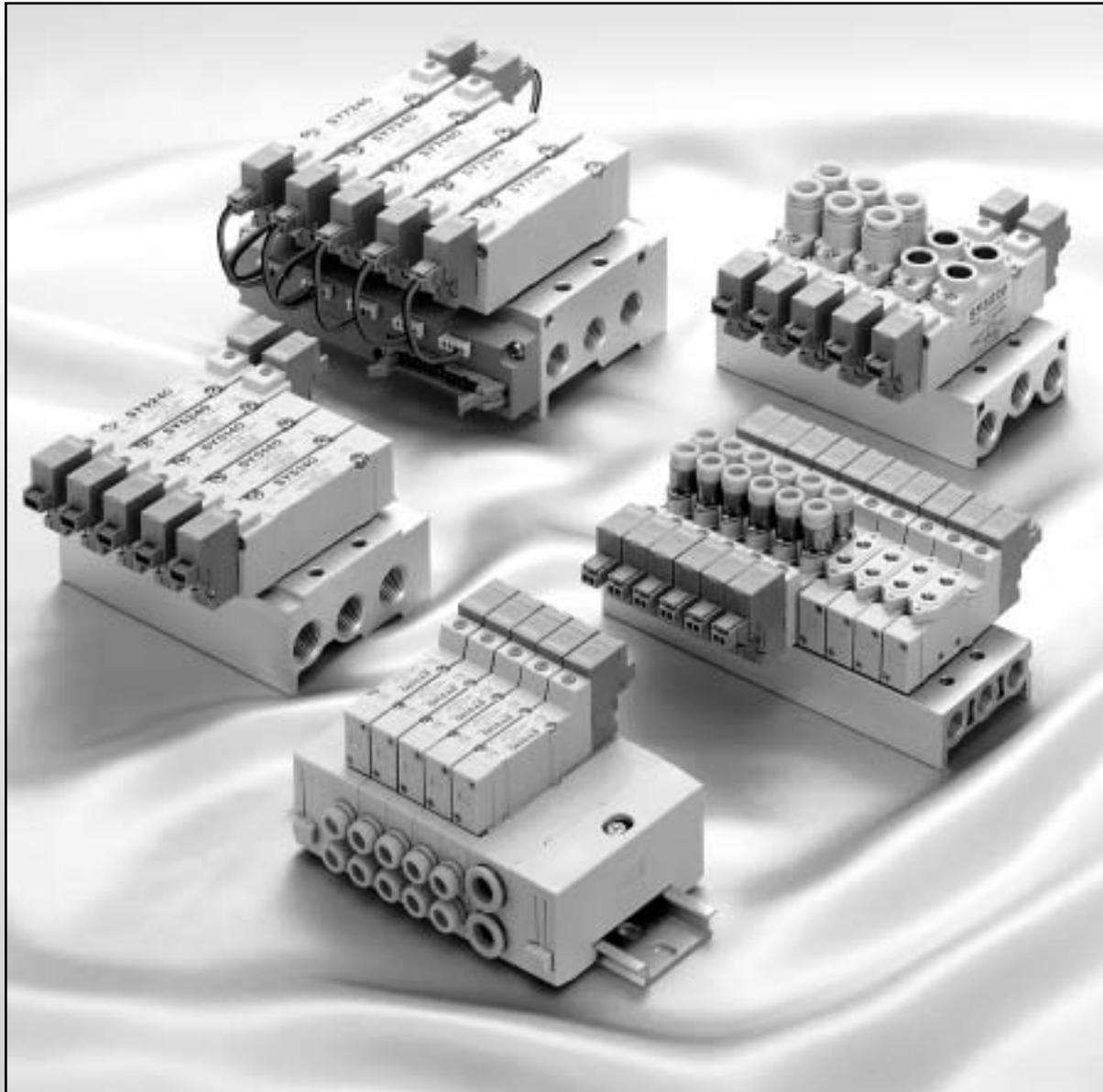


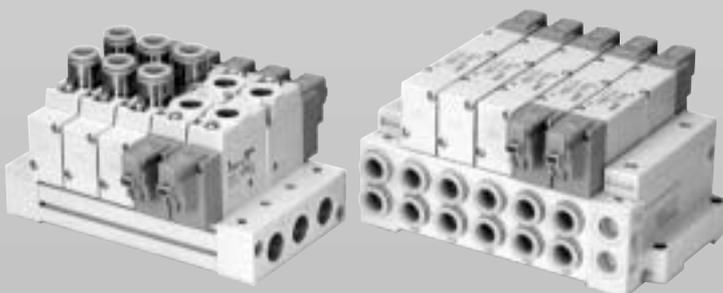
High Capacity & Simple Choices

Series SY

5 Port Rubber Seal Solenoid Valve



Series SY9000 newly released



SV

SY

SYJ

SX

VK

VZ

VF

VFR

VP7

VQC

SQ

VQ

VQ4

VQ5

VQZ

VQD

VFS

VS

VS7

VQ7

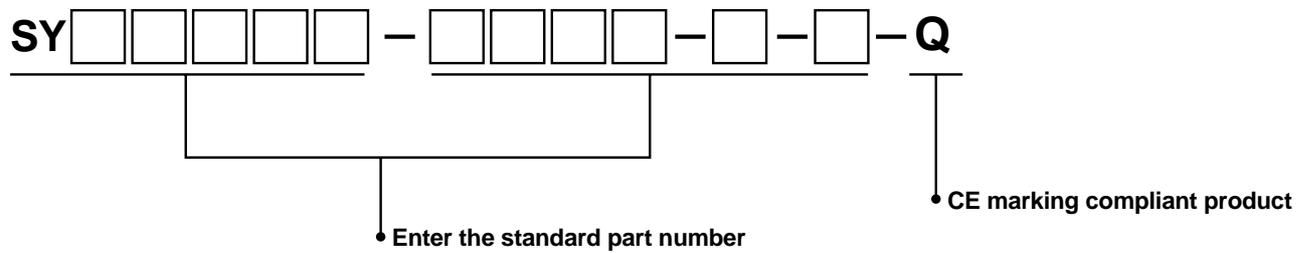


CE Marking Compliant Products

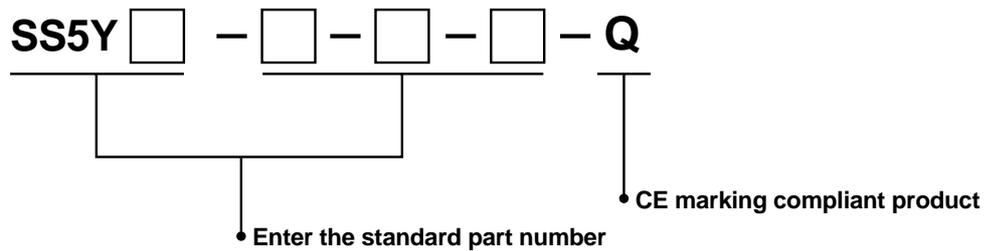
The SY series complies with the EMC Directive and the Low Energy Directive based on approval by TÜV Rheinland, an EC Notified Body (EC authorization No. 0197).

When ordering CE marking compliant products, add "- Q" at the end of the standard part number.

How to order valves



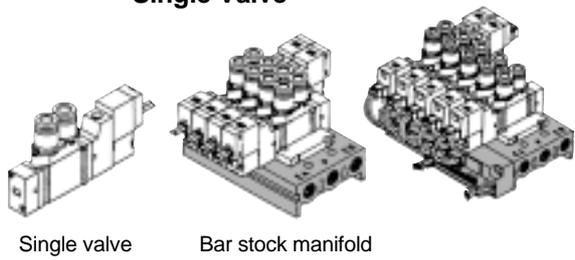
How to order manifolds



Note) Contact SMC for details, as there are limitations on models, voltage specifications and electrical entry, etc.

Table of Contents

Body Ported



Features	1.2-4 to 1.2-5
Cylinder Speed Chart	1.2-6
Valve Variations	1.2-7
Manifold Variations	1.2-8 to 1.2-9
Single Valve	P. 1.2-10 to 1.2-27

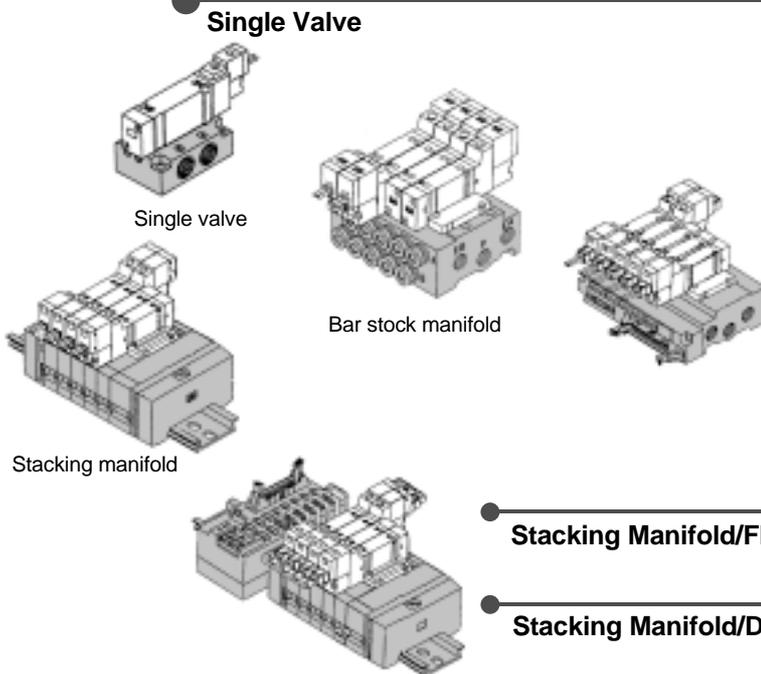
Bar Stock Manifold/Individual Wiring	P. 1.2-46 to 1.2-51
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Stacking Manifold/Individual Wiring	P. 1.2-52 to 1.2-55
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Bar Stock Manifold/Flat Ribbon Cable	P. 1.2-56 to 1.2-61
---	---------------------

Stacking Manifold/Flat Ribbon Cable	P. 1.2-62 to 1.2-67
--	---------------------

Base Mounted



Single Valve	P. 1.2-28 to 1.2-45
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Bar Stock Manifold/Individual Wiring	P. 1.2-68 to 1.2-77
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Stacking Manifold/Individual Wiring	P. 1.2-78 to 1.2-83
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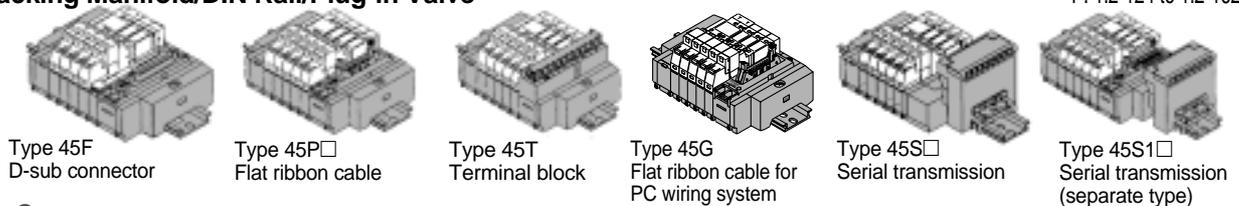
Bar Stock Manifold/Flat Ribbon Cable	P. 1.2-84 to 1.2-91
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Stacking Manifold/Flat Ribbon Cable	P. 1.2-92 to 1.2-103
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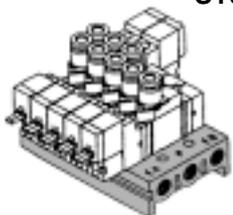
Stacking Manifold/DIN Rail/Individual Wiring	P. 1.2-104 to 1.2-114
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Stacking Manifold/DIN Rail/Connector Box	P. 1.2-115 to 1.2-123
---	-----------------------

Stacking Manifold/DIN Rail/Plug-in Valve	P. 1.2-124 to 1.2-162
---	-----------------------



SY300/500 3 Port Valves	P. 1.2-163 to 1.2-167
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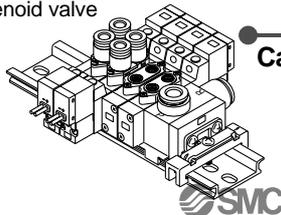


Order Made	P. 1.2-168 to 1.2-177
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- Type 45S2/serial type with SMC IN313
- Type 45S3/serial type with OMRON G71-OD16
- External pilot and built-in silencer
- Mixed mounting type
- DIN connector (DIN43650C standard)
- Body ported type with external pilot
- Main valve fluoro rubber specification
- Energy saving solenoid valve

Specific Product Precautions	P. 1.2-178 to 1.2-182
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Cassette Type Manifold	P. 1.2-183 to 1.2-206
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SV
SY
SYJ
SX
VK
VZ
VF
VFR
VP7
VQC
SQ
VQ
VQ4
VQ5
VQZ
VQD
VFS
VS
VS7
VQ7

High Capacity & Simple Choices

5 Port Solenoid Valves

SY3000/5000/7000/9000

Low power consumption: 0.5W (Current value: 21mA at 24VDC)

Low power consumption enables direct operation by a PLC, and cost savings are realized through the use of a smaller power supply and switching elements and the elimination of relay cards.

[An energy saving type [0.22W] is also available. Refer to page 1.2-177 for details.]

Compact design with high flow capacity of 1668.6 to 2944.5 N/min with the same body width

The same size cylinder can be driven with a valve one physical size smaller than a conventional type, contributing greatly to both space and cost savings.

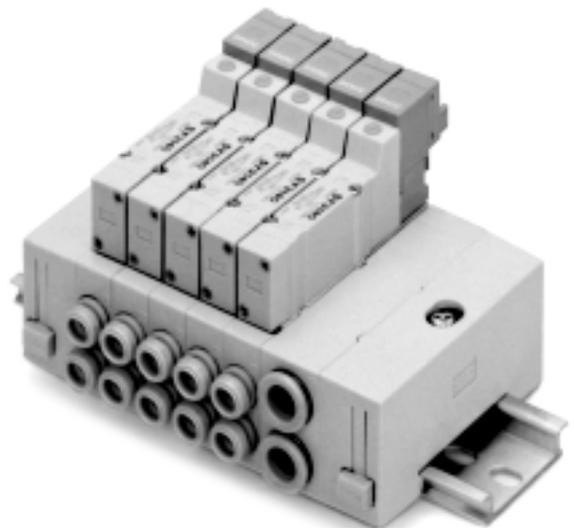
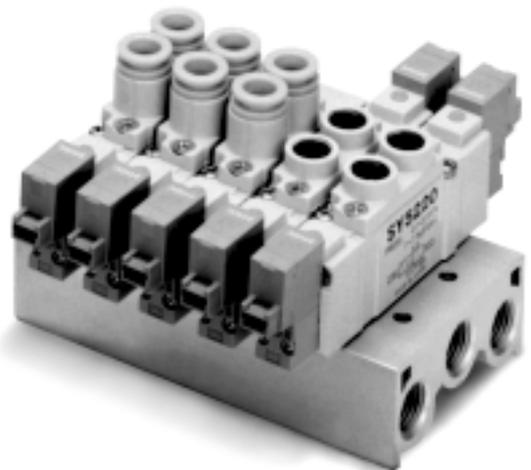
Valves to drive cylinders of sizes $\phi 6$ to $\phi 200$ Pressure: 0.5MPa, Load factor: 50%

Base mounted (sub-plate)	Cylinder speed N/min	Cylinder speed mm/s	Cylinder bore size mm																
			Series CJ2				Series CM2				Series MB/CA1				Series CS1				
			$\phi 6$	$\phi 10$	$\phi 16$	$\phi 20$	$\phi 25$	$\phi 32$	$\phi 40$	$\phi 40$	$\phi 50$	$\phi 63$	$\phi 80$	$\phi 100$	$\phi 125$	$\phi 140$	$\phi 160$	$\phi 180$	$\phi 200$
SY3000	294.5	150																	
		300																	
		450																	
		600																	
		750																	
SY5000	687	150																	
		300																	
		450																	
		600																	
		750																	
SY7000	1177.8	150											*	*					
		300										*	*						
		450									*	*							
		600									*	*							
		750								*	*								
SY9000	2748.2	150											*	*	*		*	*	*
		300											*	*	*		*	*	*
		450											*	*	*		*	*	*
		600											*	*	*		*	*	*
		750											*	*	*		*	*	*

The speed of CJ2 and CM2 cylinders is controlled by a fixed orifice built into the cylinder.

* Cylinder speeds are for extension of the cylinder.

* The "*" symbol indicates conditions with SGP (steel piping).



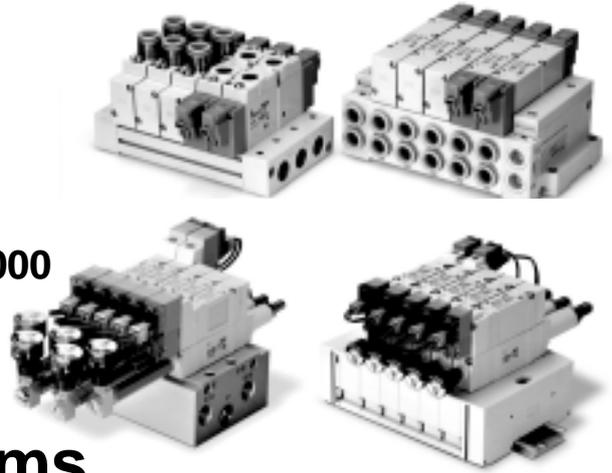
Long life exceeding 50 million cycles

(Based on SMC life test conditions.)

Long life is achieved by a new pilot design, guide rings that prevent main valve eccentricity, and a stronger return force.

New

- 5 port solenoid valve series SY9000
N/min 2748.2 (base mounted type with sub-plate)
- Interface regulator series ARBY3000/5000
(for series SY3000/5000/7000)



High speed response: 10ms

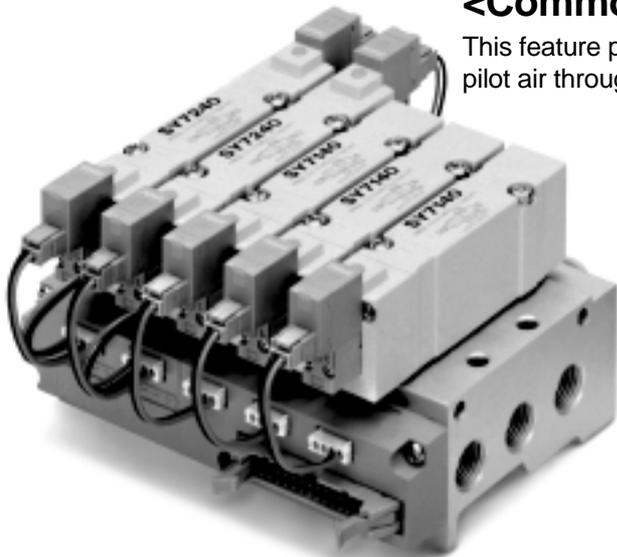
(SY3000 single solenoid, 0.5MPa, 20°C) (representative value)

The innovative design of the pilot valve makes it possible to achieve a short response time of 10ms while consuming only a half watt of power.

Exhaust mist and noise from the pilot valve are eliminated.

<Common exhaust construction for main/pilot valves>

This feature provides for a cleaner and quieter operating environment by exhausting the pilot air through the main valve body rather than directly to the atmosphere.



Interchangeable cylinder port sizes

<Body ported type>

	Interchangeable port sizes				
	C4	C6	C8	C10	M5
SY3000	C4	C6	C8	C10	M5
SY5000	C4	C6	C8	C10	1/8
SY7000	C8	C10	C12	Rc1/4	1/4
SY9000	C8	C10	C12	Rc1/4	3/8

C# = Tube fitting cartridge size

- For SY5000

[SY5000-6A-01]

[SY5000-6A-C6]

Outstanding seal performance

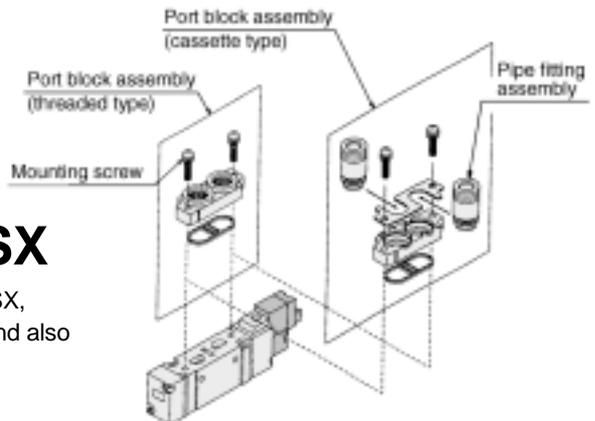
Special rubber seals in the main valve offer improved durability and performance, greatly reducing valve failures under a wide range of operating conditions.

Same valve footprint as series SX

The non-plug-in type manifold base and sub-plate are common with series SX, making it possible to mount both series SX and SY on the same manifold, and also reducing base inventory when both series are being used.

Clean aesthetics and state-of-the-art design

Bright white colours and a clean design have been adopted to complement high-tech operating environments.



SV

SY

SYJ

SX

VK

VZ

VF

VFR

VP7

VQC

SQ

VQ

VQ4

VQ5

VQZ

VQD

VFS

VS

VS7

VQ7

Cylinder Speed Chart

* Values in the chart below are for reference.
Confirm the actual conditions with the SMC
sizing program.

Body ported type

Series	Cylinder speed mm/s	Cylinder bore size mm														
		Series CJ2 Pressure 0.5MPa Load factor 50% Cylinder stroke 60mm			Series CM2 Pressure 0.5MPa Load factor 50% Cylinder stroke 300mm				Series MB/CA1 Pressure 0.5MPa Load factor 50% Cylinder stroke 500mm				Series CS1 Pressure 0.5MPa Load factor 50% Cylinder stroke 1000mm			
		ø6	ø10	ø16	ø20	ø25	ø32	ø40	ø40	ø50	ø63	ø80	ø100	ø125	ø140	ø160
SY3120 -C6 N/min = 225.7	150															
	300															
	450															
	600															
	750															
SY5120 -01 N/min = 579.1	150															
	300															
	450															
	600															
	750															
SY7120 -02 N/min = 854	150															
	300															
	450															
	600															
	750															
SY9120 -03 N/min = 2061.2	150														*	*
	300														*	*
	450														*	*
	600														*	*
	750														*	*

Base mounted type (with sub-plate)

The speed of CJ2 and CM2 cylinders is controlled by a fixed orifice built into the cylinder.
* Cylinder speeds are for extension of the cylinder.
* The "*" symbol indicates conditions with SGP (steel piping).

Series	Cylinder speed mm/s	Cylinder bore size mm															
		Series CJ2 Pressure 0.5MPa Load factor 50% Cylinder stroke 60mm			Series CM2 Pressure 0.5MPa Load factor 50% Cylinder stroke 300mm				Series MB/CA1 Pressure 0.5MPa Load factor 50% Cylinder stroke 500mm				Series CS1 Pressure 0.5MPa Load factor 50% Cylinder stroke 1000mm				
		ø6	ø10	ø16	ø20	ø25	ø32	ø40	ø40	ø50	ø63	ø80	ø100	ø125	ø140	ø160	ø180
SY3140 -01 N/min = 294.5	150																
	300																
	450																
	600																
	750																
SY5140 -02 N/min=687	150																
	300																
	450																
	600																
	750																
SY7140 -03 N/min = 1177.8	150												*	*			
	300												*	*			
	450												*	*			
	600												*	*			
	750												*	*			
SY9140 -04 N/min = 2748.2	150												*	*	*	*	*
	300												*	*	*	*	*
	450												*	*	*	*	*
	600												*	*	*	*	*
	750												*	*	*	*	*

The speed of CJ2 and CM2 cylinders is controlled by a fixed orifice built into the cylinder.
* Cylinder speeds are for extension of the cylinder.
* The "*" symbol indicates conditions with SGP (steel piping).

Conditions

Body ported type		Series CJ2	Series CM2	Series MB/CA1	Series CS1
SY3120 -C6 (N/min = 225.7)	Tube bore x Length	ø6 x 1m			—
	Speed controller	AS2051F-06 (S = 0.25)			
	Silencer	AN120-M5 (N/min = 265)			
SY5120 -01 (N/min = 579.1)	Tube bore x Length	ø6 x 1m	ø8 x 1m	—	
	Speed controller	AS3001F-06 (N/min = 353.3)	AS3001F-08 (N/min = 549.6)	—	
	Silencer	AN101-01 (N/min = 1089.5)			
SY7120 -02 (N/min = 853.9)	Tube bore x Length	ø6 x 1m	ø10 x 1m	—	
	Speed controller	AS3001F-06 (N/min = 353.3)	AS4001F-10 (N/min = 873.5)	—	
	Silencer	AN110-01 (N/min = 1904.1)			
SY9120 -03 (N/min = 2061.2)	Tube bore x Length	ø6 x 1m	ø10 x 1m	ø12 x 1m	
	Speed controller	AS3001F-06 (N/min = 127.2)	AS4001F-10 (N/min = 873.5)	AS4001F-12 (N/min = 1148.4)	
	Silencer	AN200-02 (N/min = 1904.1)			

Conditions [with SGP (steel tube)]

Body ported type		Series CS1
SY9120 -03 (N/min = 2061.2)	Steel tube size x Length	SGP3/8 x 1m
	Speed controller	AS420-03 (N/min = 4034)
	Silencer	AN400-04 (N/min = 4907.5)

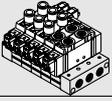
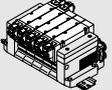
Conditions

Base mounted type		Series CJ2	Series CM2	Series MB/CA1	Series CS1
SY3140 -01 (N/min = 294.5)	Tube bore x Length	ø6 x 1m			—
	Speed controller	AS3001F-06 (S = 0.36)			
	Silencer	AN110-01 (N/min = 1904.1)			
SY5140 -02 (N/min = 480.9)	Tube bore x Length	ø6 x 1m	ø8 x 1m	—	
	Speed controller	AS3001F-06 (N/min = 353.3)	AS3001F-08 (N/min = 549.6)	—	
	Silencer	AN110-01 (N/min = 1904.1)			
SY7140 -03 (N/min = 1177.8)	Tube bore x Length	ø6 x 1m	ø10 x 1m	ø12 x 1m	
	Speed controller	AS3001F-06 (N/min = 353.3)	AS3001F-08 (N/min = 549.6)	AS4001F-10 (N/min = 1177.8)	
	Silencer	AN200-02 (N/min = 1904.1)			
SY9140 -04 (N/min = 2748.2)	Tube bore x Length	ø6 x 1m	ø10 x 1m	ø12 x 1m	
	Speed controller	AS3001F-06 (N/min = 1148.4)	AS4001F-10 (N/min = 873.5)	AS4001F-12 (N/min = 1148.4)	
	Silencer	AN200-02 (N/min = 1904.1)			

Conditions [with SGP (steel tube)]

Base mounted type		Series MB/CA1	Series CS1
SY7140 -03 (N/min = 1177.8)	Steel tube size x Length	SGP3/8 x 1m	
	Speed controller	AS420-03 (N/min = 4034)	
	Silencer	AN300-03 (N/min = 3602.1)	
SY9140 -04 (N/min = 2748.2)	Steel tube size x Length	SGP1/2 x 1m	
	Speed controller	AS420-04 (N/min = 4907.5)	
	Silencer	AN400-04 (N/min = 4907.5)	

Manifold Variations

Manifold variations				Valve series	Wiring									
					Connection							Common specifications		
					Individual wiring	Flat ribbon cable (26 pins)	Connector box (Flat ribbon cable 20 pins)	D-sub connector (25 pins) <Plug-in type>	Flat ribbon cable (26, 20, 10 pins) <Plug-in type>	Terminal block (9, 18 pins) <Plug-in type>	PC wiring	Serial transmission unit	Positive COM	Negative COM
5 port														
Body ported type	Bar stock type Individual wiring ■ Direct piping to the main unit of valve. Combination of different fittings is possible.		Type 20 Page 1.2-46	SY3□20	●	—	—	—	—	—	—	—	—	—
			SY5□20	●	—	—	—	—	—	—	—	—	—	
			SY7□20	—	—	—	—	—	—	—	—	—	—	
	Bar stock type Flat ribbon cable ■ A 26 pin MIL connector permits one-touch wiring of external cables in a bundle.		Type 20P Page 1.2-56	SY3□20	—	●	—	—	—	—	—	—	●	—
			SY5□20	—	●	—	—	—	—	—	—	—	●	—
			SY7□20	—	—	—	—	—	—	—	—	—	—	—
Stacking type Individual wiring ■ Addition/Removal of manifold stations is possible.		Type 23 Page 1.2-52	SY9□20	●	—	—	—	—	—	—	—	—	—	
		SY9□20	—	●	—	—	—	—	—	—	—	—	—	
Stacking type Flat ribbon cable ■ Addition/Removal of manifold stations is possible.		Type 23P Page 1.2-62	SY9□20	—	●	—	—	—	—	—	—	●	—	
		SY9□20	—	●	—	—	—	—	—	—	—	—	—	
Base mounted type	Compact bar stock type Individual wiring ■ The base mounting facilitates maintenance when valves are changed.		Type 41 Page 1.2-68	SY3□40	●	—	—	—	—	—	—	—	—	
			SY5□40	—	●	—	—	—	—	—	—	—	—	
	Compact bar stock type Flat ribbon cable ■ A 26 pin MIL connector permits one-touch wiring of external cables in a bundle.		Type 41P Page 1.2-84	SY3□40	—	●	—	—	—	—	—	—	●	
			SY5□40	—	●	—	—	—	—	—	—	—	—	●
	Bar stock type/Common external pilot Individual wiring ■ The base mounting facilitates maintenance when valves are changed. ■ Vacuum/low pressure combination system is possible.		Type 42 Page 1.2-68	SY3□40	●	—	—	—	—	—	—	—	—	
			SY5□40	●	—	—	—	—	—	—	—	—	—	
			SY7□40	—	—	—	—	—	—	—	—	—	—	
	Bar stock type/Common external pilot Flat ribbon cable ■ A 26 pin MIL connector permits one-touch wiring of external cables in a bundle. ■ Vacuum/low pressure combination system is possible.		Type 42P Page 1.2-84	SY3□40	—	●	—	—	—	—	—	—	—	
			SY5□40	—	●	—	—	—	—	—	—	—	—	●
			SY7□40	—	—	—	—	—	—	—	—	—	—	—
	Stacking type Individual wiring ■ Addition/Removal of manifold stations is possible.		Type 43 Page 1.2-78	SY9□40	●	—	—	—	—	—	—	—	—	
			SY9□40	—	●	—	—	—	—	—	—	—	—	—
Stacking type Flat ribbon cable ■ Addition/Removal of manifold stations is possible.		Type 43P Page 1.2-92	SY9□40	—	●	—	—	—	—	—	—	—		
		SY9□40	—	●	—	—	—	—	—	—	—	—	—	
Stacking type/DIN rail Individual wiring ■ Stations can be changed on the DIN rail. Integral mounting of other parts is possible.		Type 45 Page 1.2-104	SY3□40	●	—	—	—	—	—	—	—	—		
		SY5□40	●	—	—	—	—	—	—	—	—	—		
Stacking type/DIN rail Connector box ■ Stations can be changed on the DIN rail. The provided connector box permits one-touch connection of electric cables.		Type 45-A Page 1.2-115	SY3□40	—	—	●	—	—	—	●	—	●		
		SY5□40	—	—	●	—	—	—	—	●	—	●		
Stacking type/DIN rail Plug-in type ■ Stations can be changed on the DIN rail. A variety of centralized wiring methods are possible.		Type 45 Page 1.2-124	SY3□40	—	—	—	●	●	●	●	●	●		
		SY5□40	—	—	—	●	●	●	●	●	●	●		

● Standard ● Option

▲ Order made (See "Order Made Specifications" pages.)

SY3000/5000/7000/9000 Body Ported Type Single Valve

How to Order

SY 5 1 20 — 5 L — — — 01 — — — Q

Series

3	SY3000
5	SY5000
7	SY7000
9	SY9000

Type of actuation

1	2 position single	
2	2 position double	
3	3 position closed centre	
4	3 position exhaust centre	
5	3 position pressure centre	

Rated voltage

DC specifications	
5	24VDC
6	12VDC
V	6VDC
S	5VDC
R	3VDC
9	Less than 50 VDC

AC specifications (50/60Hz)

1	100VAC
2	200VAC
3	110VAC [115VAC]
4	220VAC [230VAC]
9	Less than 250 VAC

Note 1) "D", "DO", "Y" and "YO" are only available in 24VDC and 12VDC in case of DC.

Note 2) "D", "DO", "Y" and "YO" are not available for SY3000.

Contact SMC for other voltages (9)

Protective class class I (Mark:)..... DIN terminal type

Protective class class III (Mark:)..... Grommet, L and M plug connector

Note) When single body ported solenoid valves are ordered, manifold mounting bolts and gaskets are not included. Order them separately, if necessary. (Refer to page 1.2-65 for details.)

Thread

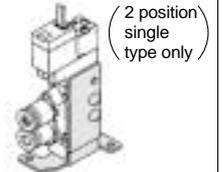
—	Rc (PT)
N	NPT
T	NPTF
F	G (PF)

A/B port size

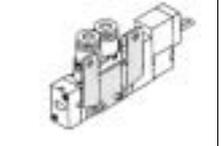
Symbol	Port size	Applicable series
M5	M5	SY3000
C4	ø4 One-touch fitting	
C6	ø6 One-touch fitting	
01	1/8	SY5000
C4	ø4 One-touch fitting	
C6	ø6 One-touch fitting	
C8	ø8 One-touch fitting	SY7000
02	1/4	
C8	ø8 One-touch fitting	
C10	ø10 One-touch fitting	SY9000
02	1/4	
03	3/8	
C8	ø8 One-touch fitting	
C10	ø10 One-touch fitting	
C12	ø12 One-touch fitting	

Bracket

Nil: Without bracket
F1: With foot bracket
(2 position single type only)



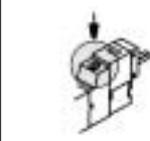
F2: With side bracket



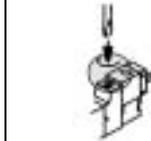
* SY9000 does not use brackets.

Manual override

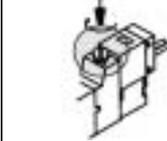
Nil: Non-locking push type



D: Push-turn locking slotted type



E: Push-turn locking lever



Indicator light/Surge voltage suppressor

For electrical entry G, H, L, M

Nil	Without indicator light/surge voltage suppressor
S	With surge voltage suppressor
Z	With indicator light/surge voltage suppressor
U	With indicator light/surge voltage suppressor (non-polar type)

Note 1) "U" is available for DC only.

For electrical entry D

Nil	Without indicator light/surge voltage suppressor
S	With surge voltage suppressor (non-polar type)
Z	With indicator light/surge voltage suppressor (non-polar type)

Note 1) "DOZ" is not available.

Note 2) For AC, there is no "S" specification, since it is integrated with the rectifier.

Electrical entry

24V, 12V, 6V, 5V, 3VDC				24V, 12VDC 100V, 110V, 200V, 220VAC
Grommet	L type plug connector	M type plug connector		DIN terminal
G: Lead wire length 300mm	L: With lead wire (length 300mm)	M: With lead wire (length 300mm)	MN: Without lead wire	(Except SY3000) D: With connector Y: With connector (DIN 43650C)
H: Lead wire length 600mm	LN: Without lead wire	LO: Without connector	MO: Without connector	DO: Without connector YO: Without connector (DIN 43650C)

Note 1) "LN" and "MN" include 2 sockets.

Note 2) "D" and "DO" are not available for SY3000.

Specifications



Series		SY3000	SY5000	SY7000	SY9000
Fluid		Air			
Internal pilot operating pressure range MPa	2 position single	0.15 to 0.7			
	2 position double	0.1 to 0.7			
	3 position	0.2 to 0.7			
Ambient and fluid temperature °C		Maximum 50			
Maximum operating frequency Hz	2 position single, double	10	5	5	5
	3 position	3	3	3	3
Manual override		Non-locking push type, Push-turn locking slotted type, Push-turn locking lever type			
Pilot exhaust method		Common exhaust for main and pilot valves			
Lubrication		Not required			
Mounting orientation		Unrestricted			
Impact resistance/Vibration resistance m/s ² (Note)		150/30			
Enclosure		Dust proof (IP65 for DIN terminal*)			

* In compliance with IEC529 standard.
 (Note) **Impact resistance:** No malfunction resulted from the impact test using a drop impact tester. The test was performed one time each in the axial and right angle directions of the main valve and armature, for both energized and de-energized states. (Value in the initial stage)
Vibration resistance: No malfunction occurred in a one-sweep test between 8.3 and 2000Hz. Test was performed for both energized and de-energized states in the axial and right angle directions of the main valve and armature. (Value in the initial stage)

Solenoid specifications

Electrical entry			Grommet (G)/(H), L type plug connector (L), M type plug connector (M), DIN terminal (D) (Note 1)	
Rated coil voltage V	DC	24, 12, 6, 5, 3		
	AC 50/60Hz	100, 110, 200, 220 (Note 2)		
Allowable voltage fluctuation	±10% of rated voltage			
Current consumption W	DC	0.5 [With indicator light: 0.55 (0.6 for DIN terminal with indicator light)] (Note 3)		
Apparent power VA	AC	100V	0.9 (With indicator light: 1.0)	
		110V	1.0 (With indicator light: 1.1)	
		[115V]	[1.1 (With indicator light: 1.2)]	
		200V	1.8 (With indicator light: 1.9)	
		220V [230V]	1.9 (With indicator light: 2.0) [2.2 (With indicator light: 2.3)]	
Surge voltage suppressor	Diodes (ZNR for DIN terminal, Zener diode for G, L or M non-polar type)			
Indicator light	LED (Neon bulb for AC type DIN terminal)			

(Note 1) DIN terminal (D) is not available for SY3000.
 (Note 2) 110 and 115VAC are common, as are 220 and 230VAC.
 (Note 3) Energy saving [0.22W] type is also available. Refer to page 1.2-177 for details.
 (Note 4) AC specifications are only for the DIN terminal type.

Response time

(Note) Based on dynamic performance test JISB8375-1981 (at coil temperature of 20°C with rated voltage)

SY3000

Type of actuation	Response time ms (at 0.5MPa)		
	Without indicator light/ surge voltage suppressor	With indicator light/surge voltage suppressor	
		S, Z types	U types
2 position single	12 or less	15 or less	12 or less
2 position double	10 or less	13 or less	10 or less
3 position	15 or less	20 or less	16 or less

SY5000

Type of actuation	Response time ms (at 0.5MPa)		
	Without indicator light/ surge voltage suppressor	With indicator light/surge voltage suppressor	
		S, Z types	U types
2 position single	19 or less	26 or less	19 or less
2 position double	18 or less	22 or less	18 or less
3 position	32 or less	38 or less	32 or less

SY7000

Type of actuation	Response time ms (at 0.5MPa)		
	Without indicator light/ surge voltage suppressor	With indicator light/surge voltage suppressor	
		S, Z types	U types
2 position single	31 or less	38 or less	33 or less
2 position double	27 or less	30 or less	28 or less
3 position	50 or less	56 or less	50 or less

SY9000

Type of actuation	Response time ms (at 0.5MPa)		
	Without indicator light/ surge voltage suppressor	With indicator light/surge voltage suppressor	
		S, Z types	U types
2 position single	35 or less	41 or less	35 or less
2 position double	35 or less	41 or less	35 or less
3 position	62 or less	64 or less	62 or less

SV

SY

SYJ

SX

VK

VZ

VF

VFR

VP7

VQC

SQ

VQ

VQ4

VQ5

VQZ

VQD

VFS

VS

VS7

VQ7



Pages 1.2-168 to 1.2-177

Body Ported Type

Models/Series SY3000

Valve model	Type of actuation		Port size		Effective area mm ² (N/min)		Weight g		
			P, EA, EB	A, B	P to A/B	A/B to EA/EB	Grommet	L/M type plug connector	DIN terminal
SY3□20-□-M5	2 pos.	Single	M5		3.6 (196.3)	3.78 (206)	48	51	
		Double							
	3 position	Closed centre			3.6 (196.3)	3.42 (186.5)	65	72	
		Exhaust centre			3.6 (196.3)	3.78 (206) [2.7 (147.2)]			
		Pressure centre			3.96 (216) [2.88 (157)]	3.6 (196.3)			
SY3□20-□-C4	2 pos.	Single	M5	C4 ø4 (One-touch fitting)	3.42 (186.5)	3.6 (196.3)	57	61	
		Double							
	3 position	Closed centre			3.42 (186.5)	3.42 (186.5)	75	82	
		Exhaust centre			3.42 (186.5)	3.78 (206) [2.7 (147.2)]			
		Pressure centre			3.6 (196.3) [2.16 (117.8)]	3.6 (196.3)			
SY3□20-□-C6	2 pos.	Single	M5	C6 ø6 (One-touch fitting)	3.6 (196.3)	4.14 (225.7)	53	57	
		Double							
	3 position	Closed centre			3.6 (196.3)	3.96 (216)	71	78	
		Exhaust centre			3.78 (206)	4.5 (245.4) [3.06 (166.9)]			
		Pressure centre			3.96 (216) [2.88 (157)]	3.96 (216)			

Note) Values inside [] are for normal position.

Models/Series SY7000

Valve model	Type of actuation		Port size		Effective area mm ² (N/min)		Weight g		
			P, EA, EB	A, B	P to A/B	A/B to EA/EB	Grommet	L/M type plug connector	DIN terminal
SY7□20-□-02	2 pos.	Single	1/4		16.2 (883.4)	15.66 (854)	98	102	125
		Double							
	3 position	Closed centre			12.06 (657.6)	11.34 (618.3)	122	129	175
		Exhaust centre			11.88 (647.8)	16.74 (912.8) [11.7 (638)]			
		Pressure centre			17.1 (932.4) [11.16 (608.5)]	11.34 (618.3)			
SY7□20-□-C8	2 pos.	Single	1/4	C8 ø8 (One-touch fitting)	13.86 (755.8)	13.68 (746)	104	108	131
		Double							
	3 position	Closed centre			11.52 (402)	10.44 (569.3)	128	136	182
		Exhaust centre			11.16 (608.5)	14.4 (785.2) [10.8 (353.3)]			
		Pressure centre			14.58 (795) [10.62 (579)]	10.44 (569.3)			
SY7□20-□-C10	2 pos.	Single	1/4	C10 ø10 (One-touch fitting)	15.84 (863.7)	14.94 (814.6)	100	103	126
		Double							
	3 position	Closed centre			12.24 (453.8)	11.16 (608.5)	124	131	177
		Exhaust centre			11.88 (647.8)	16.2 (873.5) [11.34 (618.3)]			
		Pressure centre			16.74 (912.8) [11.16 (608.5)]	11.34 (618.3)			

Note) Values inside [] are for normal position.

Models/Series SY5000

Valve model	Type of actuation		Port size		Effective area mm ² (N/min)		Weight g		
			P, EA, EB	A, B	P to A/B	A/B to EA/EB	Grommet	L/M type plug connector	DIN terminal
SY5□20-□-01	2 pos.	Single	1/8		9.18 (500.5)	10.6 (579)	67	70	93
		Double							
	3 position	Closed centre			7.38 (402.4)	7.92 (431.9)	87	94	140
		Exhaust centre			7.56 (402.4)	12.06 (341.7) [8.28 (451.5)]			
		Pressure centre			10.62 (341.7) [4.32 (235.6)]	8.46 (451.5)			
SY5□20-□-C4	2 pos.	Single	1/8	C4 ø4 (One-touch fitting)	5.5 (304.3)	3.9 (216)	91	94	117
		Double							
	3 position	Closed centre			5.3 (284.6)	3.9 (216)	111	118	164
		Exhaust centre			5.3 (284.6)	3.9 (216)			
		Pressure centre			5.7 (314)	3.9 (216)			
SY5□20-□-C6	2 pos.	Single	1/8	C6 ø6 (One-touch fitting)	9 (500.5)	9 (500.5)	85	89	112
		Double							
	3 position	Closed centre			7.2 (402.4)	7.38 (402.4)	105	112	158
		Exhaust centre			7.38 (402.4)	9.72 (530) [7.2 (402.4)]			
		Pressure centre			10.62 (579) [4.32 (235.6)]	7.2 (402.4)			
SY5□20-□-C8	2 pos.	Single	1/8	C8 ø8 (One-touch fitting)	9.18 (500.5)	9.9 (530)	77	80	103
		Double							
	3 position	Closed centre			7.38 (402.4)	7.92 (431.9)	97	104	150
		Exhaust centre			7.38 (402.4)	11.88 (341.7) [7.74 (431.9)]			
		Pressure centre			10.62 (579) [4.32 (235.6)]	7.92 (431.9)			

Note) Values inside [] are for normal position.

Models/Series SY9000

Valve model	Type of actuation		Port size		Effective area mm ² (N/min)		Weight g		
			P, EA, EB	A, B	P to A/B	A/B to EA/EB	Grommet	L/M type plug connector	DIN terminal
SY9□20-□-02	2 pos.	Single	1/4		35.76 (1953.2)	37.43 (2041.5)	238	242	265
		Double							
	3 position	Closed centre			34.69 (1894.3)	30.51 (1678.4)	278	286	332
		Exhaust centre			33.63 (1835.4)	41.09 (2238) [18.96 (1030.6)]			
		Pressure centre			37.99 (2071)	31.62 (1727.4) [15.22 (834.3)]			
SY9□20-□-03	2 pos.	Single	3/8		37.90 (2071)	38.23 (2071)	233	237	260
		Double							
	3 position	Closed centre			35.98 (1963)	32.37 (1757)	273	281	327
		Exhaust centre			34.17 (1865)	44.76 (2444) [24.92 (1354.5)]			
		Pressure centre			39.94 (2179)	32.97 (1796) [14.67 (660)]			
SY9□20-□-C8	2 pos.	Single	1/4	C8 ø8 (One-touch fitting)	27.34 (1492)	16.23 (795)	290	294	317
		Double							
	3 position	Closed centre			26.75 (1462.4)	16.55 (795)	330	338	384
		Exhaust centre			26.17 (1423.2)	16.42 (795) [15.68 (854)]			
		Pressure centre			27.49 (1492)	16.28 (795) [16.28 (795)]			
SY9□20-□-C10	2 pos.	Single	1/4	C10 ø10 (One-touch fitting)	31.16 (1698)	27.40 (1492)	276	280	303
		Double							
	3 position	Closed centre			30.74 (1678.4)	26.08 (1423.2)	316	324	370
		Exhaust centre			30.02 (1639)	27.13 (1492) [18.26 (991.3)]			
		Pressure centre			32.28 (1757)	26.36 (1423.2) [15.10 (660)]			
SY9□20-□-C12	2 pos.	Single	1/4	C12 ø12 (One-touch fitting)	33.45 (1835.4)	35.81 (1953.2)	262	266	289
		Double							
	3 position	Closed centre			32.96 (1796)	29.62 (1619.5)	302	310	356
		Exhaust centre			32.38 (1767)	37.77 (2071) [18.83 (1030.6)]			
		Pressure centre			35.41 (1933.5)	30.55 (1678.4) [15.23 (834.3)]			

Note) Values inside [] are for normal position.

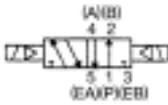
Construction

Series SY

Symbol:
2 position single



Symbol:
2 position double



Symbol:
3 position closed centre



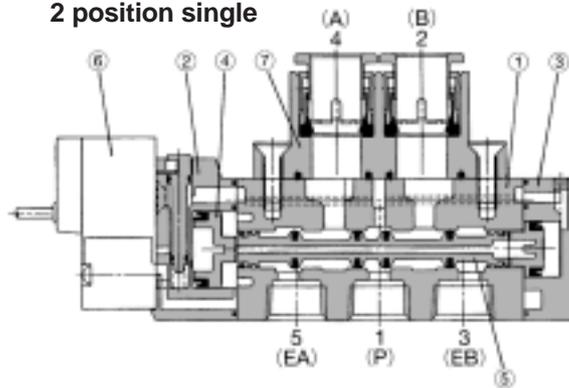
3 position exhaust centre



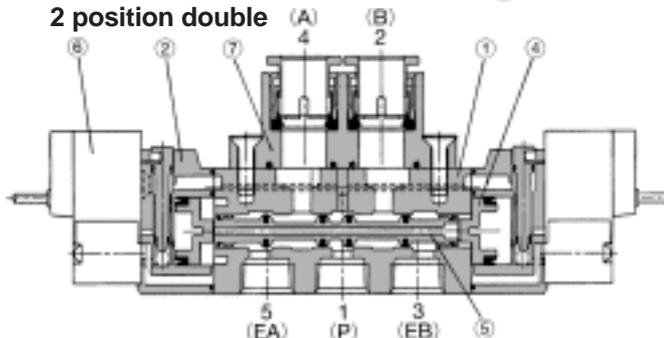
3 position pressure centre



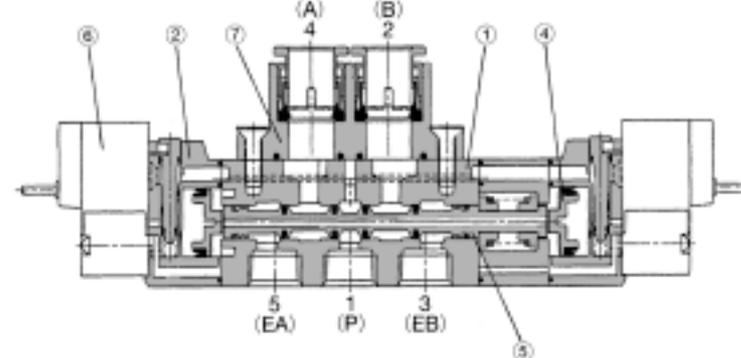
2 position single



2 position double



3 position closed centre/exhaust centre/pressure centre



(The diagram above shows the closed centre type.)

Parts list

No.	Description	Material	Note
1	Body	Die-cast aluminum (SY3000 is die-cast zinc.)	White
2	Adaptor plate	Resin	White (Gray for SY9000)
3	End plate	Resin	White
4	Piston	Resin	—
5	Spool valve assembly	Aluminum/NBR	—

Replacement parts

No.	Description	Part no.
6	Pilot valve assembly	Refer to "How to Order Pilot Valve Assemblies" on page 1.2-14.
7	Port block assembly	Refer to "How to Order Port Block Assemblies" on page 1.2-14.

Bracket assembly part nos.

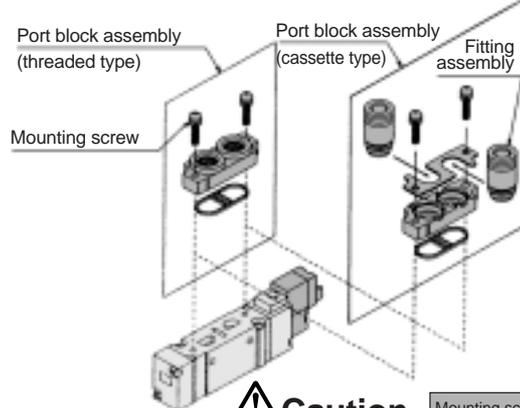
Description	Part no.
Bracket (for F1 type)	SX $\frac{3}{4}$ 000-16-2A (with mounting screws)
Bracket (for F2 type)	SX $\frac{3}{4}$ 000-16-1A (with mounting screws)

* Brackets are not available for SY9000.

How to Replace Port Block Assembly

With the body ported type, the A/B port size can be changed by replacing the port block assembly mounted on the body. Use appropriate tightening torque when replacing the port block assembly, as insufficient tightening of mounting screws will cause air leakage, etc.

● For SY5000 [SY5000-6A-01] [SY5000-6A-C6]



Caution

SY3000 (M2): 0.12N·m
SY $\frac{3}{4}$ 000 (M3): 0.6N·m
SY9000 (M4): 1.4N·m

Mounting screw tightening torques



* Refer to "How to Order Port Block Assemblies" on page 1.2-14 for part numbers.

SV

SY

SYJ

SX

VK

VZ

VF

VFR

VP7

VQC

SQ

VQ

VQ4

VQ5

VQZ

VQD

VFS

VS

VS7

VQ7

Body Ported Type

How to Order Pilot Valve Assemblies

SY114—5—G—□—Q

Rated voltage

5	24VDC
6	12VDC
V	6VDC
S	5VDC
R	3VDC

Indicator light/Surge voltage suppressor

Nil	Without indicator light/surge voltage suppressor
S	With surge voltage suppressor
Z	With indicator light/surge voltage suppressor
R	With surge voltage suppressor (non-polar type)
U	With indicator light/surge voltage suppressor (non-polar type)

Note 2) "U" specifications are only available for DC.

Electrical entry

G	Grommet (lead wire length: 300mm)	
H	Grommet (lead wire length: 600mm)	
L	L type plug connector	With lead wire
LN		Without lead wire
LO		Without connector
M	M type plug connector	With lead wire
MN		Without lead wire
MO		Without connector

How to Order Connector Assemblies

DC: SY100—30—4A—□

Without lead wire: SY100—30—A
(Connector, socket x 2pcs. only)

Lead wire length

Nil	300mm
6	600mm
10	1000mm
15	1500mm
20	2000mm
25	2500mm
30	3000mm
50	5000mm

SY115—5—D—□—Q

Rated voltage

5	24VDC
6	12VDC
1	100VAC 50/60Hz
2	200VAC 50/60Hz
3	110VAC 50/60Hz [115VAC 50/60Hz]
4	220VAC 50/60Hz [230VAC 50/60Hz]

Indicator light/Surge voltage suppressor

Nil	Without indicator light/surge voltage suppressor
S	With surge voltage suppressor (non-polar type)
Z	With indicator light/surge voltage suppressor (non-polar type)

Note 1) "DOZ" is not available.
Note 2) "S" specification is not available for AC since it is integrated with the rectifier.

Electrical entry

D	DIN terminal	With connector
DO		Without connector
Y	DIN terminal (DIN 43650C)	With connector
YO		Without connector

Note) When replacing the pilot valve assembly alone, SY114 (G, H, L, and M) cannot be replaced with SY115 (DIN terminal), or vice versa.

How to Order Port Block Assemblies

SY □ 000—6A—□—□

Series

3	SY3000
5	SY5000
7	SY7000
9	SY9000

Thread

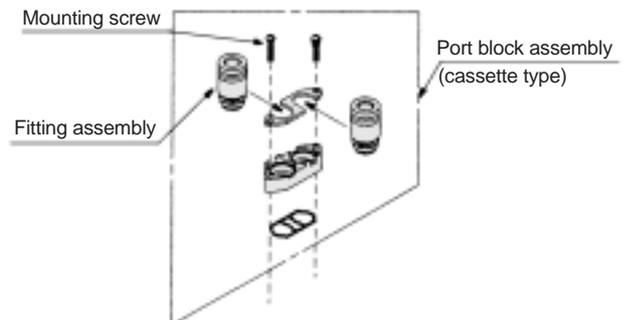
—	Rc (PT)
N	NPT
T	NPTF
F	G (PF)

A/B port size

Symbol	Port size	Applicable series
M5	M5	SY3000
C4	ø4 One-touch fitting	
C6	ø6 One-touch fitting	
01	1/8	SY5000
C4	ø4 One-touch fitting	
C6	ø6 One-touch fitting	
C8	ø8 One-touch fitting	SY7000
02	1/4	
C8	ø8 One-touch fitting	
C10	ø10 One-touch fitting	SY9000
02	1/4	
03	3/8	
C8	ø8 One-touch fitting	
C10	ø10 One-touch fitting	
C12	ø12 One-touch fitting	

* Fitting assembly alone can be replaced also.

SY3000	ø4 One-touch fitting	VVQ1000-50A-C4
	ø6 One-touch fitting	VVQ1000-50A-C6
SY5000	ø4 One-touch fitting	VVQ1000-51A-C4
	ø6 One-touch fitting	VVQ1000-51A-C6
SY7000	ø8 One-touch fitting	VVQ1000-51A-C8
	ø8 One-touch fitting	VVQ2000-51A-C8
SY9000	ø8 One-touch fitting	VVQ4000-50B-C8
	ø10 One-touch fitting	VVQ4000-50B-C10
	ø12 One-touch fitting	VVQ4000-50B-C12



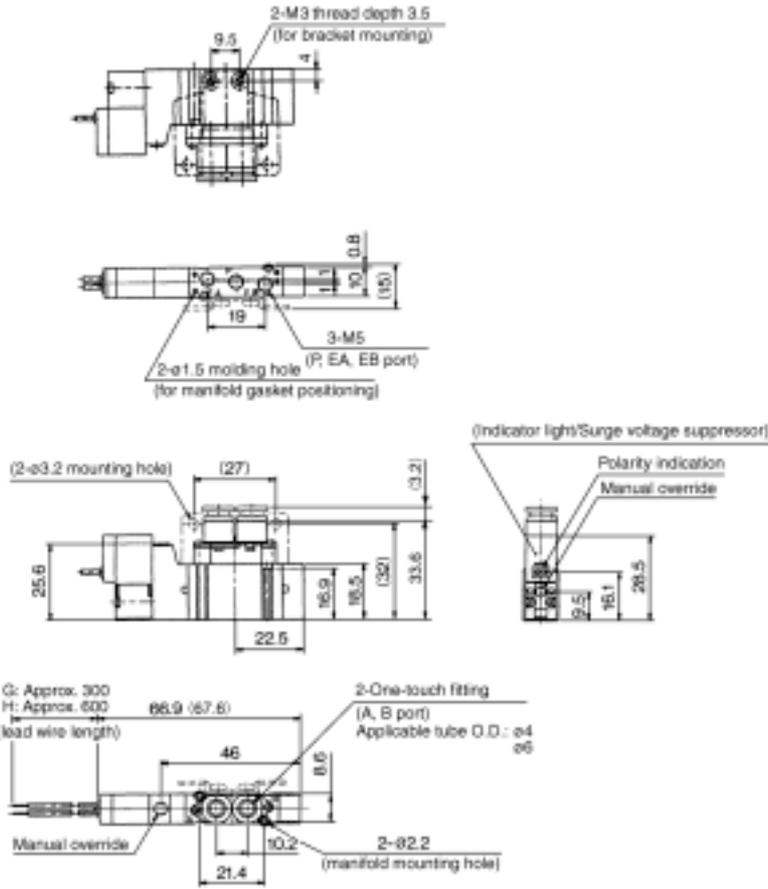


Note) < >: Values with surge voltage suppressor

Series SY3000 Dimensions

2 position single

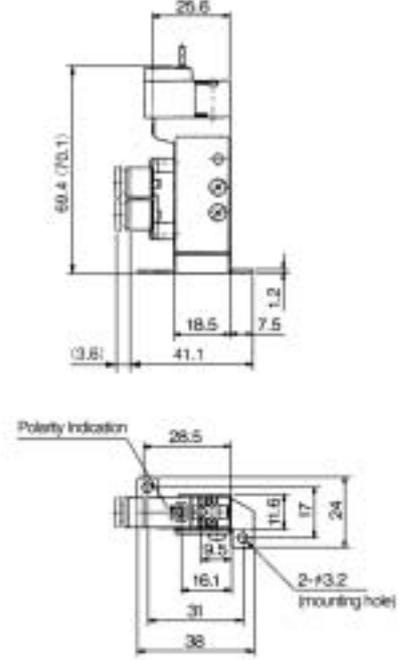
Grommet (G), (H): SY3120-□_H□□-C₆⁴(-F2)-Q



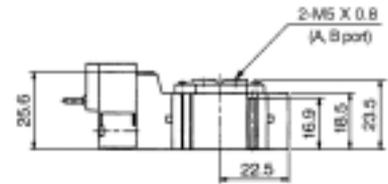
With foot bracket

SY3120-□_H□□-C₆⁴-F1-Q

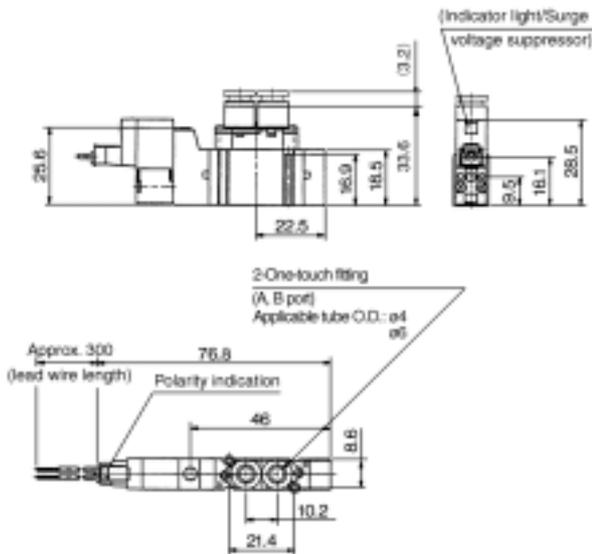
Scale: 40%



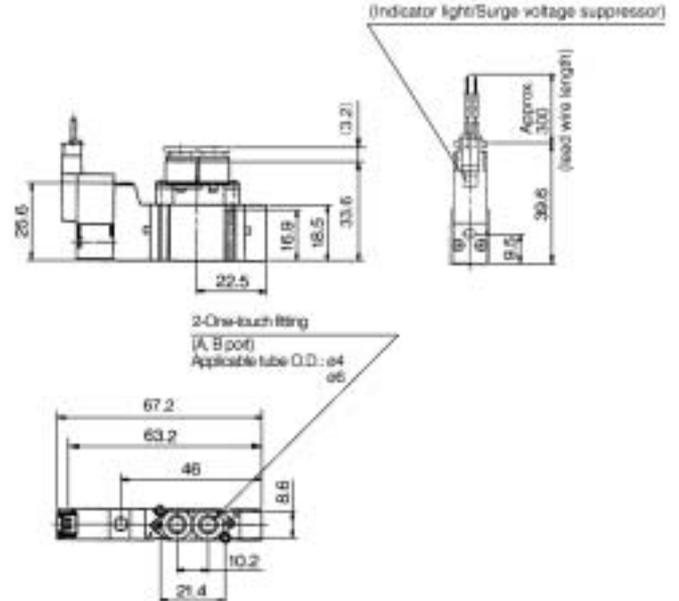
SY3120-□_H□□-M5-Q



L type plug connector (L): SY3120-□L□□-C₆⁴-Q



M type plug connector (M): SY3120-□M□□-C₆⁴-Q



- SV
- SY**
- SYJ
- SX
- VK
- VZ
- VF
- VFR
- VP7
- VQC
- SQ
- VQ
- VQ4
- VQ5
- VQZ
- VQD
- VFS
- VS
- VS7
- VQ7

Body Ported Type

Series SY3000 Dimensions



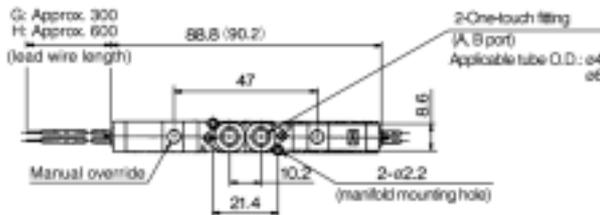
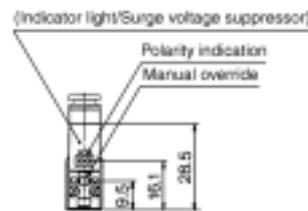
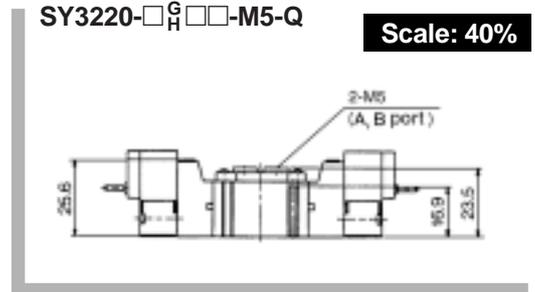
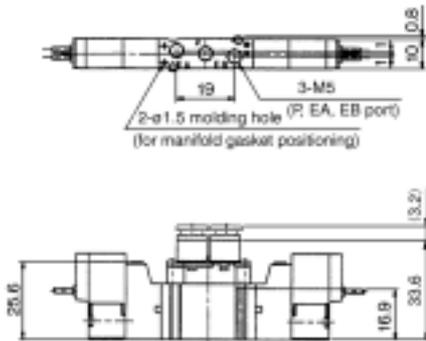
Note) < >: Values with surge voltage suppressor

2 position double

Grommet (G), (H): SY3220-□^G□□-C₄-Q

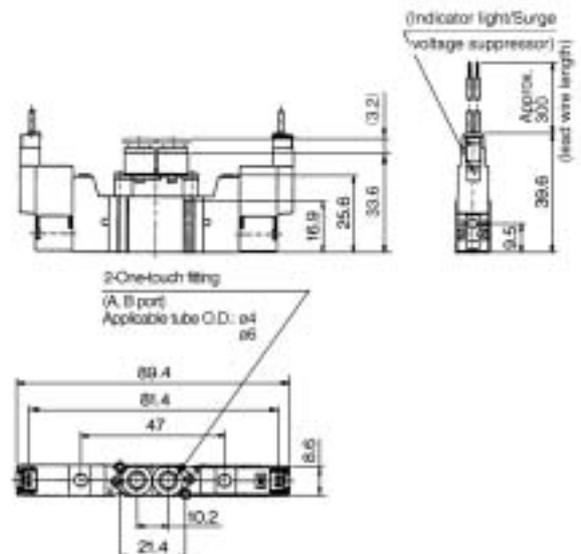
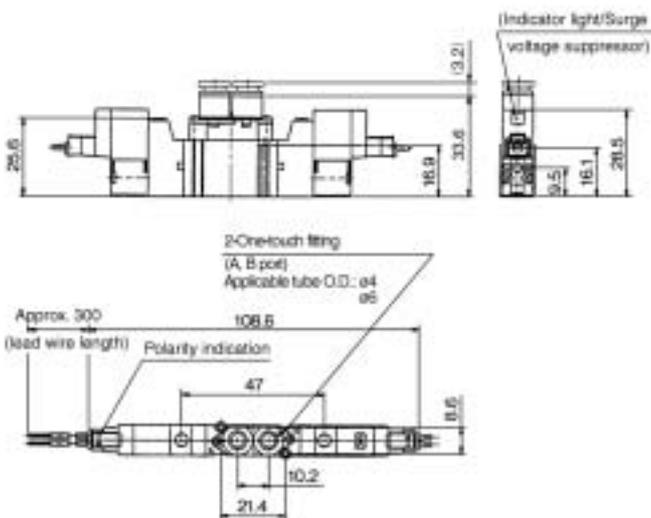
SY3220-□^G□□-M5-Q

Scale: 40%



L type plug connector (L): SY3220-□^L□□-C₄-Q

M type plug connector (M): SY3220-□^M□□-C₄-Q



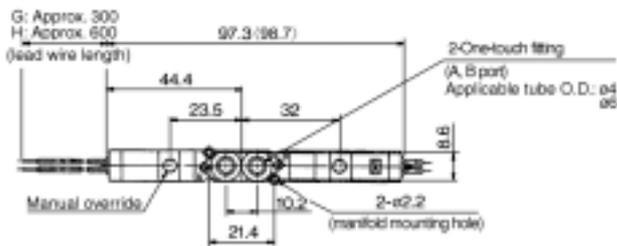
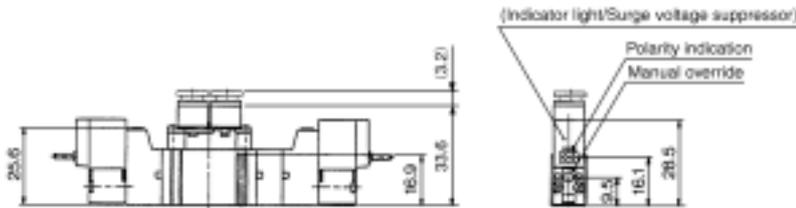
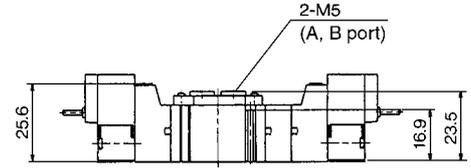
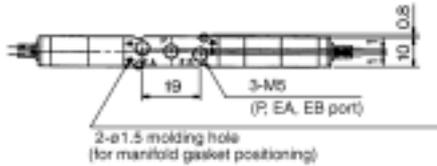


Note) < >: Values with surge voltage suppressor

3 position closed centre/exhaust centre/pressure centre
Grommet (G), (H): SY3³/₅20-□^G□□-C₆⁴-Q

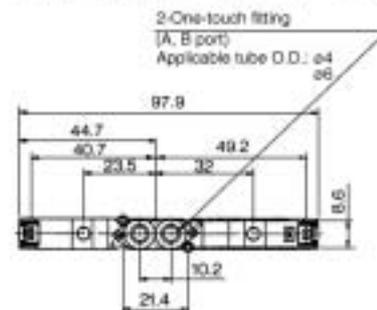
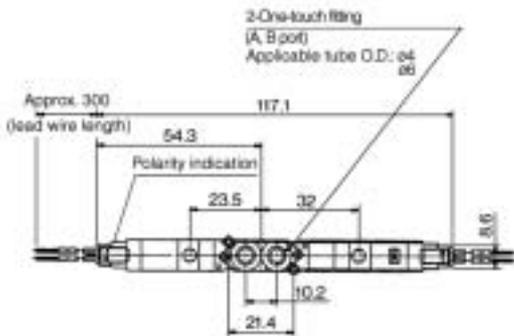
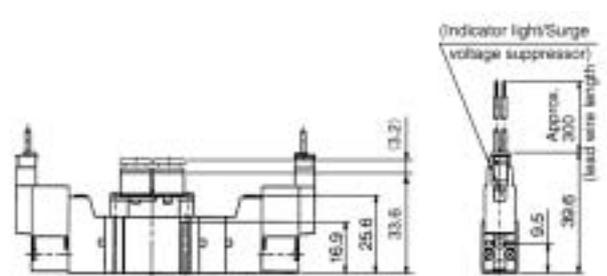
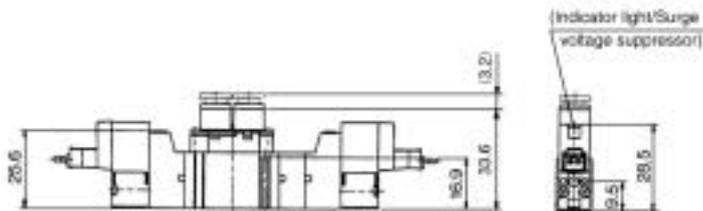
SY3³/₅20-□^G□□-M5-Q

Scale: 40%



L type plug connector (L): SY3³/₅20-□^L□□-C₆⁴-Q

M type plug connector (M): SY3³/₅20-□^M□□-C₆⁴-Q



- SV
- SY**
- SYJ
- SX
- VK
- VZ
- VF
- VFR
- VP7

- VQC
- SQ
- VQ
- VQ4
- VQ5

- VQZ
- VQD
- VFS
- VS
- VS7
- VQ7

Body Ported Type

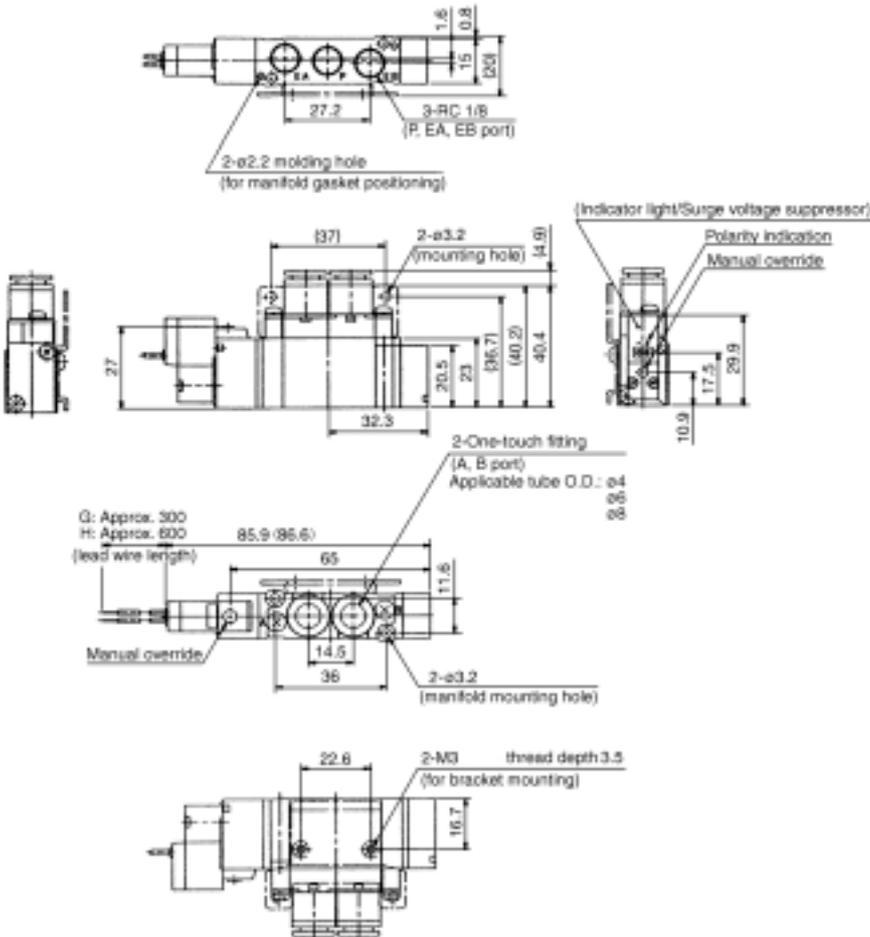
Series SY5000 Dimensions



Note) < >: Values with surge voltage suppressor

2 position single

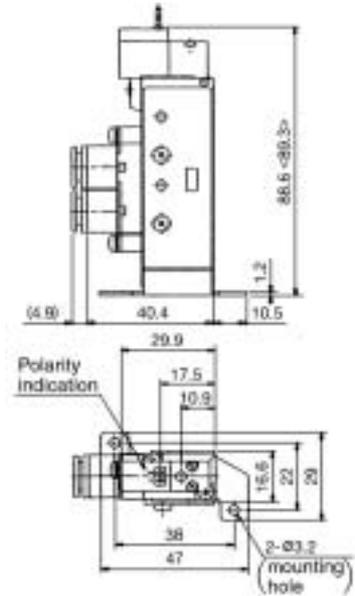
Grommet (G), (H): SY5120-□^G□□□-^{C4}_{C6}^{C8} (-F2)-Q



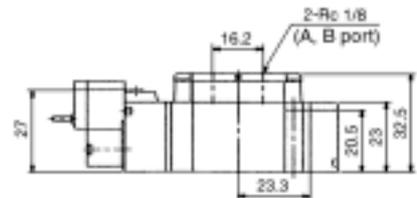
With foot bracket

SY5120-□^G□□□-^{C4}_{C6}^{C8} -F1-Q

Scale: 40%

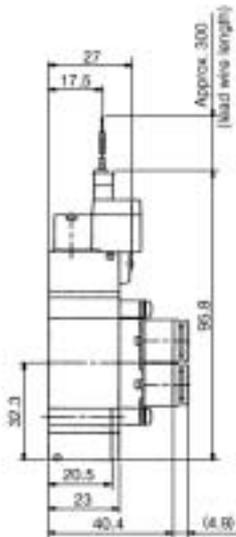


SY5120-□^G□□□-01□-Q



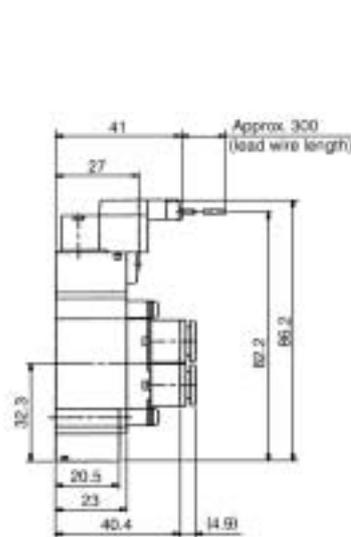
L type plug connector (L):

SY5120-□L□□-^{C4}_{C6}^{C8} -Q



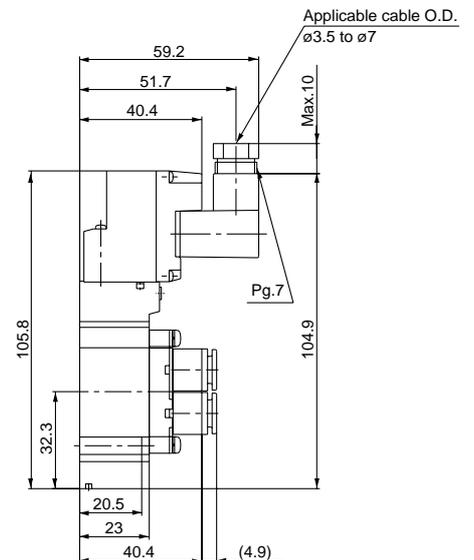
M type plug connector (M):

SY5120-□M□□-^{C4}_{C6}^{C8} -Q



DIN terminal (D):

SY5120-□D□□-^{C4}_{C6}^{C8} -Q

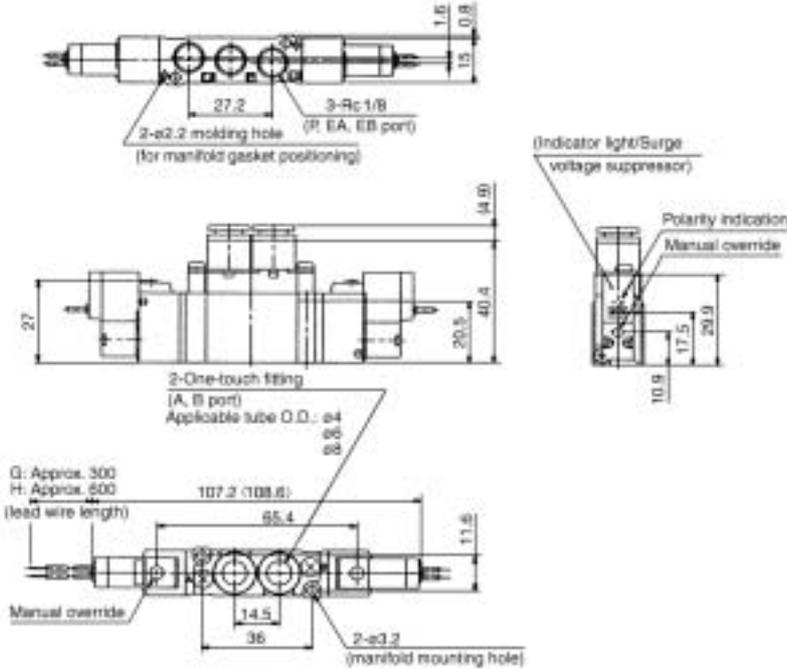




Note) < >: Values with surge voltage suppressor

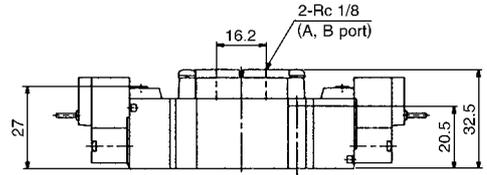
2 position double

Grommet (G), (H): SY5220-□^G□□□-C4
C6-C8-Q



SY5220-□^G□□□-01□-Q

Scale: 40%



SV

SY

SYJ

SX

VK

VZ

VF

VFR

VP7

VQC

SQ

VQ

VQ4

VQ5

VQZ

VQD

VFS

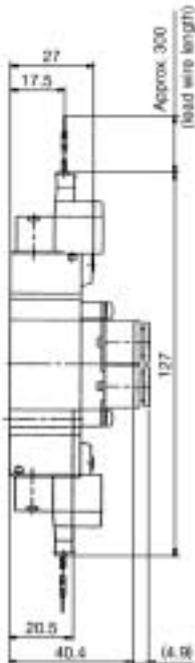
VS

VS7

VQ7

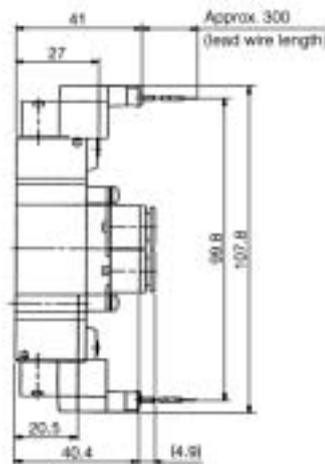
L type plug connector (L):

SY5220-□L□□□-C4
C6-C8-Q



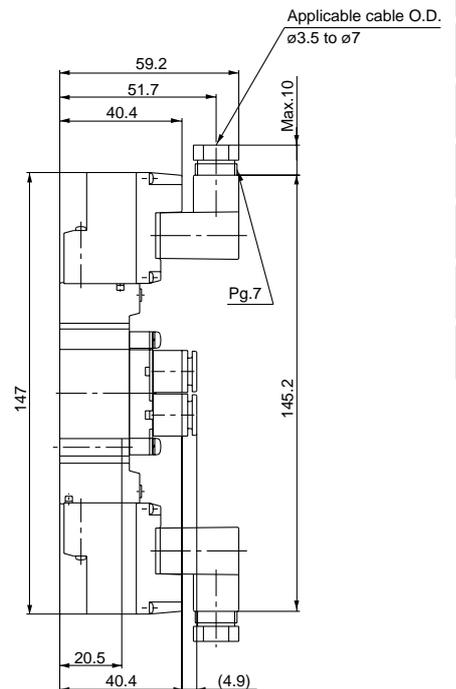
M type plug connector (M):

SY5220-□M□□□-C4
C6-C8-Q



DIN terminal (D):

SY5220-□D□□□-C4
C6-C8-Q



Body Ported Type

Series SY5000 Dimensions



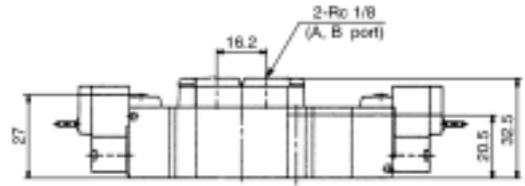
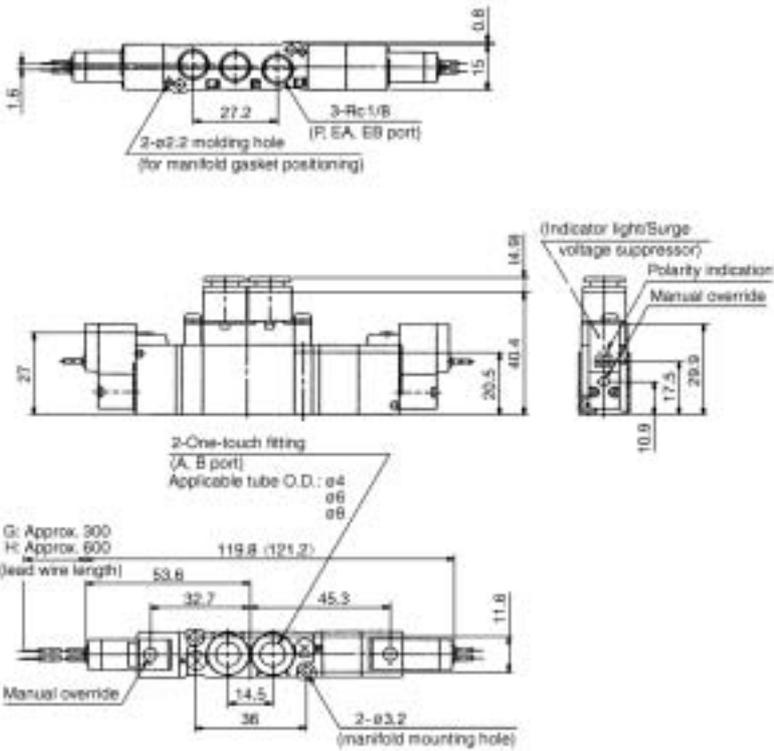
< >: Values with surge voltage suppressor

3 position closed centre/exhaust centre/pressure centre

Grommet (G), (H): SY5³/₅20-□^G□□-C₄-Q
C₆-Q
C₈-Q

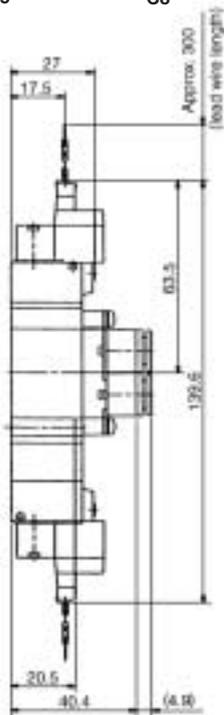
SY5³/₅20-□^G□□-01□-Q

Scale: 40%



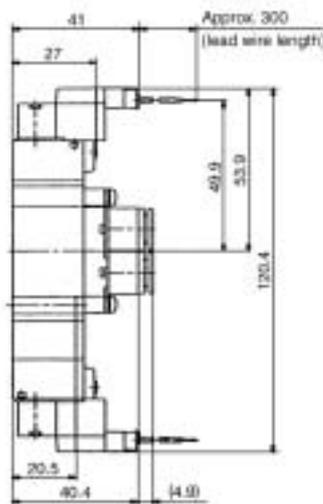
L type plug connector (L):

SY5³/₅20-□L□□-C₄-Q
C₆-Q
C₈-Q



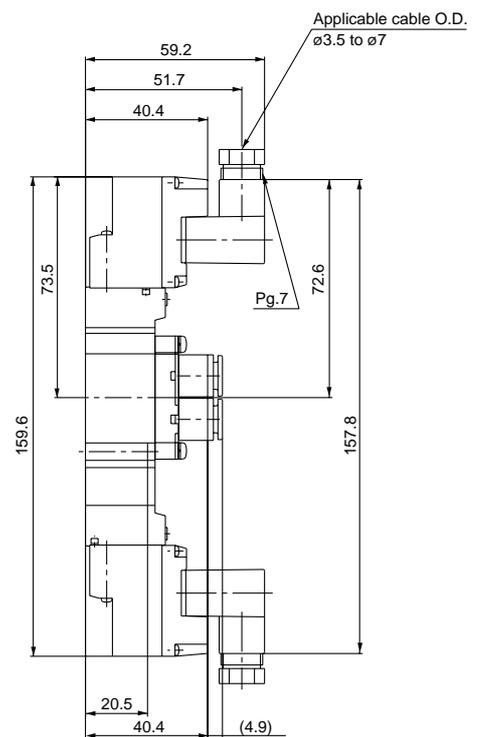
M type plug connector (M):

SY5³/₅20-□M□□-C₄-Q
C₆-Q
C₈-Q



DIN terminal (D):

SY5³/₅20-□D□□-C₄-Q
C₆-Q
C₈-Q



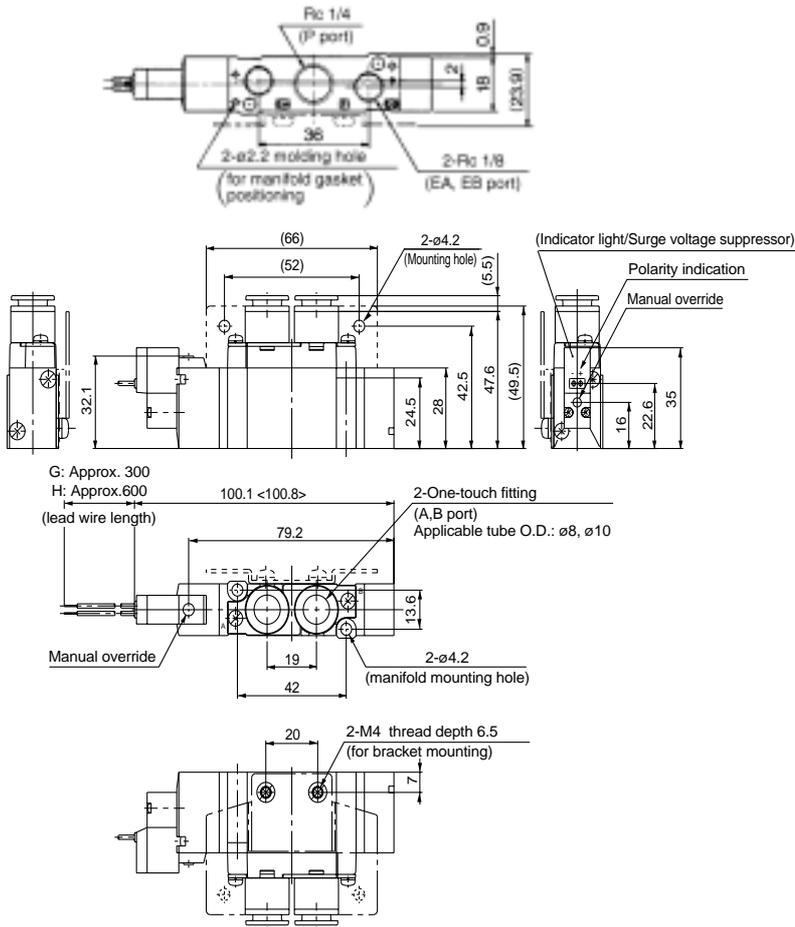


Note) < >: Values with surge voltage suppressor

Series SY7000 Dimensions

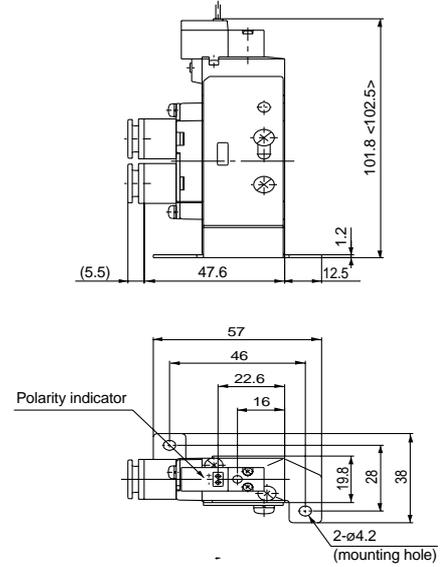
2 position single

Grommet (G), (H): SY7120-□^G□^H□-C⁸_{C10} (-F2)-Q

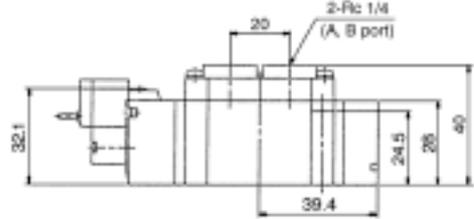


SY7120-□^G□^H□-C⁸_{C10} -F1-Q

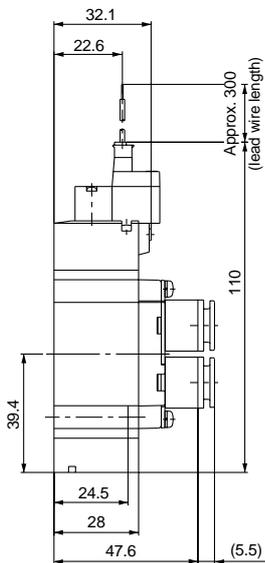
Scale: 40%



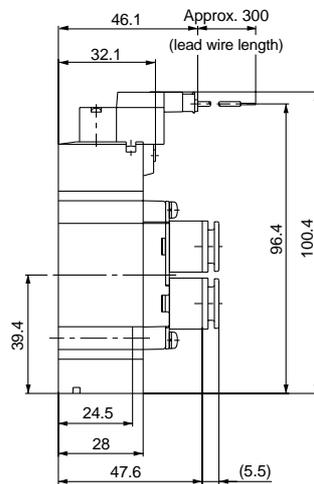
SY7120-□^G□^H□-02□-Q



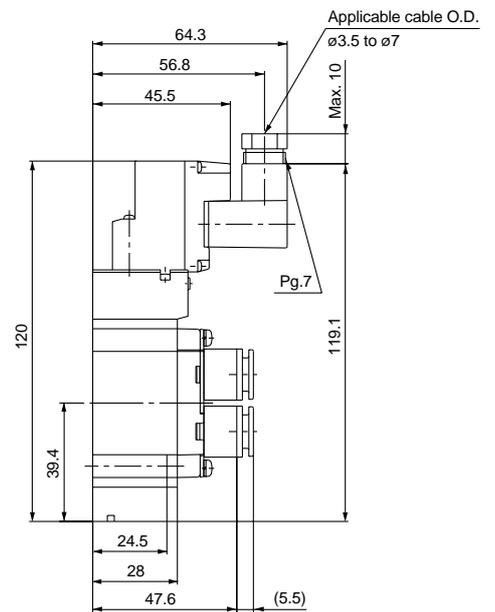
L type plug connector (L):
SY7120-□^L□□-C⁸_{C10}-Q



M type plug connector (M):
SY7120-□^M□□-C⁸_{C10}-Q



DIN terminal (D):
SY7120-□^D□□-C⁸_{C10}-Q



- SV
- SY**
- SYJ
- SX
- VK
- VZ
- VF
- VFR
- VP7
- VQC
- SQ
- VQ
- VQ4
- VQ5
- VQZ
- VQD
- VFS
- VS
- VS7
- VQ7

Body Ported Type

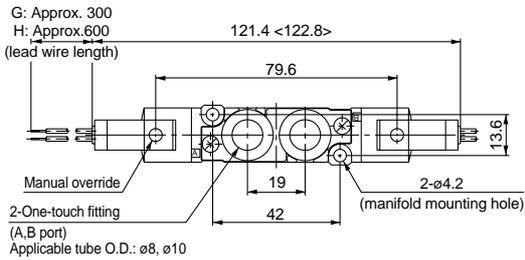
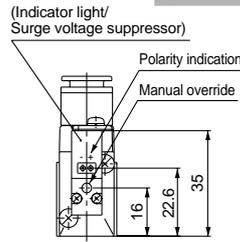
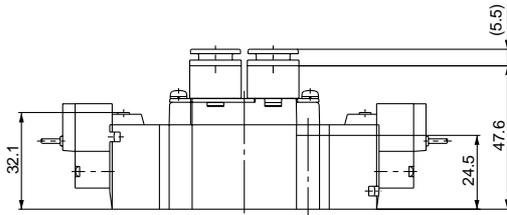
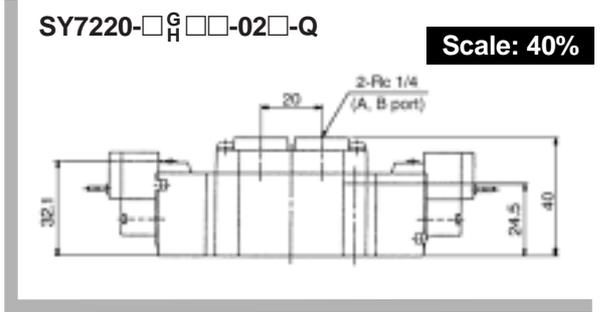
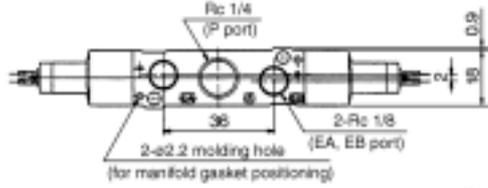
Series SY7000 Dimensions

 < >: Values with surge voltage suppressor

2 position double
Grommet (G), (H): SY7220-□^G_H □□-C⁸_{C10}-Q

SY7220-□^G_H □□-02□-Q

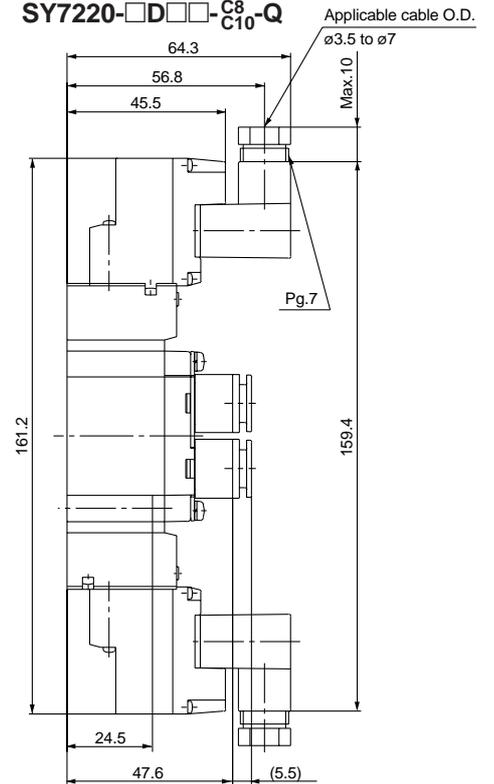
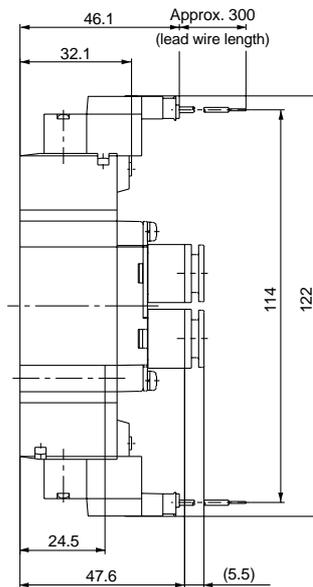
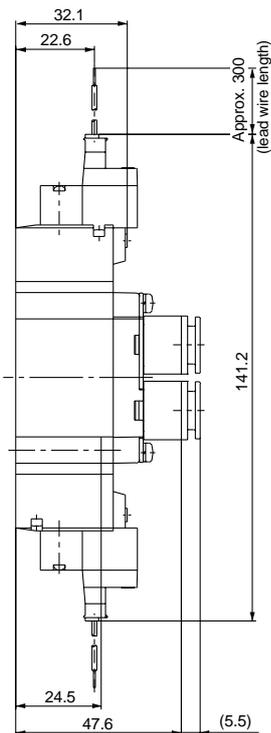
Scale: 40%



L type plug connector (L):
SY7220-□L□□-C⁸_{C10}-Q

M type plug connector (M):
SY7220-□M□□-C⁸_{C10}-Q

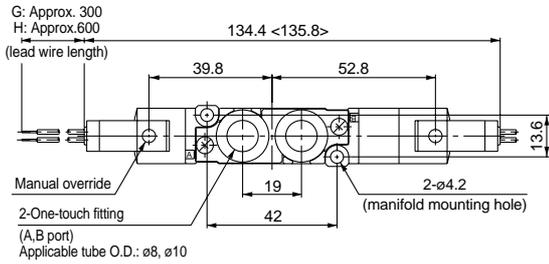
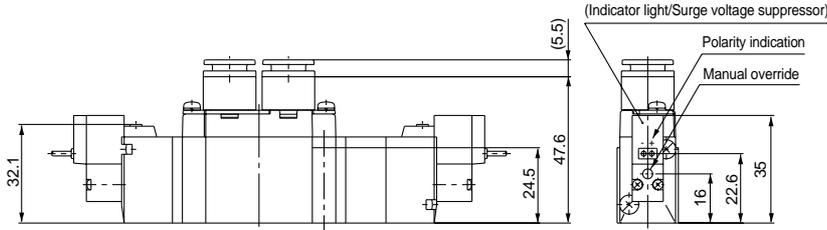
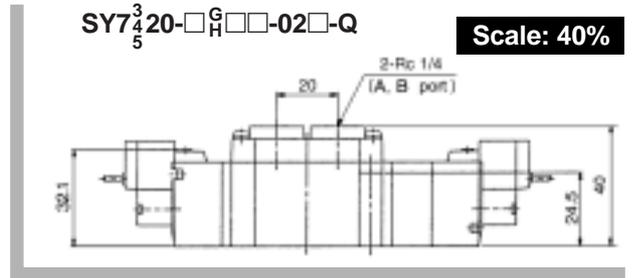
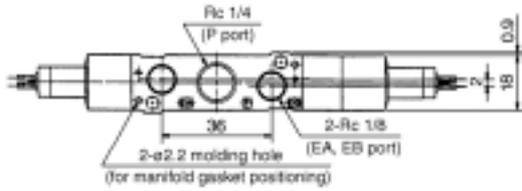
DIN terminal (D):
SY7220-□D□□-C⁸_{C10}-Q





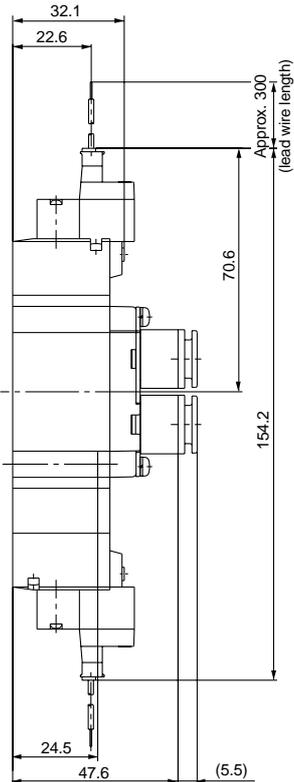
Note) < >: Values with surge voltage suppressor

3 position closed centre/exhaust centre/pressure centre
Grommet (G), (H): SY7³/₄20-□^G□□-C₈^{C10}-Q



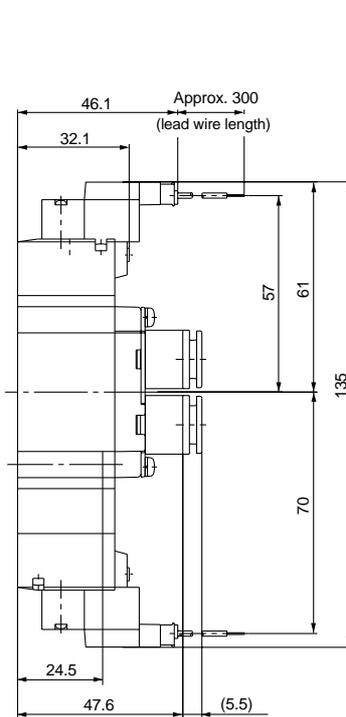
L type plug connector (L):

SY7³/₄20-□L□□-C₈^{C10}-Q



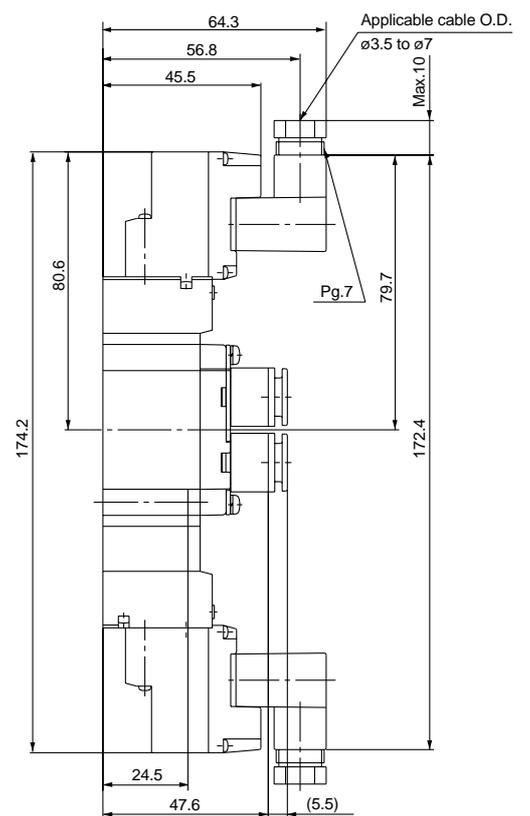
M type plug connector (M):

SY7³/₄20-□M□□-C₈^{C10}-Q



DIN terminal (D):

SY7³/₄20-□D□□-C₈^{C10}-Q



SV

SY

SYJ

SX

VK

VZ

VF

VFR

VP7

VQC

SQ

VQ

VQ4

VQ5

VQZ

VQD

VFS

VS

VS7

VQ7

Body Ported Type

Series SY9000 Dimensions



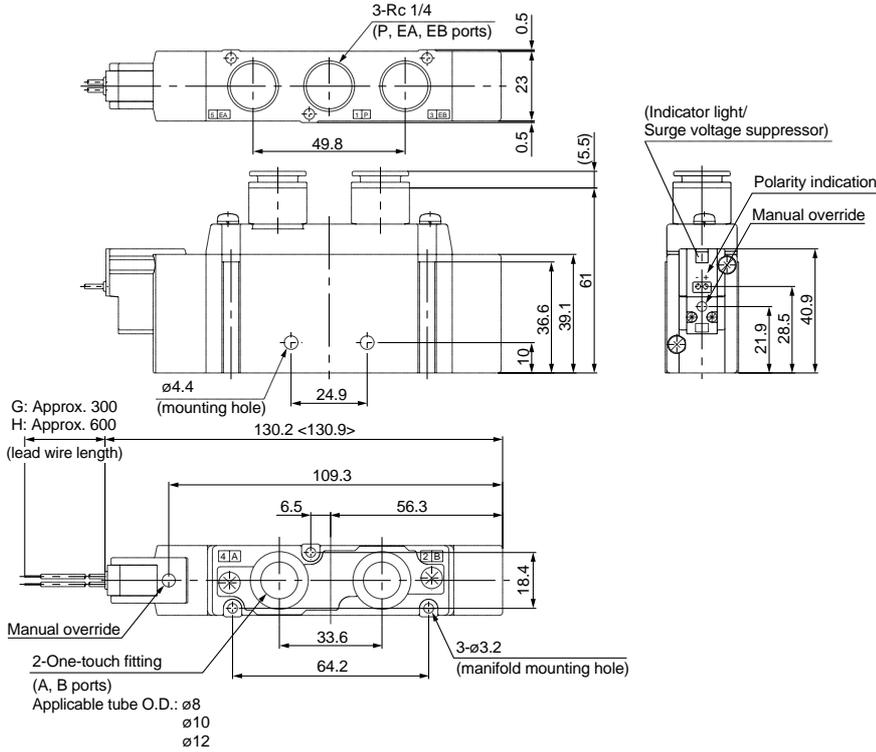
Note) < >: Values with surge voltage suppressor

2 position single

Grommet (G), (H): SY9120-□^G_H□□-^{C8}_{C12}-Q

SY9120-□^G_H□□-^{C8}_{C12}-Q

Scale: 40%



L type plug connector (L):

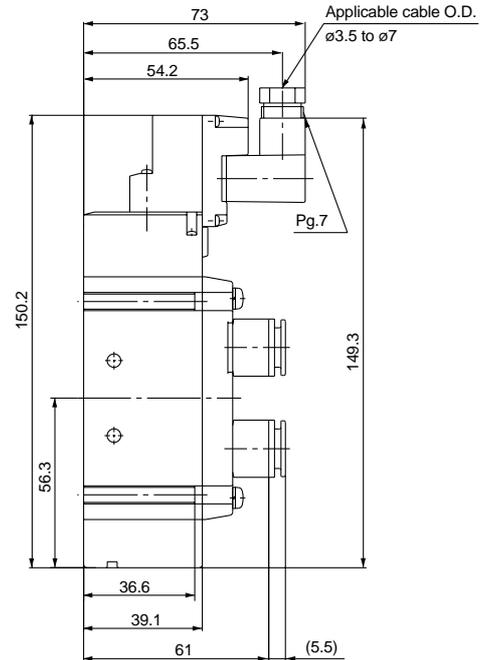
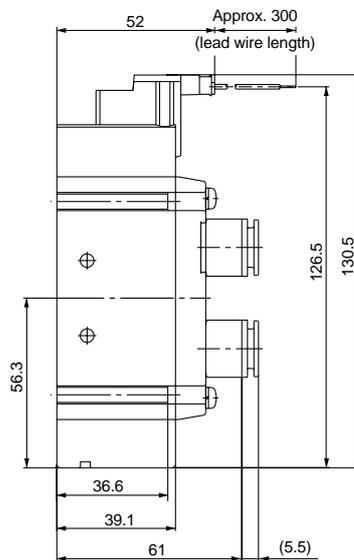
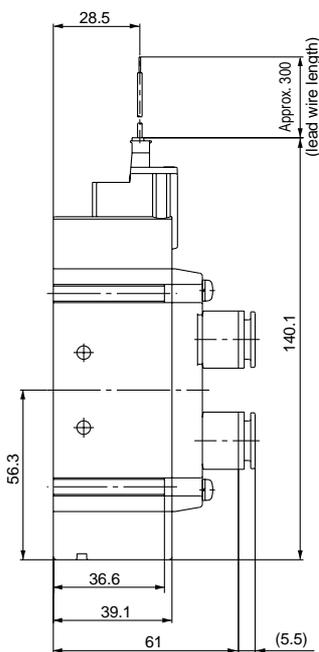
SY9120-□^L□□-^{C8}_{C12}-Q

M type plug connector (M):

SY9120-□^M□□-^{C8}_{C12}-Q

DIN terminal (D):

SY9120-□^D□□-^{C8}_{C12}-Q



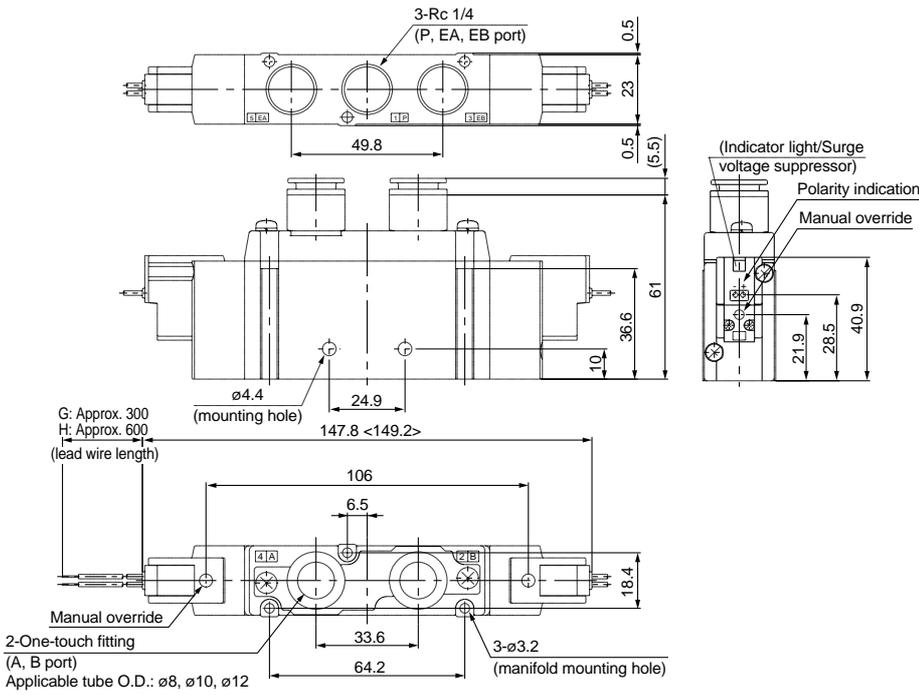


Note) < >: Values with surge voltage suppressor

Series SY9000 Dimensions

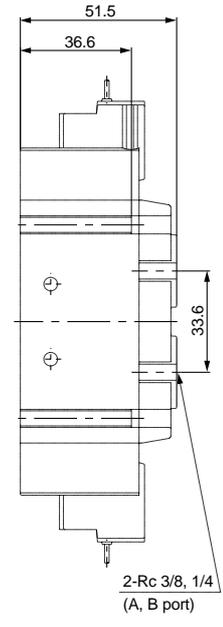
2 position double

Grommet (G), (H): SY9220-□^G□□-^{C8}_{C12}-Q



SY9220-□^G□□-^{C8}_{C12}-Q

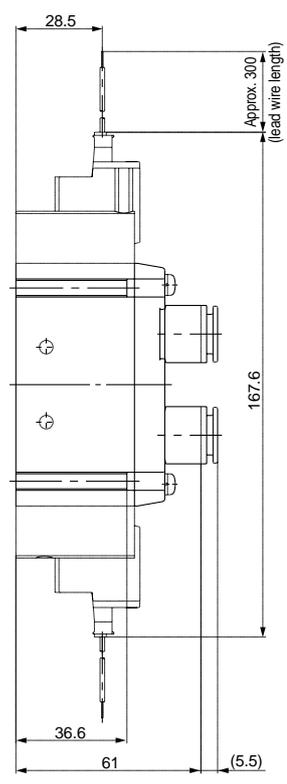
Scale: 40%



- SV
- SY**
- SYJ
- SX
- VK
- VZ
- VF
- VFR
- VP7

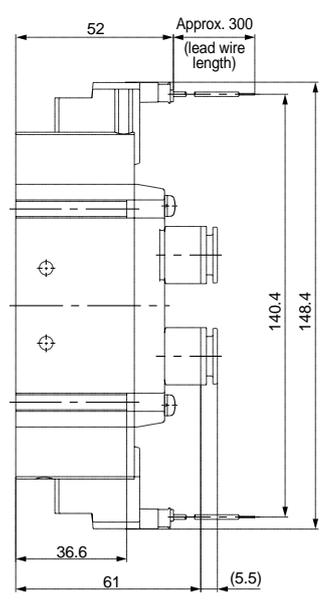
L type plug connector (L):

SY9220-□^L□□-^{C8}_{C12}-Q



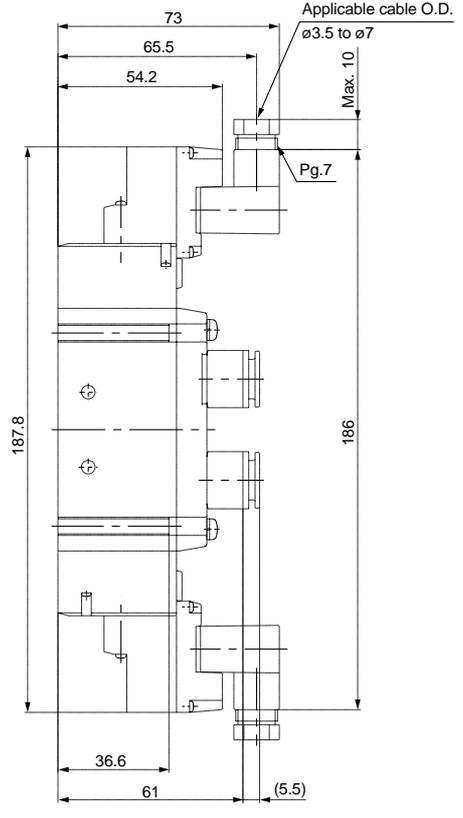
M type plug connector (M):

SY9220-□^M□□-^{C8}_{C12}-Q



DIN terminal (D):

SY9220-□^D□□-^{C8}_{C12}-Q



- VQC
- SQ
- VQ
- VQ4
- VQ5
- VQZ
- VQD
- VFS
- VS
- VS7
- VQ7

Body Ported Type

Series SY9000 Dimensions



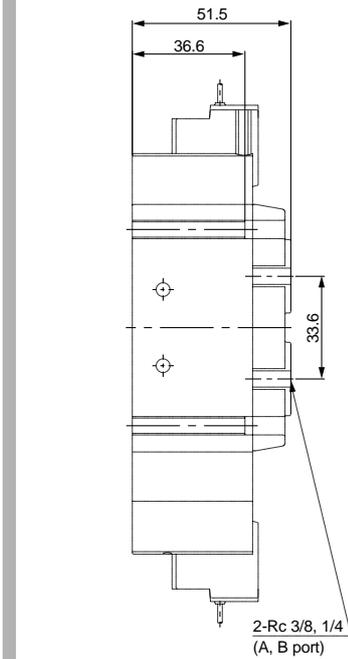
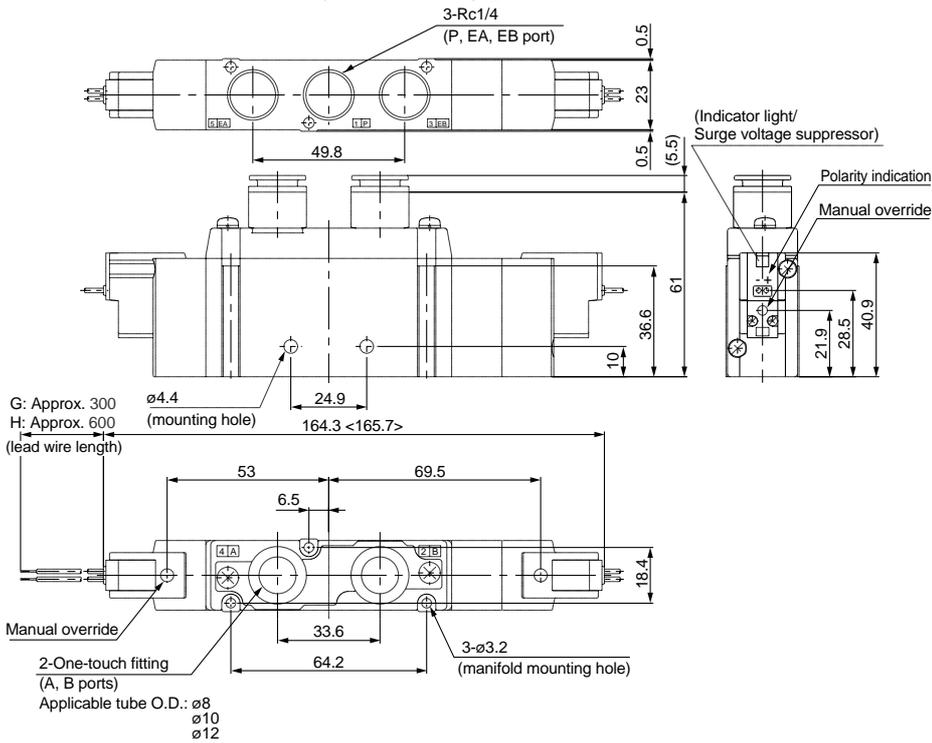
Note) < >: Values with surge voltage suppressor

3 position closed centre/exhaust centre/pressure centre

Grommet (G), (H): SY9³/₅420-□^G□□-C⁸_{C12}-Q

SY9³/₅420-□^G□□-02₀₃□-Q

Scale: 40%



L type plug connector (L):

SY9³/₅420-□^L□□-C⁸_{C12}-Q

M type plug connector (M):

SY9³/₅420-□^M□□-C⁸_{C12}-Q

DIN terminal (D):

SY9³/₅420-□^D□□-C⁸_{C12}-Q

