

**Your safety is our focus**

Safety related special products

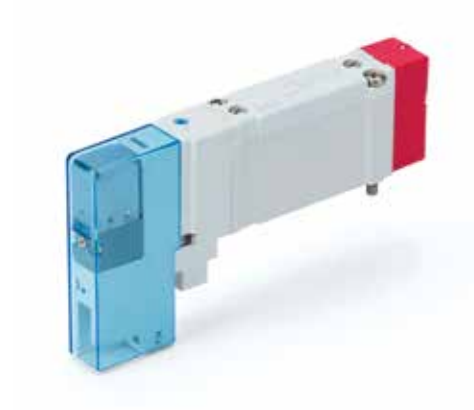
Pilot air control valve with spring return spool

**SY-X310 Series**

# Pilot air control valve with spring return spool SY-X310 Series



- ▶ **We focus on machinery safety as a key part of our product development strategy. We have just developed a new version of our SY valve that will help you to satisfy your machine safety system requirements.**



## Main Features

- ▶ **A pilot air control valve with spool detection – The concept**

The SY-X310 version controls the pilot air of manifold zones.  
The safe position is the spring-actuated position.

- ▶ **Validated according to ISO 13849-2**

This product is capable of meeting the relevant basic and well-tried safety principles.  
Please request our validation document for the details.

- ▶ **SISTEMA library is available**

SY safety valves data are integrated into SISTEMA free software tool.  
Download it from our website and be ready to build your safety function.

- ▶ **Still an option of our SY, the all-purpose valve**

Benefit from the high versatility this series gives you and create your own configuration, tailored to your needs.



## Applications

Controlling the Pilot air of valve manifold. Thus, it is required to equip the manifold with external pilot air valve.  
For achieving a diagnostic coverage, SMC recommends to use a suitable pressure detection switch:

- SY5000: F08-2000-M12-M
- SY7000: F08-7000-M12-M

## How to Order

Base mounted SY5100  -  NZ1 -  - X310  
 Top ported SY5130  -  NZ1 -   -  - X310  
 ① ② ③ ④ ⑤

### ① Coil type

—	Standard
T	With power saving circuit

### ② Rated voltage

5	24 VDC
6	12 VDC

### ③ A, B port size

01	1/8"
C4	One touch fittings for Ø 4 tube
C6	One touch fittings for Ø 6 tube
C8	One touch fittings for Ø 8 tube

### ⑤ Type of mounting screw

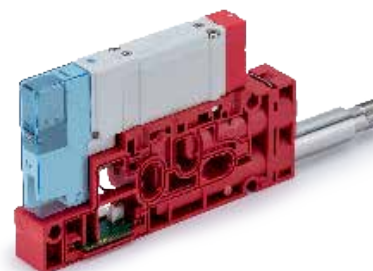
Nil	Round head combination screw
K	Round head combination screw (retained)
H	Hex socket head cap screw (retained)

### ④ Thread type (applies to 1/8" port only)

—	Rc
F	G
N	NPT
T	NPTF

## Selected Part Numbers

Part number	Max. flow rate cfm (l/min)	Operating pressure range psi (MPa)
SY5100T-5NZ1-X310	36.8 (1042)	22 to 101 (0.15 - 0.7)



## Ⓐ Plug-in Sub-plate

Part number	Valve series	Max. flow rate cfm (l/min)	Operating pressure range psi (MPa)
SY50M-2-14SA-C0	SY 5000	36.8 (1042)	22 to 101 (0.15 - 0.7)
SY70M-2-19DA-C0	SY 7000	56.2 (1590)	22 to 101 (0.15 - 0.7)

Note) Requires external pilot end block for pilot exhaust

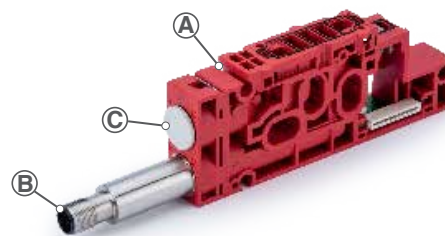
## Ⓑ Pressure Detection for SY310

Part number	Valve series
F08-2000-M12-M	SY 5000
F08-7000-M12-M	SY 7000

## Ⓒ Port Plug for Sub-plates

Part number	Valve series
VVQ1000-58A	SY 5000
VVQ2000-58A	SY 7000

Note) See SY catalog for additional fitting options

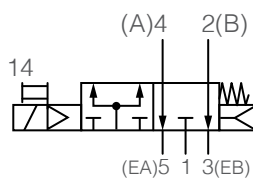


## Valve Specifications

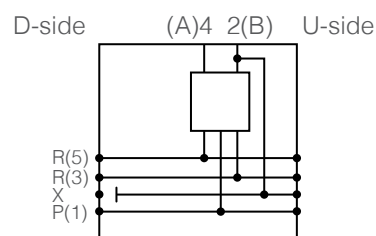
Valve type		5 port solenoid valve
Valve type		Rubber seal
Type of actuation		2-position single/spring and air return type
Fluid		Air
Operating pressure range		22 to 101 psi (0.15 to 0.7MPa)
Ambient and fluid temperature		14 to 122°F (-10 to 50°C)
Manual override		Non-locking push type
Min. operating frequency (Hz)		1 cycle every 30 days
Max. operating frequency (Hz)		5
Response time		31 ms or less @ 72 psi (0.5 MPa)
Lubrication		Not required
Mounting orientation		Unrestricted
Impact/Vibration resistance (m/s <sup>2</sup> )		150/30
Enclosure		IEC529 standard IP67
Filtration		5 μm filtration or similar
Coil rated voltage (DC)		24 V
Allowable voltage fluctuation (V)	Standard	24 VDC: -7 to 10%
		12 VDC: -4 to 10%
	With power saving circuit	24 VDC: -8 to 10%
		12 VDC: -6 to 10%
Power consumption (W)	Standard	0.4
	With power saving circuit	0.1 (inrush 0.35, holding 0.1)
Surge voltage suppressor		Diode (varistor for non-polar type)
Indicator light		LED

## Symbols

### Valve



### Manifold Block



# Pilot air control valve with spring return spool

## SY-X310 Series



### Manifold Flow characteristics <sup>1)</sup>

#### Plug-in metal base

Series	Piping option	Port size		Valve flow-rate characteristics					
		1, 5, 3 (P, EA, EB)	4, 2 (A, B)	1→4/2 (P→A/B)			4/2→5/3 (A/B→E)		
				C [dm <sup>3</sup> /(s·bar)]	b	Q [l/min] (ANR) <sup>2)</sup>	C [dm <sup>3</sup> /(s·bar)]	b	Q [l/min] (ANR) <sup>2)</sup>
SY5000	Side ported	1/4	C8	2.6	0.28	653	2.6	0.14	603
	Bottom ported	1/4	C8	2.7	0.35	709	2.8	0.20	671

#### Resin base

Series	Piping option	Port size		Valve flow-rate characteristics					
		1, 5, 3 (P, EA, EB)	4, 2 (A, B)	1→4/2 (P→A/B)			4/2→5/3 (A/B→E)		
				C [dm <sup>3</sup> /(s·bar)]	b	Q [l/min] (ANR) <sup>2)</sup>	C [dm <sup>3</sup> /(s·bar)]	b	Q [l/min] (ANR) <sup>2)</sup>
SY5000	Side ported	C10	C8	3.3	0.30	839	3.6	0.17	848
	Bottom ported	C10	C8	3.3	0.29	834	4.2	0.26	1042

1) The value is for manifold base with 5 stations and individually operated 2-position type.

2) These values have been calculated according to ISO 6358 and indicate the flow rate under standard conditions with an inlet pressure of 87 psi (0.6 MPa) (relative pressure) and a pressure drop of 14.5 psi (0.1 MPa).

3) These values are applicable to rubber seal type valves.

## Dimensions

Dimensions are the same as the standard product.



**5 port solenoid valve with spring return spool**  
SY-X350 Series



**5 port solenoid valve with spool detetion**  
SY-X30 Series



**Pilot pressure control valve with spool detetion**  
SY-X31 Series



**5 port solenoid valve with detent**  
SY-X25 Series

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