

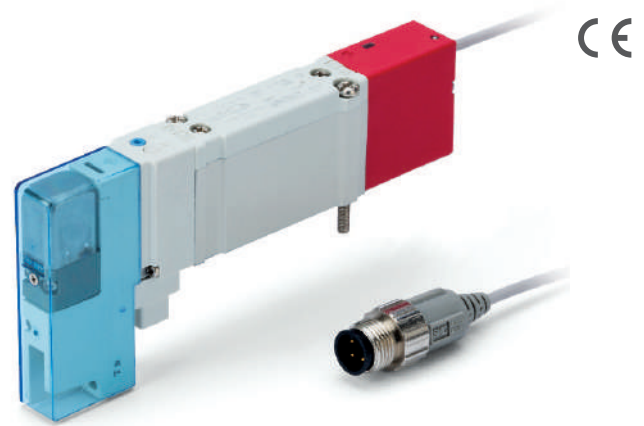
## Your safety is our focus

Safety related special products  
5 port valve with position detection  
and spring return spool

**SY-X30 Series**

# 5 port valve with position detection and spring return spool SY-X30 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 valve with position detection and spring return spool - The concept**

An auto switch integrated into the valve monitors the safe position of the spool. The safe position is the spring-actuated position. A high signal on the auto switch represents the safe position of the spool. Therefore, achieving a high diagnostic coverage is simple.

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

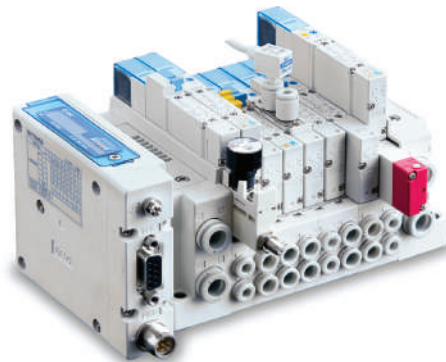
This product is capable of meeting the relevant basic and well-tried safety principles.  
Please request our validation document for the details.

- **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

Because of its validated design this valve can be used to implement different types of safety function for pneumatic actuators, particularly short stroke cylinders or grippers

## How to order

SY5100       - 5   1 - M9   W     PC - X30

1
2
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### 1 Pilot type

—	Internal pilot
R	External pilot

### 2 Pilot valve option

—	Standard
B	Quick response type

### 3 Coil Specification

—	Standard
T	w/ Power saving circuit (continuous duty type)

### 4 Light & surge suppressor

—	W/o indicator light & surge suppressor
R	W/surge suppressor (non polar)
U	W/indicator light & surge suppressor (non polar)
S	W/surge suppressor (positive common)
Z	W/indicator light & surge suppressor (positive common)
NS	W/surge suppressor (negative common)
NZ	W/indicator light & surge suppressor (negative common)

Note) Refer to the reliability data for the latest "How to order"

### 5 Wiring and output type

N	3-wire, NPN
P	3-wire, PNP
B	2-wire

### 6 Cable length

S	0.5 m
M	1 m

### 7 Connector specifications

A	M8-3 pins
B	M8-4 pins
D	M12-4 pins

## Best Selling Part Numbers

Part number	Connector type
SY5100-5U1-M9PWSAPC-X30	M8-3 pins
SY5100R-5U1-M9PWSAPC-X30	M8-3 pins

## Valve Specifications

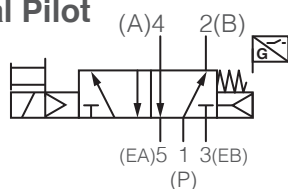
Valve type		5 port solenoid valve, spool detection
Valve type		Rubber seal
Type of actuation		2-position single/spring and air return type
Spool detection		Auto switch signal output is active when valve is de-energised
Fluid		Air
Internal pilot operating pressure range		22 to 101 psi (0.15 to 0.7 MPa)
External pilot operating pressure range	Operating pressure range	-14.5 to 101 psi (-100 kPa to 0.7 MPa)
	2-position single	36 to 101 psi (0.25 to 0.7 MPa)
Ambient and fluid temperature		14 to 122 °F (-10 to 50 °C) No freezing
Manual override		Non-locking push type
Min. operating frequency [Hz]		1 cycle every 30 days
Max. operating frequency [Hz]		5
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]		± 10 % of rated voltage
Power consumption [W]	X30	0.35 (with indicator light: 0.4)
Surge voltage suppressor		Diode (Varistor for non-polar type)
Indicator light		LED
Pilot exhaust type	Internal pilot	Main/pilot valve common exhaust
	External pilot	Pilot individual exhaust

## Auto switch specifications

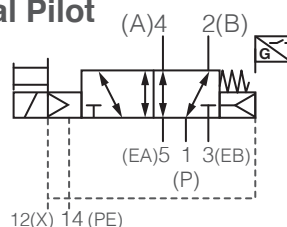
Auto switch model	D-M9NW	D-M9PW	D-M9BW
Wiring type	3-Wire		2-Wire
Output type	NPN	PNP	—
Applicable load	IC circuit, Relay, PLC		24 VDC relay PLC
Power supply voltage	5, 12, 24 VDC (4.5 to 28 V)		—
Current consumption	10 mA or less		—
Load voltage	28 VDC or less	—	24 VDC (10 to 28 VDC)
Load current	40 mA or less		2.5 to 40 mA
Internal voltage drop	0.8 V or less at 10 mA Load current (2 V or less at 40 mA)		4 V or less
Leakage current	100 µA or less at 24 VDC		0.8 mA or less
Operating time	1 ms or less		—
Indicator light	Green LED when turned on Red LED when within operating range		—
Standard	CE marking, RoHS		—
Electrical entry system	Grommet		—
Lead wire	Oil-proof heavy-duty vinyl cord 2.7 x 3.2 oval, 0.15 mm <sup>2</sup> , 2 wire (D-M9BW), 3 wire (D-M9NW/D-M9PW)		—
Withstand voltage	1000 VAC for 1 min (between terminals and housing)		—
Insulation resistance	50 MΩ or more at 500 VDC mega		—
Ambient temperature	±10 to 60 °C		—
Enclosure	IEC529 standard IP67, JISC0920 water-proof construction		—

## Symbols

### Internal Pilot



### External Pilot



# 5 port valve with position detection and spring return spool SY-X30 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.

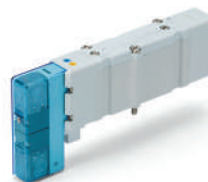
## Dimensions

Dimensions are the same as the standard product.

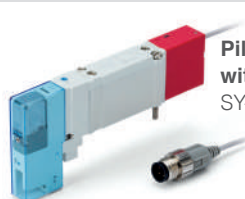
### Other SY safety specials



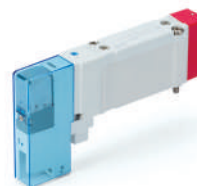
**5 port solenoid valve with  
spring return spool**  
SY-X350 Series



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



**Pilot pressure control valve  
with position detection**  
SY-X31 Series



**Pilot pressure control valve**  
SY-X310 Series

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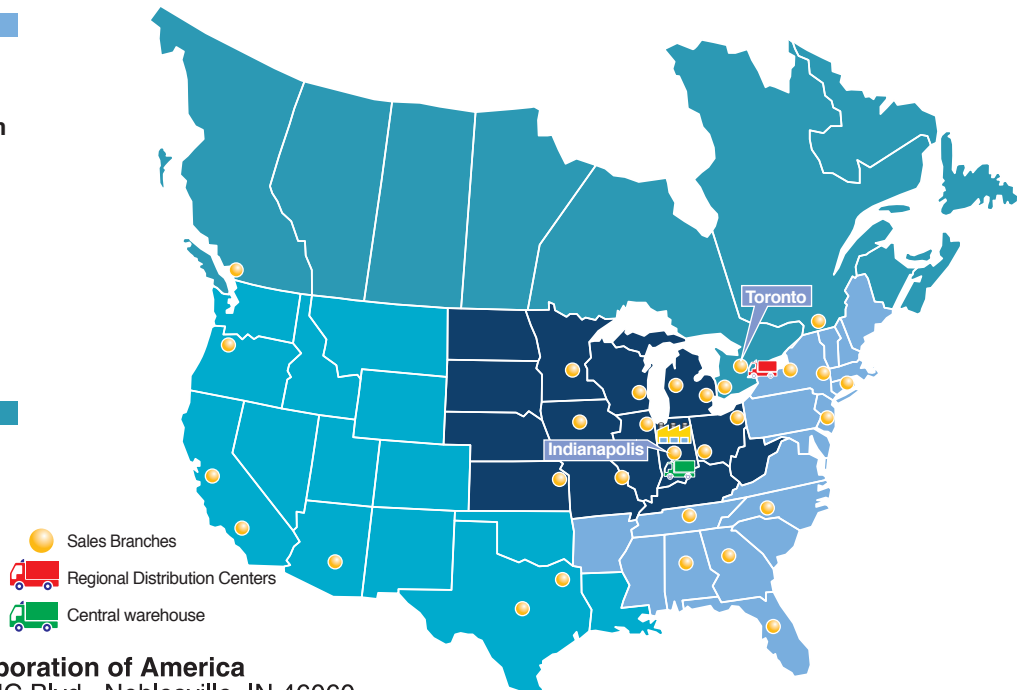
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