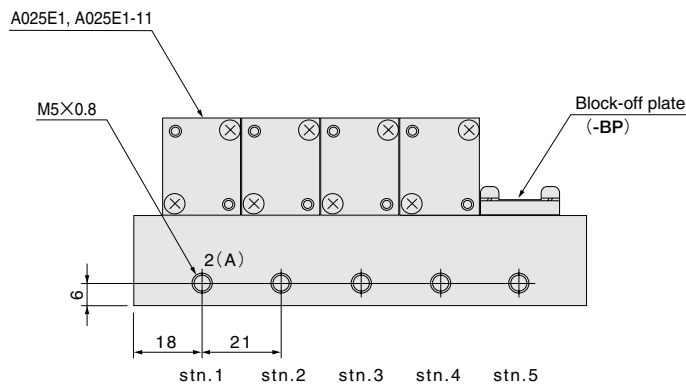
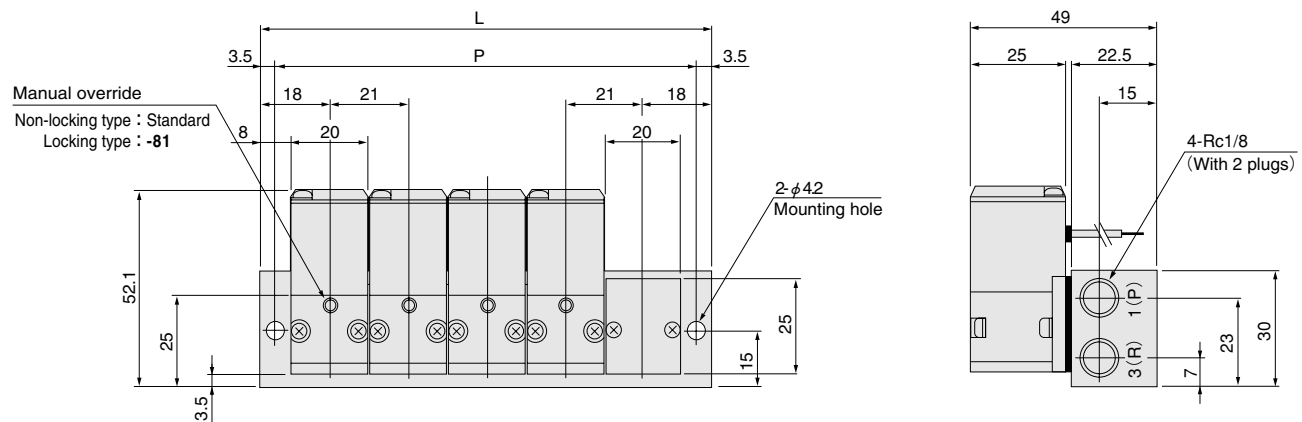
●Solenoid with L connector : -PLL



Lead wire length ℓ Standard : 300
Optional : -1L : 1000, -3L : 3000

Dimensions of Manifold (mm)

●025M□A



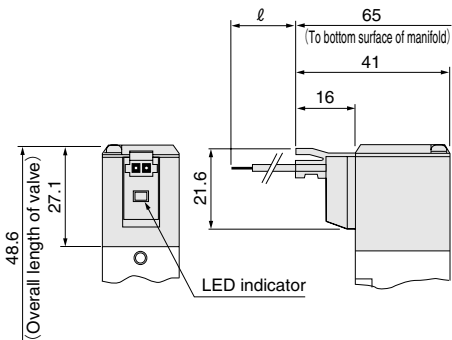
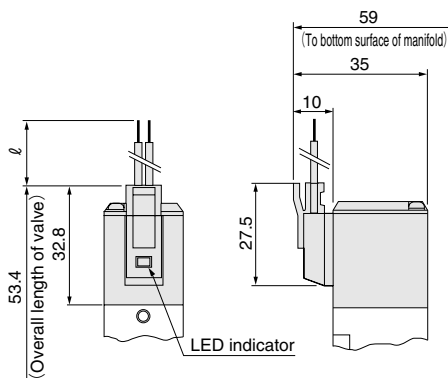
Unit dimensions

Model	P	L
025M2A	50	57
025M3A	71	78
025M4A	92	99
025M5A	113	120
025M6A	134	141
025M7A	155	162
025M8A	176	183
025M9A	197	204
025M10A	218	225

Options

●Solenoid with straight connector : -PSL

●Solenoid with L connector : -PLL



Lead wire length ℓ Standard : 300
Optional : -1L : 1000, -3L : 3000