

# SMC "SY series" Highlights



# Pilot Operated 4/5 Port Solenoid Valves


## 5 Port Solenoid Valve Plug-in Type SY



- Thanks to the flow increase, valve size can be reduced!
- Saves energy and space.
- Power consumption: 0.1 w (With power saving circuit) / 0.35 w
- Service life: 200 M cycles (Metal seal) / 70 M cycles (Rubber seal)
- Plug-in sub-plate newly added!
- Plug-in metal base (IP40)/
- Plug-in connector connecting base (IP67)
- Manifold type No.: SS5Y3, SS5Y5, SS5Y7

Series	Flow characteristics 4/2→5/3 (A/B→EA/EB) C[dm <sup>3</sup> /(s·bar)]	Flow characteristics 4/2→5/3 (A/B→EA/EB) b	Applicable cylinder size	Power consumption (W)
SY3000	1.6	0.19	φ50	0.35(Standard) 0.1(With power saving circuit)
SY5000	3.6	0.17	φ63	0.35(Standard) 0.1(With power saving circuit)
SY7000	5.9	0.20	φ80	0.35(Standard) 0.1(With power saving circuit)

### SY3000



← 10 mm


ø2, ø3.2, ø4, ø6, ø8\* fittings are connectable.  
\* Type M10/M11 manifold

At 300 mm/s

Existing ø32 → Valve size DOWN → ø50

Possible to drive cylinders Up to **ø50\***  
(ø80 at 100 mm/s)

### SY5000



← 15 mm


ø4, ø6, ø8 fittings are connectable.

At 300 mm/s

Existing ø50 → Valve size DOWN → ø63

Possible to drive cylinders Up to **ø63\***  
(ø125 at 100 mm/s)

### New SY7000



← 18 mm

ø6, ø8, ø10, ø12 fittings are connectable.

At 300 mm/s

Existing ø63 → Valve size DOWN → ø80

Possible to drive cylinders Up to **ø80\***  
(ø160 at 100 mm/s)

\* Values based on comparison with the existing SMC model. For details, refer to page 1.

## Manifold variations

### Plug-in Metal Base [IP40]



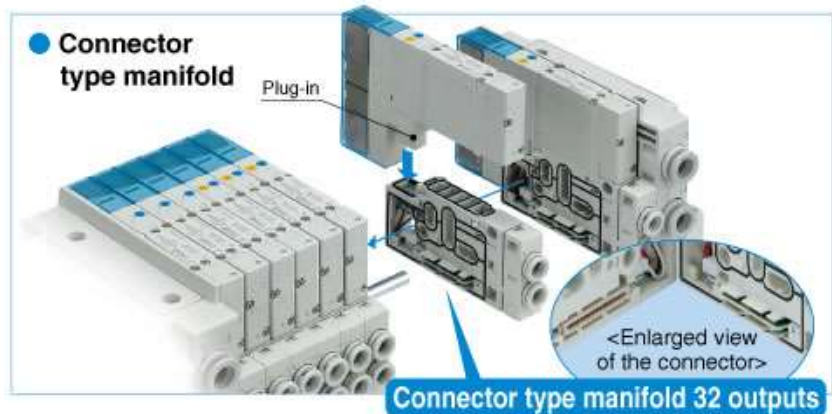
### Plug-in Connector Connecting Base [IP67]



#### Plug-in **Compatible sub-plate type** (Only SY3000/5000)



- IP67 enclosure in standard specifications
- M12 waterproof connector type ensuring easy attaching/detaching and wiring
- Applicable to the side, top and bottom ported. (4A, 2B port)



## Wiring

**D-sub connector** **Flat ribbon cable** **PC wiring** **Terminal block box**  
**Lead wire** **Circular connector** **Serial transmission**

### Serial Transmission Variations

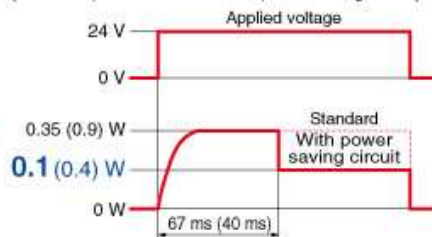
Series	Gateway-type serial transmission system		Integrated-type (for input/output) serial transmission system (Fieldbus system)	Integrated-type (for input/output) serial transmission system	Integrated-type (for output) serial transmission system		
	EX510	EX500	EX600	EX250	EX260	EX126	EX120
Applicable protocol							
DeviceNet™	●	●	●	●	●		●
PROFIBUS DP	●	●	●	●	●		
CC-Link	●		●	●		●	●
EtherNet/IP™		●	●	●	●		
EtherCAT			●		●		
PROFINET			●		●		
CANopen				●			
AS-Interface				●			
OMRON CompoBus/S							●
CompoNet™							●

## Power saving

### Power consumption

**0.1 w** **0.35 w**  
 With power saving circuit      Standard

[Electrical power waveform with power saving circuit]



### Power consumption is reduced by power saving circuit.

Power consumption is decreased by approx. 1/3 by reducing the wattage required to hold the valve in an energized state. (Effective energizing time is over 67 ms at 24 VDC.) Refer to the electrical power waveform as shown on the left.

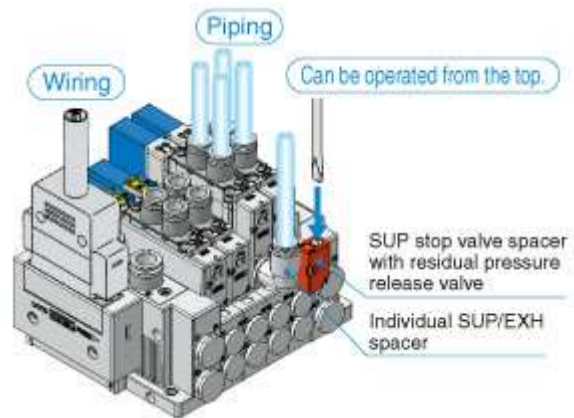
The value in ( ) are for the quick response and high pressure types.

## Space saving/Improved operability

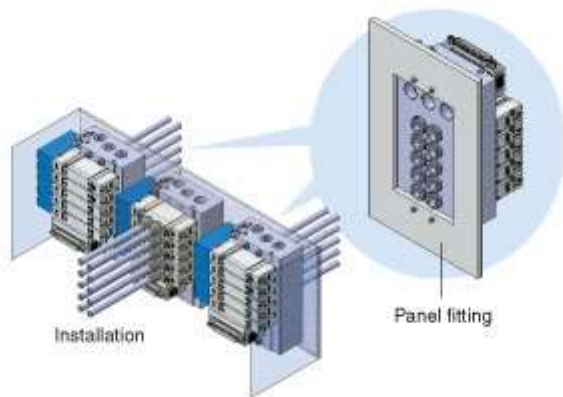
Wiring, piping and operation are integrated on one side.

Multiple layer type is available as an option.

This saves space in the lateral direction.



## Bottom porting available. Space saving



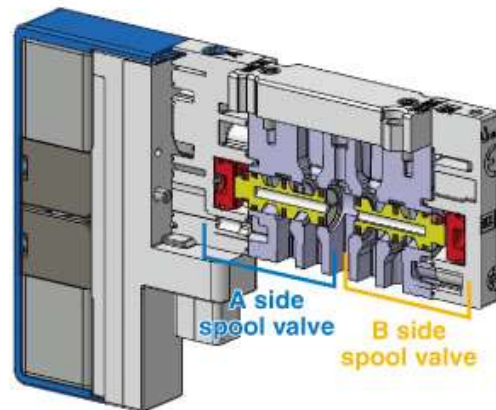
Top or bottom ported reduces the footprint.

Cleaner tubing installation

## 4-position dual 3-port valve available

(Only rubber seal type)

Two 3-port valves built into one body

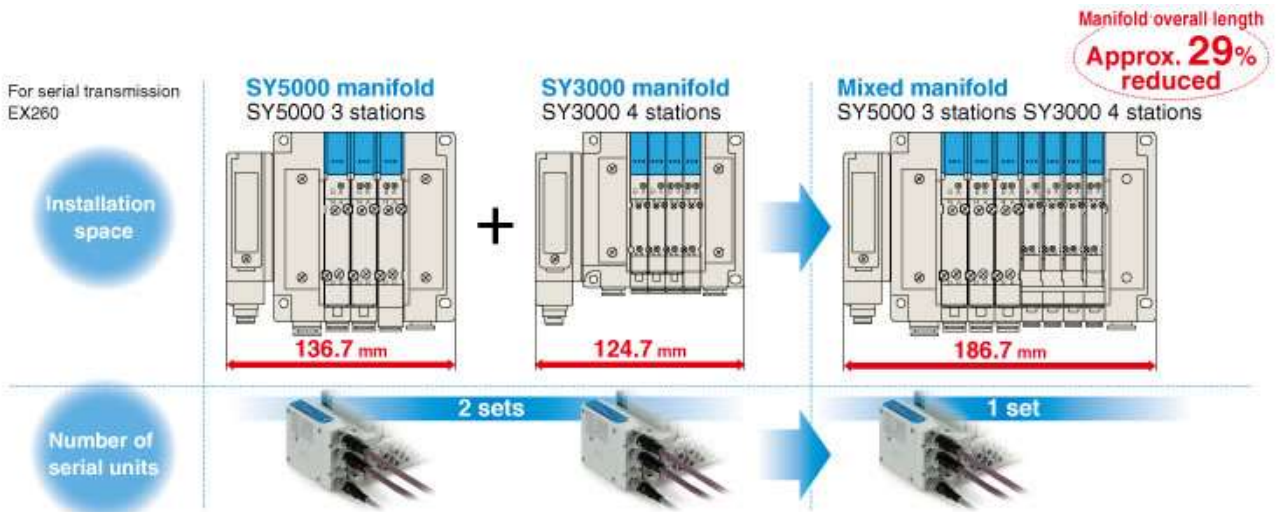


- 3-port valves on the A and B sides can operate independently.
- When used as a 3-port valve, only half the number of stations is required.
- Can also be used as a 4-position, 5-port valve.
- 4-position dual 3-port valve with back pressure check valve is available.
- Combination examples

Series	A side	B side
SY□A <sub>3</sub> <sup>0</sup>	N.C. valve	N.C. valve
SY□B <sub>3</sub> <sup>0</sup>	N.O. valve	N.O. valve
SY□C <sub>3</sub> <sup>0</sup>	N.C. valve	N.O. valve

## Different sizes (SY3000/5000 or SY5000/7000) can be mixed!

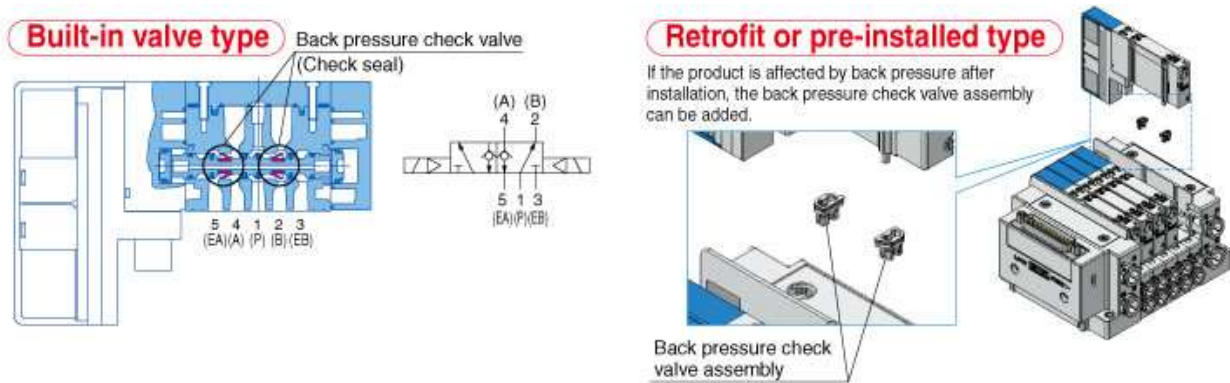
Possible to reduce installation space, the number of serial units and wirings.



## Improved safety

### Back pressure check valve

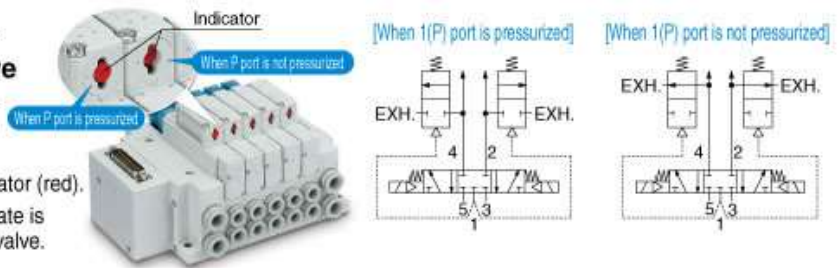
This prevents actuator and air operated valve malfunctions caused by the exhaust from other valves.



With residual pressure release valve (Only SY5000) **New**

### For residual pressure release of the 3-position closed center valve

- The pressure of the 4 (A) and 2 (B) ports is also exhausted automatically at the same when the pressure of the 1 (P) port is exhausted.
- The pressure can be visualized using the indicator (red).
- Since this valve is not a spacer type, the flow rate is equivalent to that of the normal closed center valve.

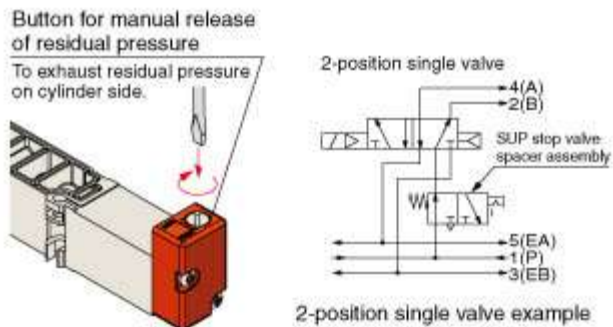


### SUP stop valve spacer

(With residual pressure release valve)

Air supply to each valve can be stopped individually.

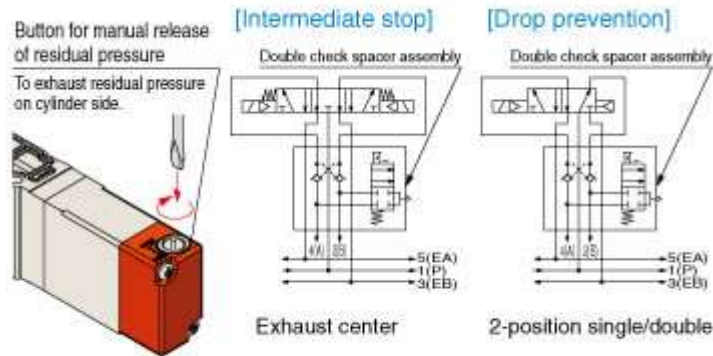
The valve and cylinder can be replaced without stopping other devices and equipment.



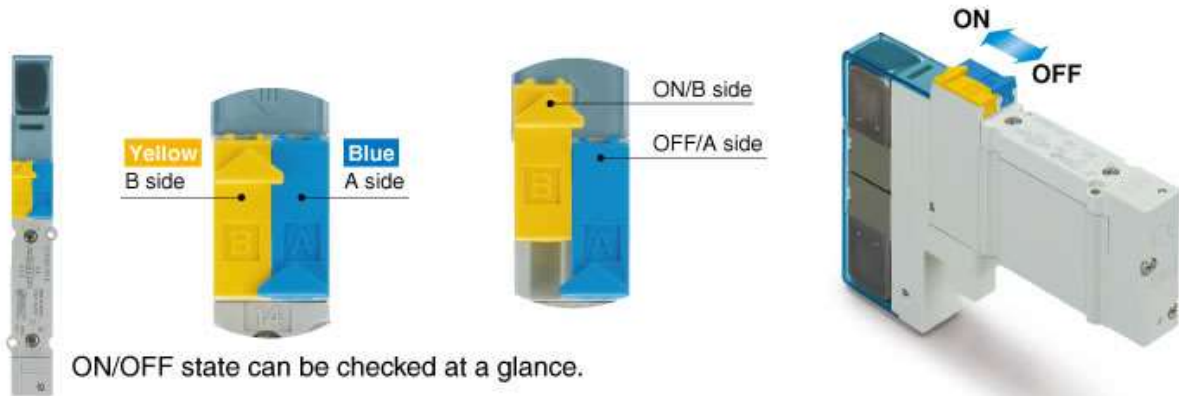
## Double check spacer

(With residual pressure release valve)

Long time of intermediate stop and position holding are possible.



With safety slide locking manual override/SY3000/5000/7000-X13 **New**



### ● Double action operation

#### Before operation

The slide manual overrides cannot be turned ON with the safety slide cover. (OFF status: Locked)



#### Operation 1

Operates the safety slide cover upward. (Unlocked)



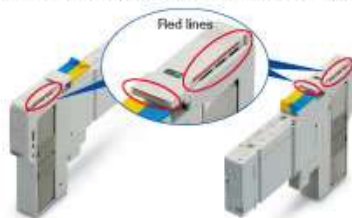
#### Operation 2

The slide manual overrides can be operated.

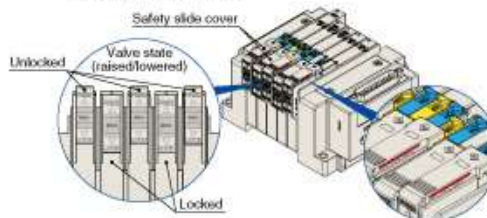


### ● Visual check

Red lines in three directions can be checked whether the safety slide cover is unlocked (FREE).



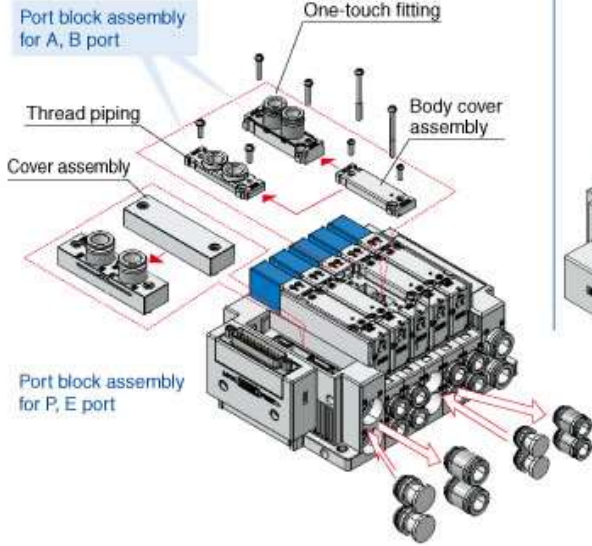
Safety slide covers can be checked from their raised and lowered positions.



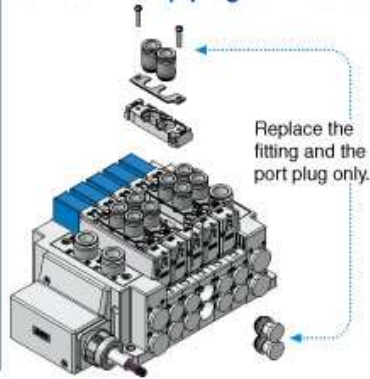


## Piping options

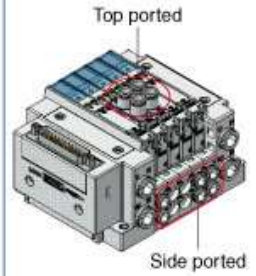
### To mount the piping on top



### To mount the piping on the side



### Mixed mounting of top ported and side ported is possible.



It is possible to detect the output of 4(A) and 2(B) port with a pressure switch by mounting the top ported valve onto the side ported or bottom ported manifold. (Pressure switch etc., needs to be ordered separately.)

