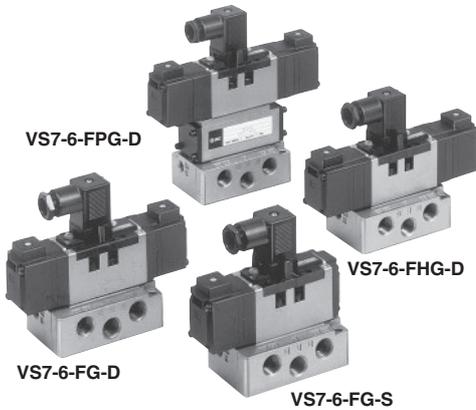


# ISO Interface Solenoid Valve/SIZE ① Metal Seal

## Series VS7-6



### Note:

Please note that single subplates and manifolds have changed colour from platinum silver to white as standard. Valves will remain platinum silver.

2 position	Single solenoid (FG-S)	Double solenoid (FG-D)	Reverse pressure (YZ-S)*	Reverse pressure (YZ-D)*
3 position	Closed centre (FHG-D)	Exhaust centre (FJG-D)	Double pilot check (FPG-D)	Pressure centre (FLG-D)*

\* Option

### Standard Specifications

Fluid	Air/Inert gas
Operating pressure	0.1 to 1.0MPa
Ambient and fluid temperature	5 to 60°C
Manual override	Non-locking style, Locking style*
Electrical entry	DIN connector
Lubrication	Non-lube If provided, use turbine oil (ISO, VG32)
Shock resistance (Vibration resistance) <sup>(1)</sup>	150/50 m/s <sup>2</sup>
Applicable sub-plate	VS7-1 (ISO size ①)



\* Option

Note) Shock resistance: No malfunction resulted from the impact test using a drop impact tester. The test was performed on the axis 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 2000 Hz. Test was performed at both energized and de-energized states to the axis and right angle directions of the main valve and armature. (Value in the initial stage.)

### Pilot Valve/Specifications

Part No.*	AXT511 <sup>A</sup> -1 (V)	AXT511 <sup>A</sup> -2 (V)	AXT511 <sup>A</sup> -3 (V)	AXT511 <sup>A</sup> -4 (V)
Rated voltage (V)	100V AC 50/60 Hz	200V AC 50/60 Hz	24V DC	12V DC
Inrush current (A)	0.049/0.043	0.024/0.021	0.075	0.15
Holding current (A)	0.031/0.020	0.015/0.01		
Allowable voltage (V)	85 to 110% of rated voltage			
Insulation	Class B (130°C) or equivalent			



\* A: With 2-M4 X 46 bolts for 2 position valve, B: With 2-M4 X 54 bolts for 3 position valve Note) Based on JIS C4003. (V): Pilot EXH individual style.

### Option/Interface regulator

Interface regulator model <sup>(1)</sup>	<b>ARB250</b>		
Applicable solenoid valve	<b>VS7-6</b>		
Regulation port	A	B	P
Proof pressure	1.5MPa		
Max. operating pressure	1.0MPa		
Set pressure range	0.1 to 0.83 Mpa		
Ambient and fluid temperature	5 to 60°C		
Pressure gauge port size	1/8		
Weight (kg)	0.55		
Air supply side eff. area S (P=0.7MPa, P1=0.5MPa) <sup>(2)</sup> (mm <sup>2</sup> )	P/A	15	16
	P/B	16	16
Air exhaust side eff. area S (P2=0.5MPa) <sup>(2)</sup>	A/EA	25 mm <sup>2</sup>	
	B/EB	18 mm <sup>2</sup>	



Note 1) Use "ABR210" for pressure centre style and reverse pressure style.

Note 2) Synthesized effective area with 2 position single style solenoid valve.

### Model

No. of positions	Model	Effective area (With 1/4 sub-plate) (mm <sup>2</sup> ) (N/min)	Max. operating rate (1) (cycle/sec.)	Response time (2) (sec)	Weight (3) (kg)
2 (Single)	<b>VS7-6-FG-S-□-Q</b>	27 (1472.25)	20	0.025 or less	0.460
2 (Double)	<b>VS7-6-FG-D-□-Q</b>	27 (1472.25)	20	0.015 or less	0.560
3 (Closed centre)	<b>VS7-6-FHG-D-□-Q</b>	25.5 (1374.10)	10	0.045 or less	0.635
3 (Exhaust centre)	<b>VS7-6-FJG-D-□-Q</b>	27 (1374.10)	10	0.045 or less	0.635
3 (Pilot check)	<b>VS7-6-FPG-D-□-Q</b>	20 (1079.65)	10	0.05 or less	0.990



(1) Min. operating frequency is based on JIS B8375. (Once every 30 days) (3) Weight without sub-plate (Sub-plate: 0.37kg)

(2) Based on JIS B8375-1975 (At 0.5MPa)

(4) (1) and (2) are the rates in the condition of controlled clean air.

### Accessories

Mounting bolt (with washer)	TA-B-5 X 35
Packing	AXT500-13
Indicator light	(Option)

### Optional Specifications

Surge voltage suppressor	Available
Reverse pressure	R1/R2 port: Pressure in R1=P1 pressure R2=P2 pressure, P1≤P2

# VS7-6

## Double Pilot Check Spacer/Series FPG

### Cylinder mid-stroke, long term retention possible.

The use of the double pilot check spacer equipped with a built-in double check valve enables the cylinder to stop and remain at mid-stroke for long periods regardless of air leakage between the spool and sleeve.

### 3 Position Double Pilot Check Valve (Wedge packing style) VS7-6-FHG-D-□R

3 position double pilot check valve achieves a reduction in air leakage as a result of main valve construction which features co-axial wedge packing (Max. leakage: 10 cm<sup>3</sup>/min (ANR)).

### ⚠ Caution

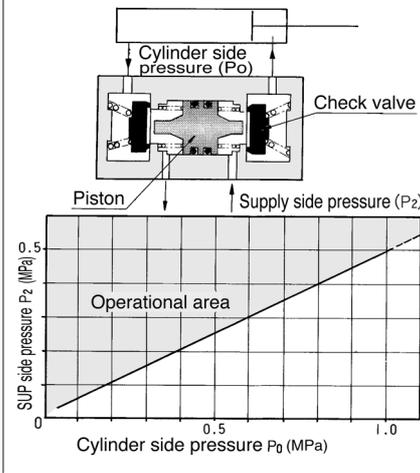
- Verify that there is no leakage from the pipes between valve and cylinder, and from fittings. Check for leaks by using neutral detergent solution before use. Also check the cylinder packing and the piston packing. If there is leakage, cylinder may not stop at the mid-stroke position, and could move immediately after the valve is de-energized.
- Be aware that if the exhaust side is restricted excessively, the intermediate stopping accuracy will decrease and will lead to improper intermediate stops.

### Double Pilot Check Spacer Specifications

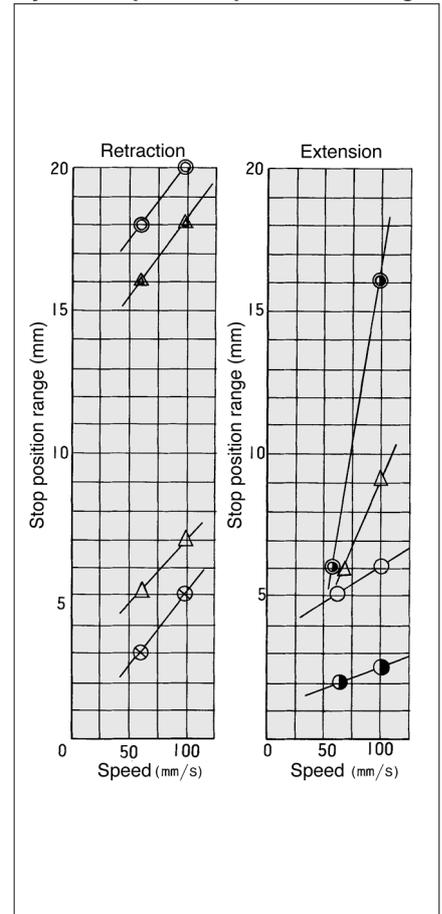
Double pilot check spacer model		VV71-FPG		
Applicable solenoid valve/air operated valve		Series VS7-6/VSA7-6		
Leakage (cm <sup>3</sup> /min (ANR))	With one side solenoid energized. (With one side pilot air pressured)	P	R <sub>1</sub>	130
			R <sub>2</sub>	
	Both sides solenoids de-energized. (With both sides pilots not air pressured)	P	R <sub>1</sub>	130
			R <sub>2</sub>	
		B	R <sub>1</sub>	0
			A	

### Check Valve/Operation Pressure Characteristics

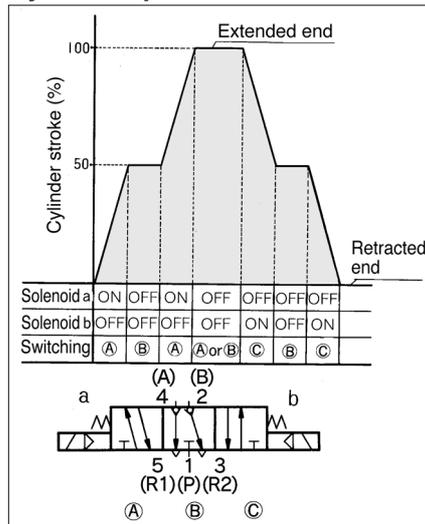
The check valve will operate correctly providing that cylinder side pressure is not in excess of two times the supply pressure.



### Cylinder Speed/Stop Position Range



### Cylinder Operation Chart



Cylinder		Supply pressure	Load	Load factor	
ø50-450 <sup>st</sup>	ø80-450 <sup>st</sup>			ø50	ø80
○	○	0.2MPa	25kg	51%	28%
⊗	⊗	0.5	25	25	11
●	●	0.2	35	72	39
△	△	0.5	35	36	16

## How to Order

E VS7-6 FG S 1 □ □ □ □ Q

Symbol		Number of solenoid	Rated voltage	Option	Port size of sub-plate	Connector
FG		S Single	1 100V AC	- None	- Without sub-plate	- Connector
FJG		D Double	2 200V AC	N Indicator light	A02 Side piping 1/4*	O W/o connector
YZ*			3 24V DC	M Direct manual override	A03 Side piping 3/8	
FPG			4 12V DC	Z Indicator light with surge voltage suppressor	B02 Bottom piping 1/4*	
FHG			9 Others (250V or less)	MR Wedge packing style with direct manual override	B03 Bottom piping 3/8	
FIG*				R Wedge packing style	* R port: 3/8	
				V Individual pilot EXH		

\* Option

### Ordering source area code

Code	areas
-	Japan, Asia Australia
E	Europe
N	North America

Contact SMC for other voltages (9)

Protective class class I (Mark: )

\* If specifying more than one symbol, indicate them in the alphabetical order.

### Note:

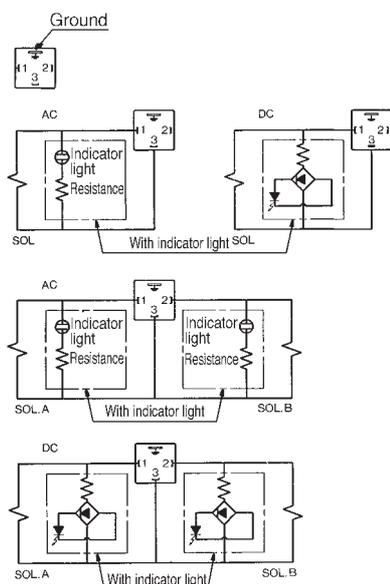
Manifold exploded view see page 1.19-33 for details.

## Precautions

Be sure to read before handling. Refer to p.0-33 to 0-36 for Safety Instructions and common precautions.

## Caution

### DIN Connector (Wiring)



### Interface Regulator Specifications

#### Specifications

Interface regulator model	ARB250		
Applicable solenoid valve	VS7-6		
Regulation port	A	B	P
Max. operating pressure	1.0MPa <sup>(1)</sup>		
Setting pressure range	0.1 to 0.83MPa <sup>(1)</sup>		
Ambient and fluid temperature	5 to 60°C <sup>(2)</sup>		
Pressure gauge port size	1/8		
Weight (kg)	0.55		
Air supply side eff area (mm <sup>2</sup> )	P → A	16	13
S (P=0.7MPa, P1=0.5MPa)	P → B	16	11
Air exhaust side eff area	25 mm <sup>2</sup>		
S (P2=0.5MPa)	B → EB	18 mm <sup>2</sup>	

Note 1) Maximum operating pressure of solenoid valve is 0.9 MPa.

Note 2) Be sure to set pressure within setting pressure range of the solenoid valve.

Note 3) Solenoid valve: Max. 50°C

Note 4) Synthesized effective area with 2 position single style solenoid valve.

Note 5) •Supply pressure to interface regulator only from P port except when it is used with reverse pressure style valve.

•Use the ARB210 or ARB310 model to combine a pressure centre valve and the A and B port pressure reduction of a spacer style regulator.

•Use the ARB210 or ARB310 model to combine a reverse pressure valve and a spacer style regulator. The P port pressure reduction cannot be used.

•To use a perfect valve and a spacer style regulator, use a manifold or a sub plate as the standard and stack in the following order: the perfect spacer, spacer style regulator, and the valve.

•When a closed centre valve is combined with the A and B port pressure reduction of a spacer style regulator, it cannot be used for intermediate stops of the cylinder because of the leakage from the relief port of the regulator.

### Power Source and Wiring

- Make sure all contacts are secure.
- Voltage should be held within the allowable voltage range.

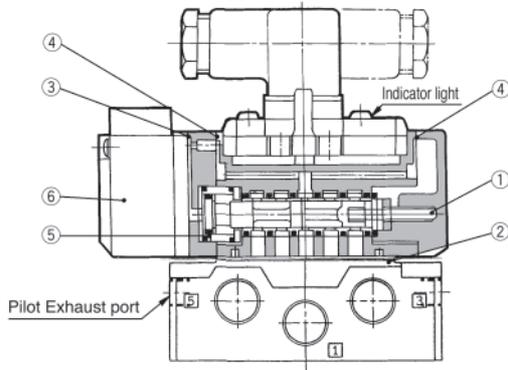
### How to calculate flow rate

Refer to p.0-36 for flow rate calculations.

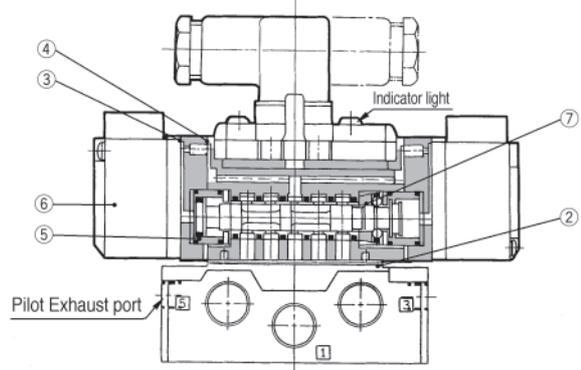
# VS7-6

## Construction

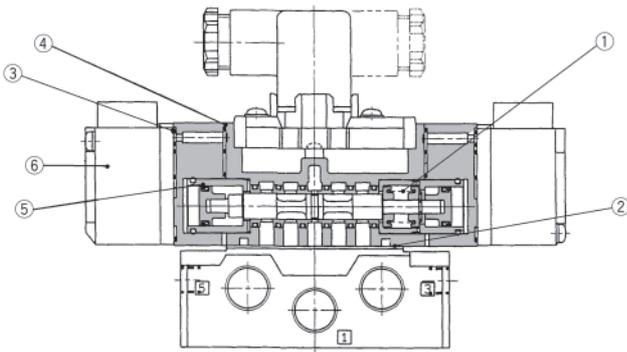
VS7-6-FG-S-□□-Q



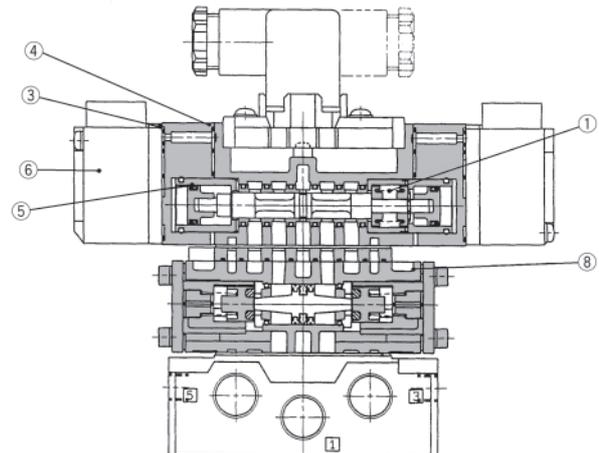
VS7-6-FG-D-□□-Q



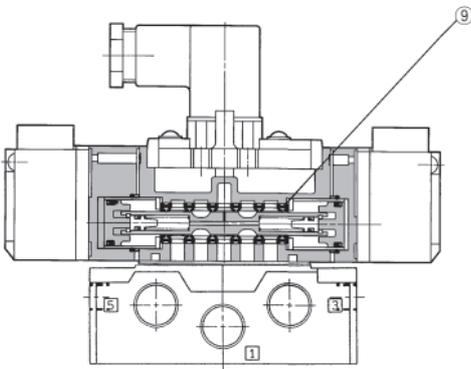
VS7-6-FHG-□□-Q  
VS7-6-FJG-□□-Q



VS7-6-FPG-□□-Q



VS7-6-FHG-D-□R-Q

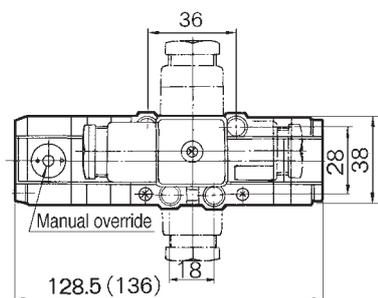
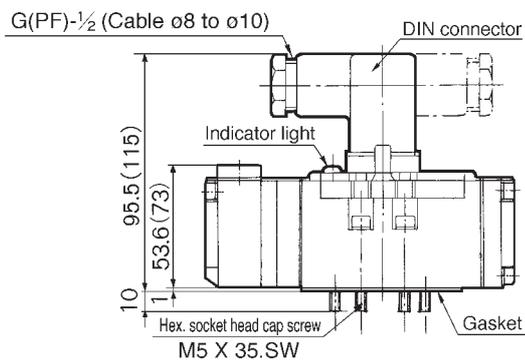


### Replacement Parts

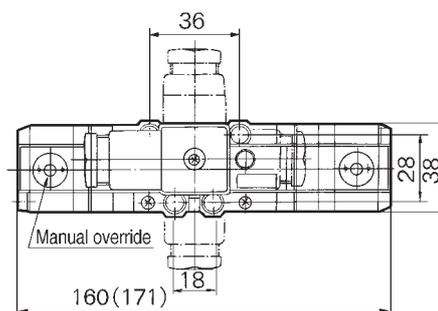
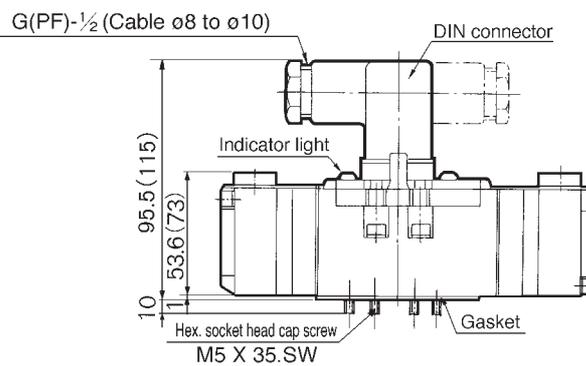
No.	Description	Material	Part No.				
			VS7-6-FG-S	VS7-6-FG-D	VS7-6-FHG	VS7-6-FJG	VS7-6-FPG
①	Return spring	SUS	AXT500-12-2	—	VFS3000-17-2	VFS3000-17-2	VFS3000-17-2
②	Gasket	NBR	AXT500-13	AXT500-13	AXT500-13	AXT500-13	AXT500-13
③	Gasket	NBR	AXT503-35	AXT503-35	AXT503-35	AXT503-35	AXT503-35
④	Gasket	NBR	AXT503-12-1	AXT503-12-1	AXT503-12-1	AXT503-12-1	AXT503-12-1
⑤	Mini-Y-packing	NBR	MY-11N	MY-11N	MY-11N	MY-11N	MY-11N
⑥	Pilot valve assembly	—	AXT511A-□	AXT511A-□	AXT511B-□	AXT511B-□	AXT511B-□
⑦	Detent assembly	—	—	AXT500-9	—	—	—
⑧	Double pilot check spacer	—	—	—	—	—	VV71-FPG
⑨	Packing	NBR	—	—	AXT643-2-1	—	—

## Without Sub-plate/Dimensions

**VS7-6-FG-S-□□-Q**



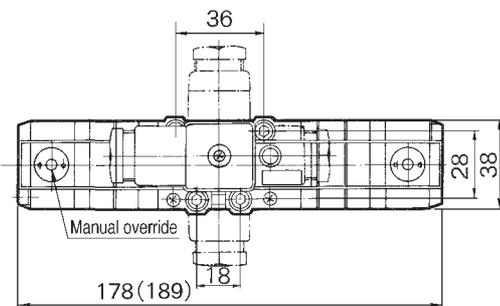
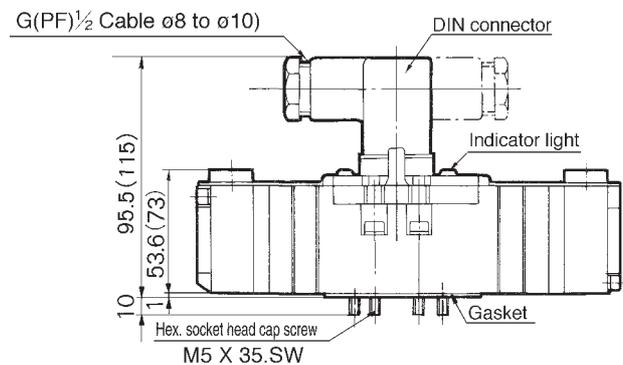
**VS7-6-FG-D-□□-Q**



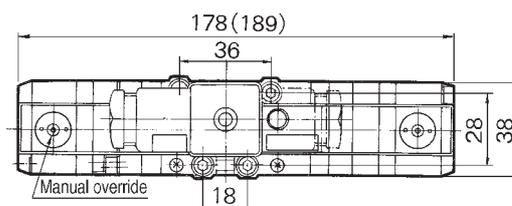
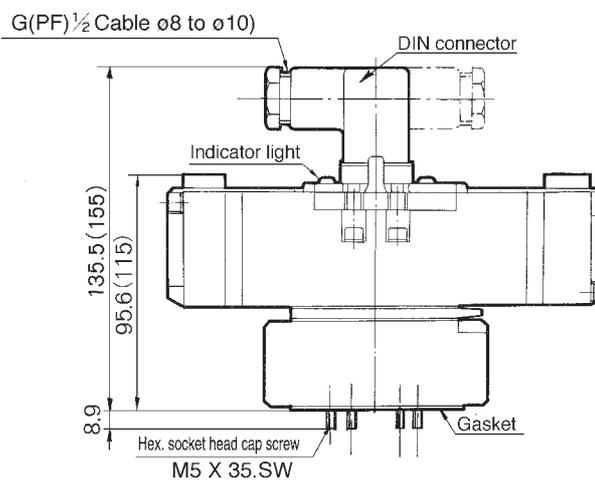
( ) : In case of direct manual override style.

**VS7-6-FHG-□□-Q**

**VS7-6-FJG-□□-Q**



**VS7-6-FPG-□□-Q**

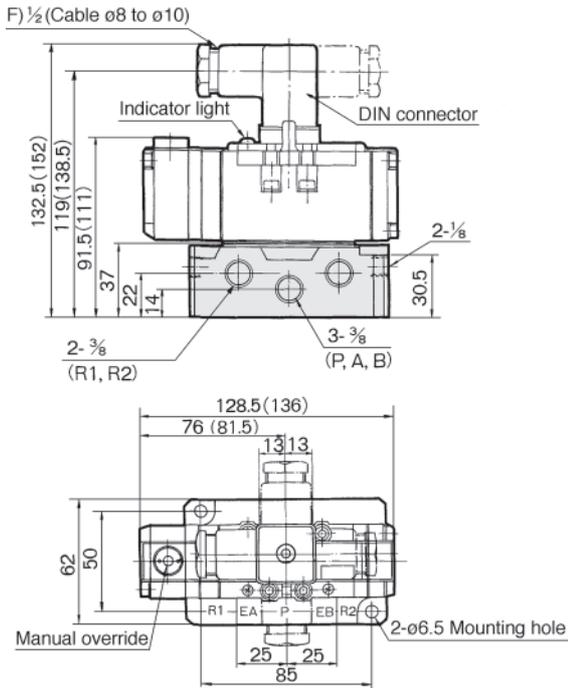


( ) : In case of direct manual override style.

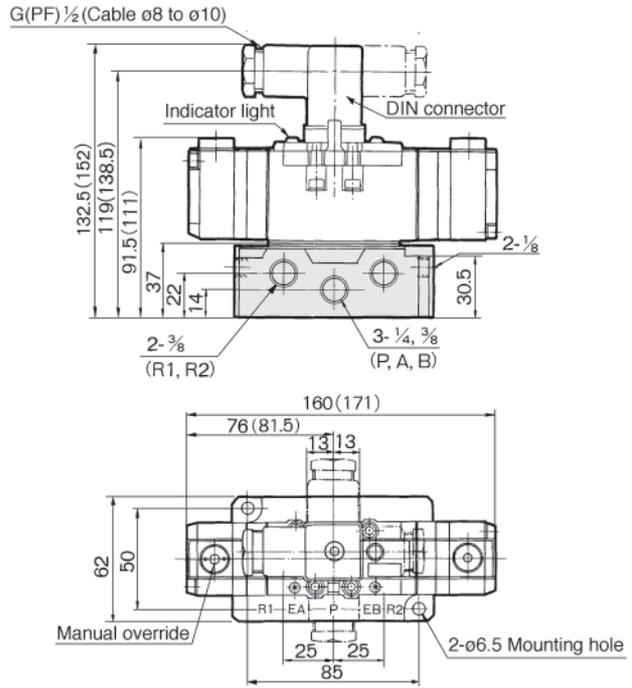
# VS7-6

## With Sub-plate/Dimensions

VS7-6-FG-S-□□ Port size of sub-plate -Q

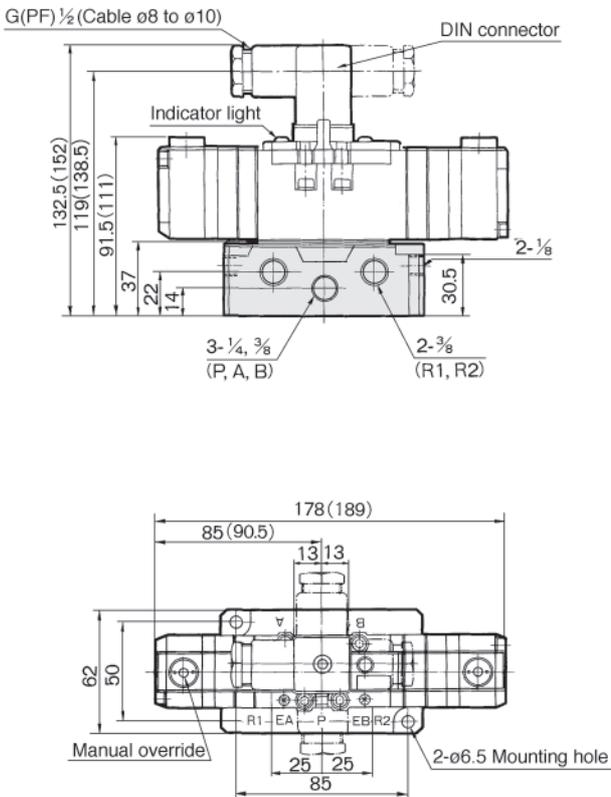


VS7-6-FG-D-□□ Port size of sub-plate -Q

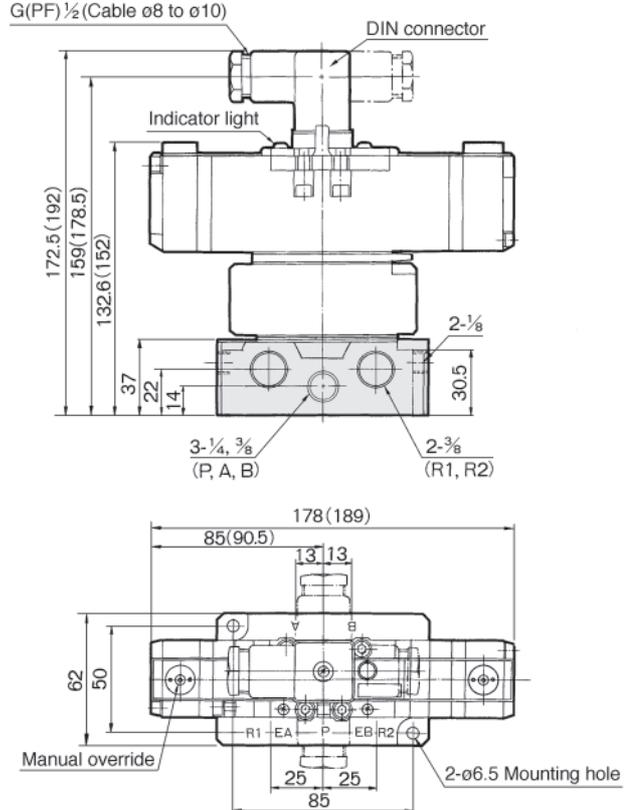


VS7-6-FHG-□□ Port size of sub-plate -Q

VS7-6-FJG-□□ Port size of sub-plate -Q



VS7-6-FPG-□□ Port size of sub-plate -Q

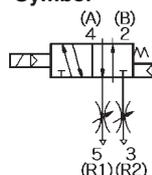


( ) : In case of direct manual override style.

## Interface Speed Control

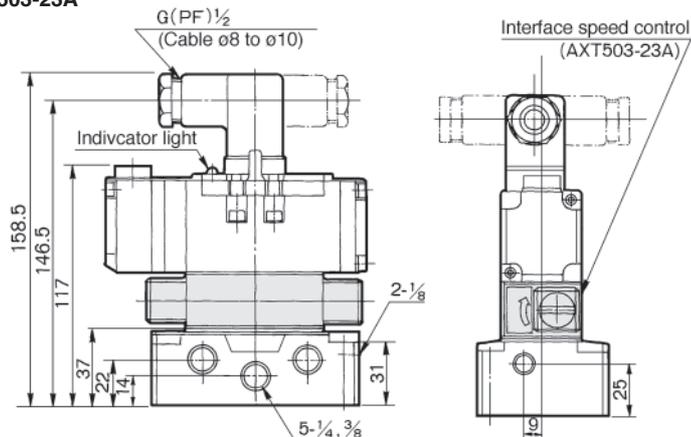


Symbol

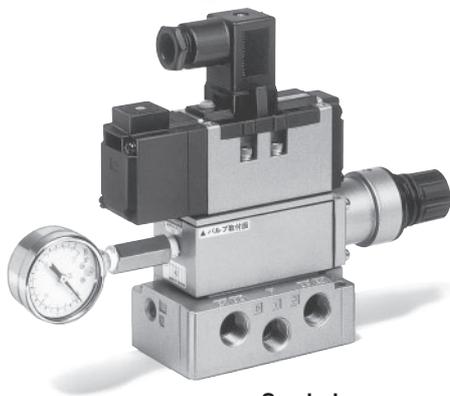


## Interface Speed Control

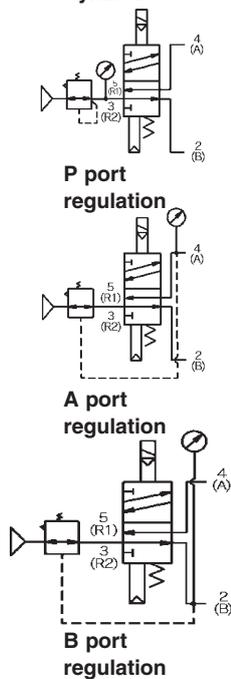
AXT503-23A



## Interface Regulator

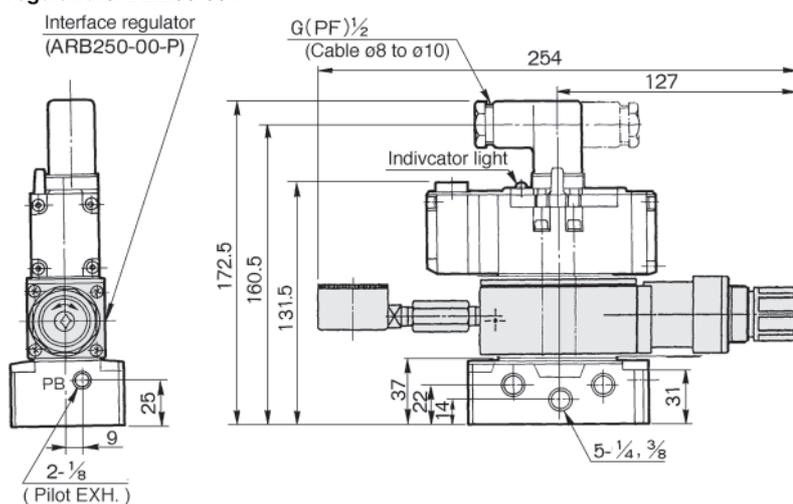


Symbol

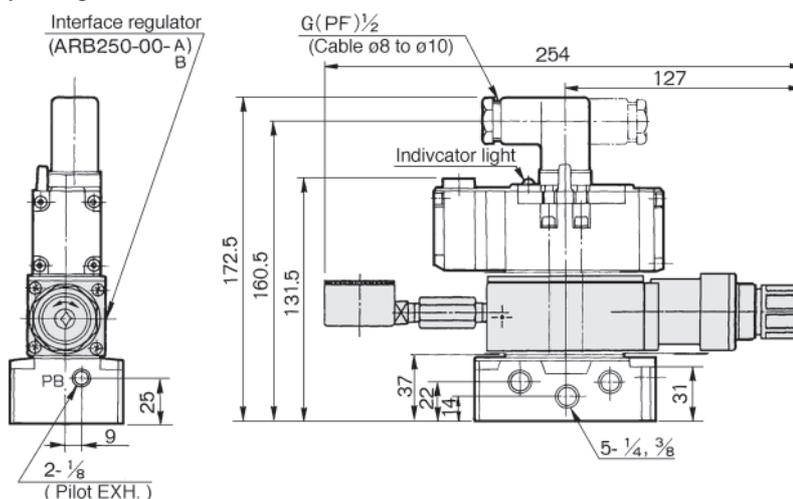


## Interface Regulator/Dimensions

P regulation/ARB250-00-P



A port regulation/ARB250-00-A  
B port regulation/ARB250-00-B



# Series VS7-6 Sub-plate

## Sub-plate: Series VS7-1/VSA7-1



### Specifications

Applicable solenoid valve/air operated valve	Series ISO size ①
Sub-plate size	ISO size ①
Piping*	Side piping 1/4 3/8 Bottom piping 1/4 3/8
Weight	0.37kg

\* All R ports: 3/8

### How to Order

**E** VS7-1-**A02**

#### Piping

<b>A02</b>	Side piping 1/4*
<b>A03</b>	Side piping 3/8
<b>B02</b>	Bottom piping 1/4*
<b>B03</b>	Bottom piping 3/8

\* R port: 3/8

#### Thread

-	Rc (PT)
<b>F</b>	G (PF)
<b>N</b>	NPT
<b>T</b>	NPTF

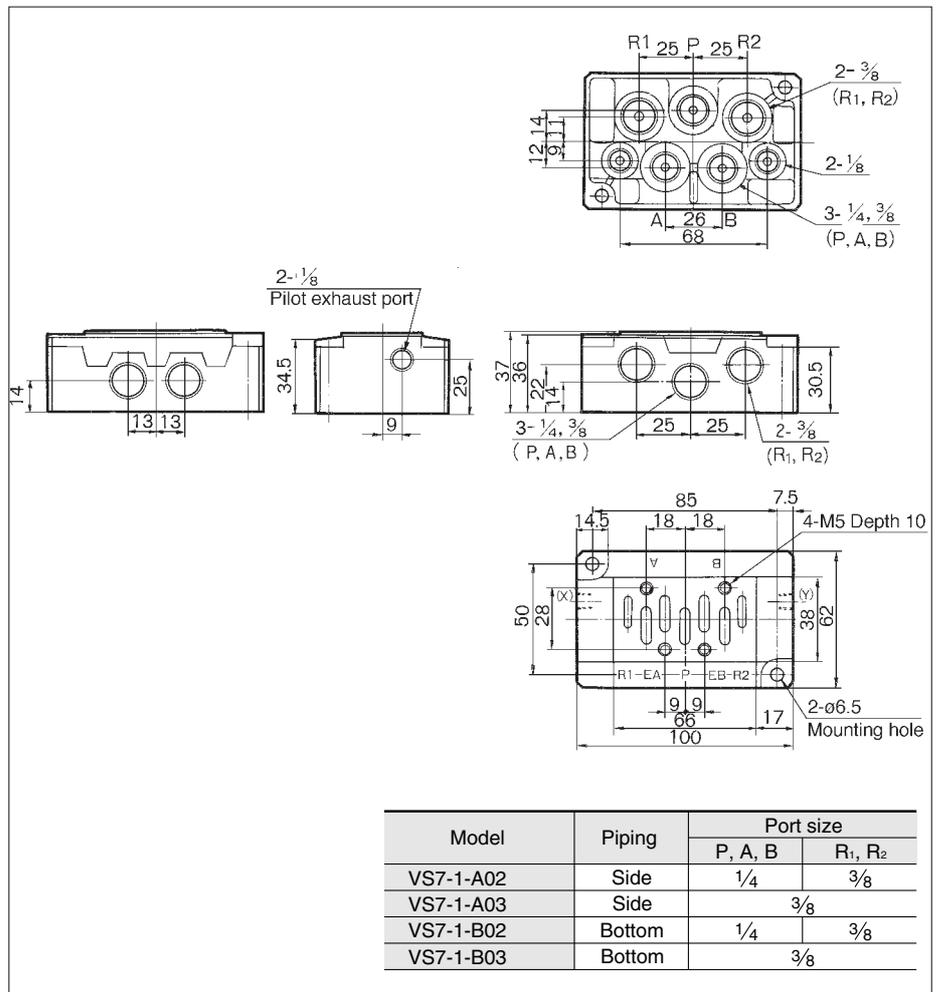
#### Ordering source area code

Code	areas
-	Japan, Asia Australia
<b>E</b>	Europe
<b>N</b>	North America

### Note:

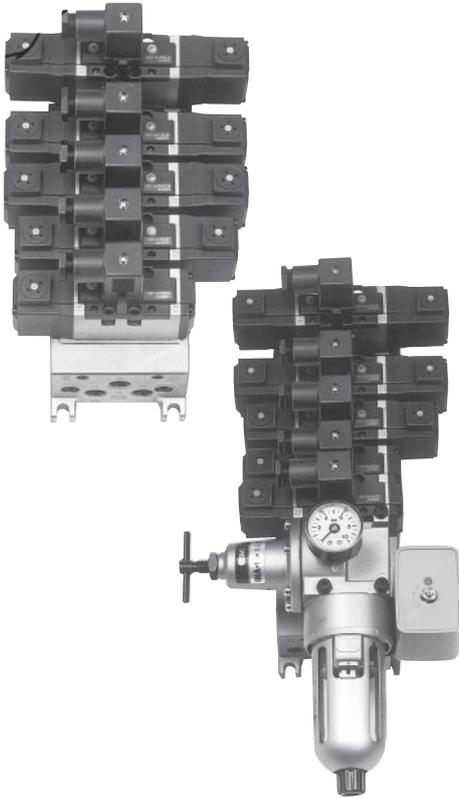
Please note that single subplates and manifolds have changed colour from platinum silver to white as standard. Valves will remain platinum silver.

### Dimensions



# Series VS7-6 Manifold

## Manifold: Series VV71



### Note:

Please note that single subplates and manifolds have changed colour from platinum silver to white as standard. Valves will remain platinum silver.

### Standard Specifications

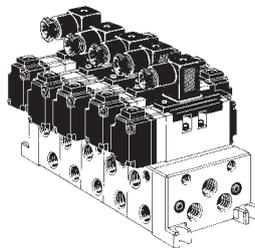
Manifold block size		ISO size ①
Applicable solenoid valve		Series ISO size ①
Number of stations		1 to 10*
Piping	A, B-port	1/4 3/8 One-touch fitting: ø6, ø8, ø10
	P, R1, R2-port	1/4 3/8 One-touch fitting: ø12
F. R. Unit		Air filter (Auto drain, Manual drain), Regulator, Pressure switch, Air release valve
Individual SUP spacer		VV71-P-□(02:1/4,03:3/8,C10:ø10)
Individual EXH spacer		VV71-R-□(02:1/4,03:3/8,C12:ø12)
Gallery blank disc (Differential pressure style)		AXT502-14

\* Including F.R.Unit ( equivalent to 2 stations )

The manifold Series VV71□ has a wide variety of functions and piping, compatible with virtually any application.

### Common EXH Style

Every valve is supplied and exhausted by the same SUP and EXH ports running through the connected manifolds. This is the most popular configuration. When there are 5 or more stations operating simultaneously and pilot back pressure is 0.2kgf/cm<sup>2</sup> or more, it is recommended that all pilot EXH ports (PE) of the manifold base (4 on U side and 2 on D side, total 6 ports) be open. Also, use "AN110-01" for silencer for pilot EXH.



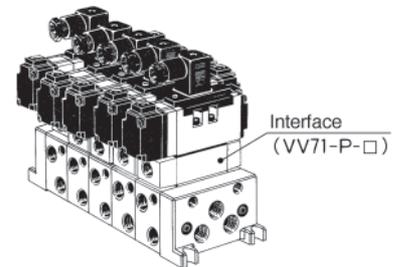
### Individual EXH Style

Every valve has an independent EXH port of its own.

¡An Individual EXH spacer (VV71-R-□) mounted on the manifold block allows each valve to exhaust individually.

### Individual SUP Style

¡An Individual SUP spacer (VV71-P-□) mounted on the manifold block allows each valve to be supplied individually.



### Multiple Pressure SUP Style

Allows supply of 2 or more different pressure to one manifold.

¡Put in a gallery blank disc ( AXT502-14 ) between the stations to operate at different pressures. A dual pressure supply can be supplied from both the left and right sides of the manifold. If 3 or more pressures are supplied, the individual SUP spacer should be used.

### Bottom Piping Style/1/4, 3/8 ( A, B-port )

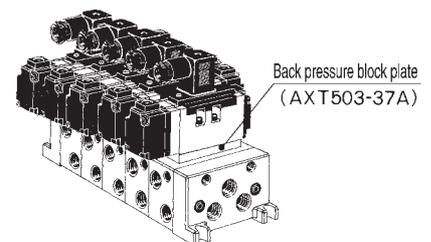
When side piping appearance is not acceptable or space is limited, either some of, or all ports, can be arranged with bottom piping.

### Individual Pilot EXH Style

If there are many valve stations operating at the same time or operation frequency is high, trouble caused by back pressure will be prevented by using individual pilot EXH style valve ("VS7-6-□-□").

### Main EXH Back Pressure Block Style

¡If there are many valve stations operating at the same time and main EXH back pressure may cause trouble, mount back pressure block plate ("AXT503-37A") to prevent effects of main EXH back pressure.



# VS7-6

## How to Order (Manifold)

E VV71 5 03R 03D Q

Stations	Piping/A, B port	Control unit	Piping/P, R <sub>1</sub> , R <sub>2</sub> Port	Silencer box	Air release valve/Rated voltage
1	02R 1/4 (Right)	- Without	02D 1/4 (Bottom)	- W/o silencer box	- Without air release valve
...	03R 3/8 (Right)	A Filter with auto-drain, regulator, air release valve	02U 1/4 (Top)	SB Silencer box	1 100V AC 50/60Hz
10	02L 1/4 (Left)	AP Filter with auto-drain, regulator, pressure switch, air release valve	02B 1/4 (Both sides)		2 200V AC 50/60Hz
	03L 3/8 (Left)	M Filter with manual drain, regulator, air release valve	03D 3/8 (Bottom)		3 24V DC
	02Y 1/4 (Bottom)	MP Filter with manual drain, regulator, pressure switch, air release valve	03U 3/8 (Top)		4 12V DC
	03Y 3/8 (Bottom)	F Filter with auto-drain, regulator (air release valve-blank)	03B 3/8 (Both sides)		9 Others(250V or less)
	C6R One-touch for ø6 tube (Right)	G Filter with manual drain, regulator (air release valve-blank)	C12D One-touch fitting for ø12 tube (Bottom)		
	C8R One-touch for ø8 tube (Right)	C Air release valve (filter, regulator-blank)	C12U One-touch fitting for ø12 tube (Top)		
	C10R One-touch for ø10 tube (Right)	E Air release valve	C12B One-touch fitting for ø12 tube (Both sides)		
	C6L One-touch for ø6 tube (Left)		*		
	C8L One-touch for ø8 tube (Left)				
	C10L One-touch for ø10 tube (Left)				
	* Combination				

\* Includes F. R. Unit (equivalent to 2 stations).

\* Please provide piping specifications.

\* Mounting position of silencer box is in accordance with piping of R<sub>1</sub> and R<sub>2</sub> ports.

Order Made Contact SMC for other voltages (9)

Protective class class 1 (Mark: ⚡)

Note) Manifold exploded view see page 1.19-33 for details

### Ordering source area code

Code	areas
-	Japan, Asia Australia
E	Europe
N	North America

### F. R. Unit for Manifold

Air filter, regulator, pressure switch, air release valve can be directly mounted to the manifold base, simplifying piping.

### Classification of Control Unit

Control unit	Symbol								
	-	A	AP	M	MP	F	G	C	E
Air filter with auto-drain		○	○			○			
Air filter with manual drain				○	○		○		
Regulator		○	○	○	○	○	○		
Air release valve		○	○	○	○			○	○
Pressure switch			○		○				
Blank plate (Air release valve)						○	○		
Blank plate (Air filter, Regulator)								○	
Manifold blocks necessary for mounting	-	2	2	2	2	2	2	2	1

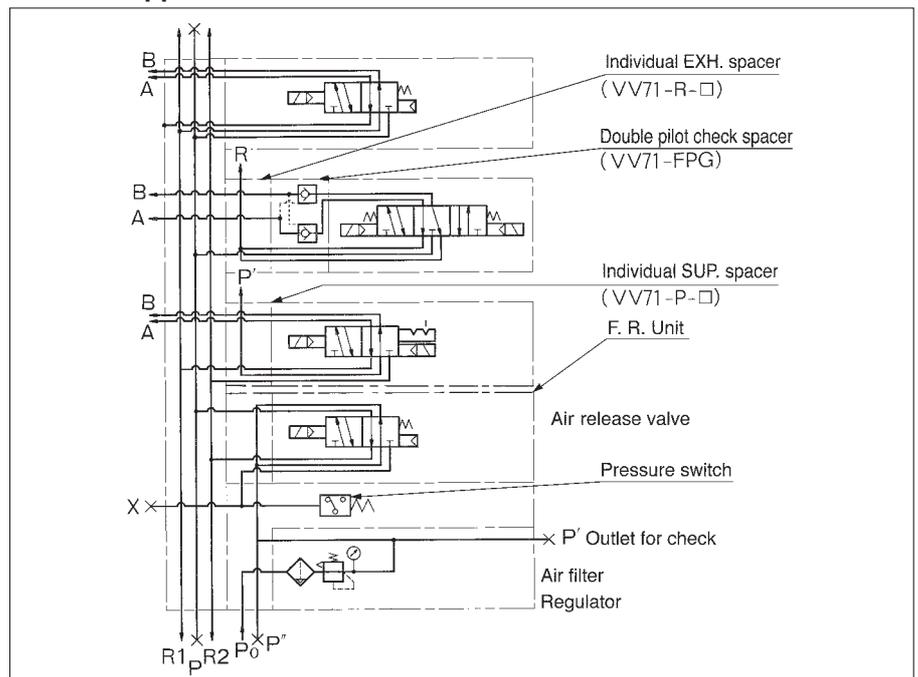
### F. R. Unit/Specifications

<b>Air filter (w/auto-drain, w/manual drain)</b>	
Filtration	5μm
<b>Regulator</b>	
Set press. (secondary)	0.05 to 0.85MPa
<b>Pressure switch</b>	
Pressure regulation range	0.1 to 0.7MPa
Contacts	1ab
Rated current	(Induction load) 125V AC 3A, 250V AC 2A
<b>Air release valve (Single only)</b>	
Operating press. range	0.1 to 1.0MPa

### Options

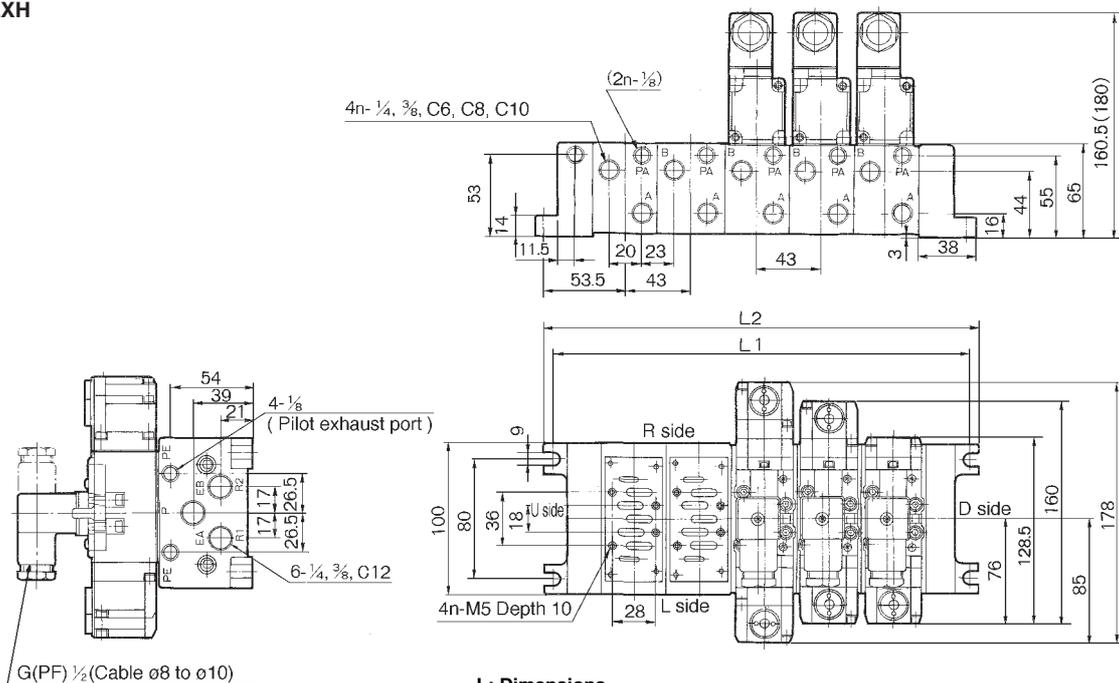
Blank plate	AXT502-9A (for manifold)	Interface for reverse pressure R <sub>1</sub> , R <sub>2</sub> individual EXH spacer	AXT502-21A-1 (3/8)	
	AXT502-18A (for air release valve adaptor plate)	Interface speed control	VV71-R2-03	
	MP2 (for control unit/filter regulation valve)	Lock up cylinder adaptor plate	AXT503-23A	
	MP3 (for pressure switch)		AXT502-26A	
Air release valve adaptor plate	AXT502-17A	Interface regulator	Relieving style	ARB250-00- P port regulation A port regulation B port regulation
F. R. Unit	VAW-A (Adaptor plate, filter with auto drain cock, regulator)	Main EXH back pressure block plate	AXT503-37A	
	VAW-M (Adaptor plate, filter with manual drain cock, regulator)	Silencer for pilot EXH	AN110-01	
	IS3100-X230 (2-M5 X 12)	Residual pressure release valve spacer	VV71-R-AB	
Pressure switch		Individual SUP spacer with residual pressure release valve	VV71-PR-□ 02: 1/4 03: 3/8	
		Double pilot check spacer with residual pressure release valve	VV71-FPGR	

### Manifold/Applications



## Manifold/Dimensions

### Common EXH



#### L: Dimensions

n: Station

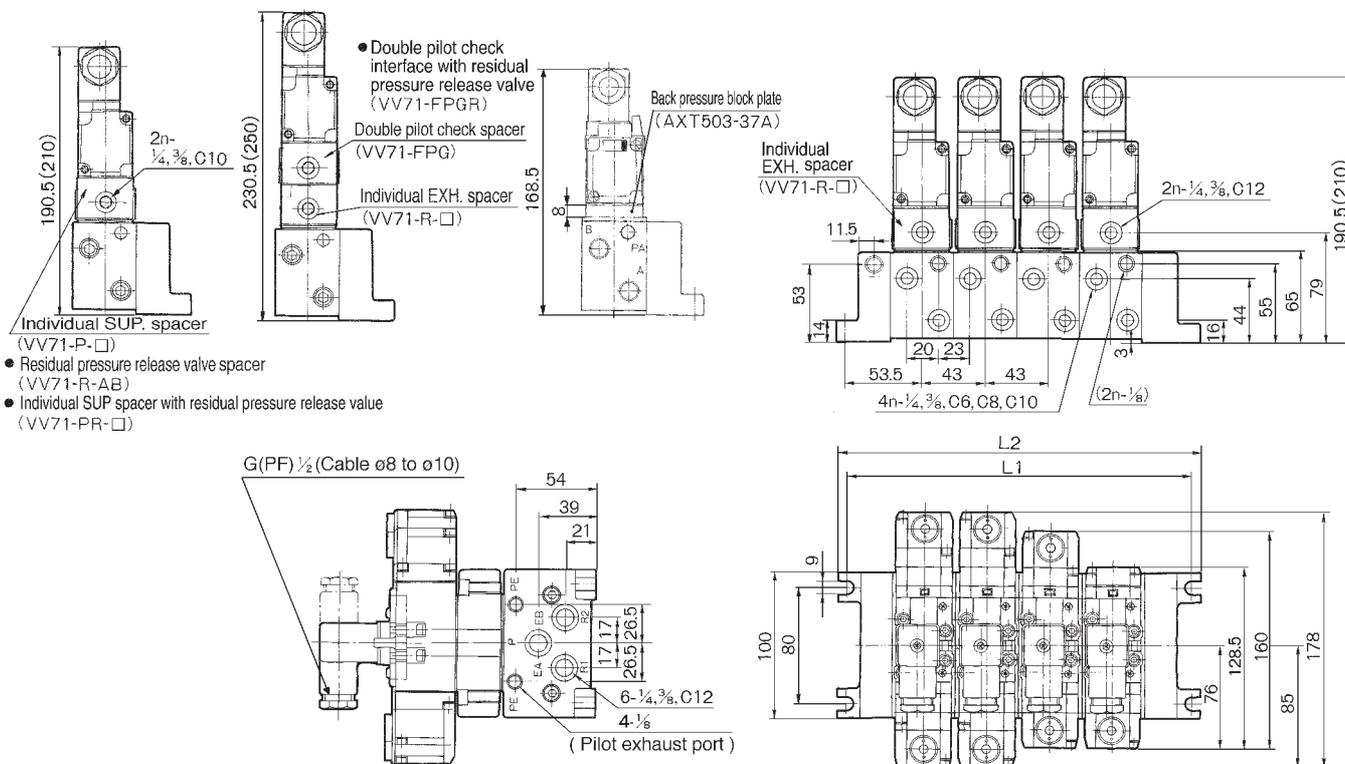
L \ n	1	2	3	4	5	6	7	8	9	10	Equation
L1	107	150	193	236	279	322	365	408	451	494	L1=43n+64
L2	119	162	205	248	291	334	377	420	463	506	L2=43n+76

Manifold weight general formula=0.43n+0.49 (kg)



( ): In case of direct manual override style.

### Individual EXH

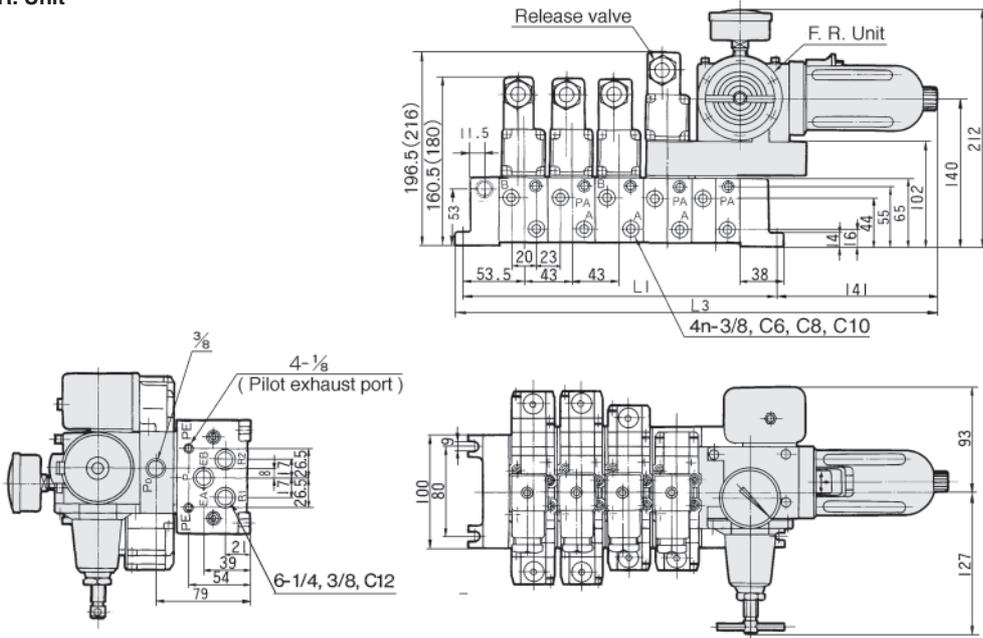


( ): In case of direct manual override style.

# VS7-6

## Manifold/Dimensions

### F. R. Unit



### L: Dimensions

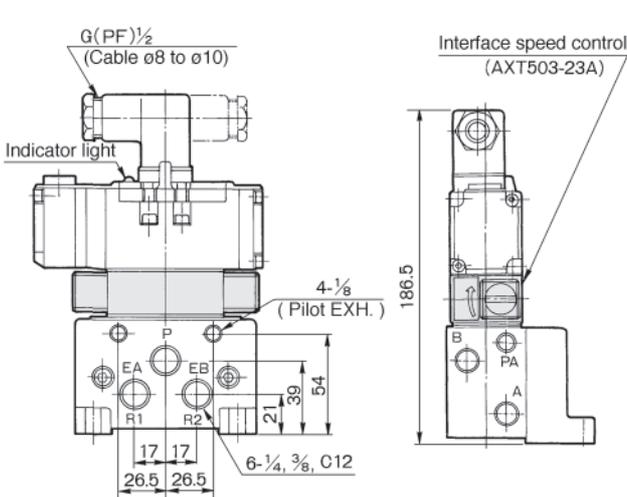
n: Station

L \ n	2	3	4	5	6	7	8	9	10	Equation
L1	150	193	236	279	322	365	408	451	494	L1=43n+64
L2	162	205	248	291	334	377	420	463	506	L2=43n+76
L3	297	340	383	426	469	512	555	598	641	L3=43n+211

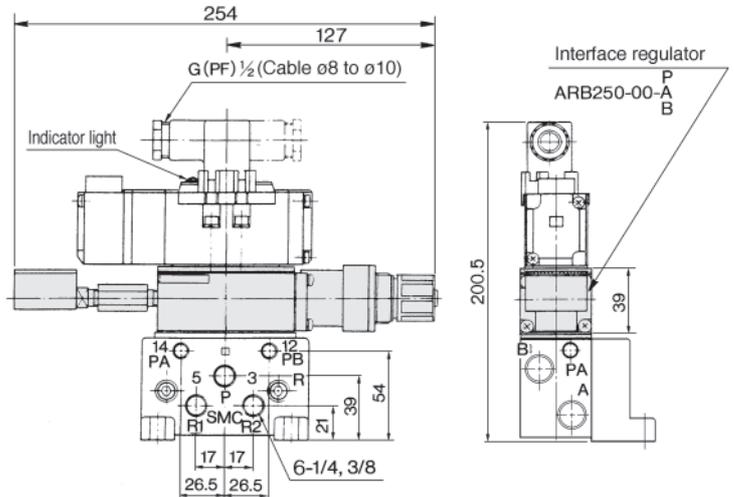


( ): In case of direct manual override style.

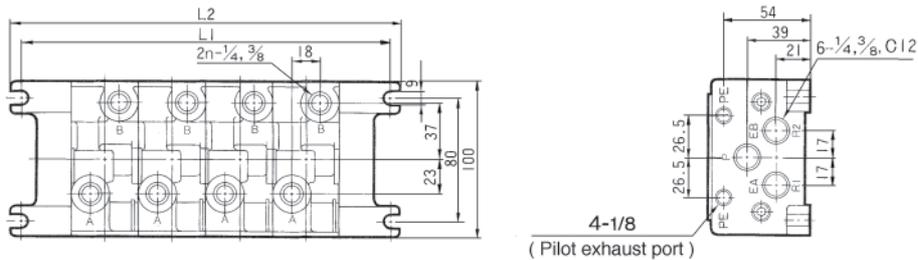
### Interface Speed Control



### Interface Regulator



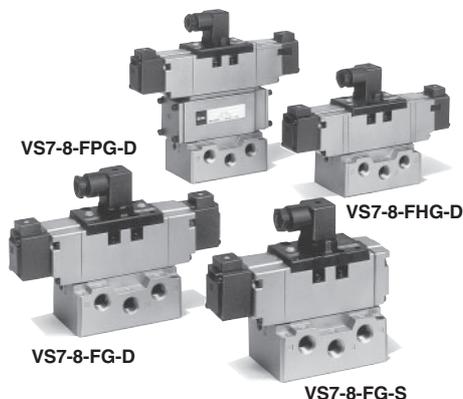
### Bottom Piping



# ISO Interface Solenoid Valve/SIZE ②

## Metal Seal

# Series VS7-8



### Note:

Please note that single subplates and manifolds have changed colour from platinum silver to white as standard. Valves will remain platinum silver.

2 position	Single solenoid ( FG-S )	Double solenoid ( FG-D )	Reverse pressure ( YZ-S )*	Reverse pressure ( YZ-D )*
3 position	Closed centre ( FHG-D )	Exhaust centre ( FJG-D )	Double pilot check ( FPG-D )	Pressure centre ( FIG-D )*

\* Option

### Standard Specifications

Fluid	Air/Inert gas
Operating pressure	0.1 to 1.0MPa
Ambient and fluid temperature	5 to 60 °C
Manual override	Non-locking style, Locking style*
Electrical entry	DIN connector
Lubrication	Non-lube If provided, use turbine oil ( ISO, VG32 )
Shock/Vibration resistance <sup>(1)</sup>	150/50 m/s <sup>2</sup>
Applicable sub-plate	VS7-2 ( ISO size ② )



\* Option

NOTE 1): Shock resistance: No malfunction resulted from the impact test using a drop impact tester. The test was performed on the axis 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 2000 Hz. Test was performed at both energized and de-energized states to the axis and right angle directions of the main valve and armature. (Value in the initial stage.)

### Pilot Valve/Specifications

Part No.	AXT511C-1 (V)	AXT511C-2 (V)	AXT511C-3 (V)	AXT511C-4 (V)
Rated voltage (V)	100V AC 50/60 Hz	200V AC 50/60 Hz	24V DC	12V DC
Inrush current (A)	0.049/0.043	0.024/0.021	0.075	0.15
Holding current (A)	0.031/0.02	0.015/0.01		
Allowable voltage (V)	85 to 110% of rated voltage			
Insulation	Class B (130°C) or equivalent			



(V): Pilot EXH individual style.

### Option/Interface Regulator

Interface regulator model <sup>(1)</sup>	ARB350			
Applicable solenoid valve	VS7-8			
Regulation port	A	B	P	
Proof pressure	1.5MPa			
Max. operating pressure	1.0MPa			
Set pressure range	0.1 to 0.83 MPa			
Ambient and fluid temperature	5 to 60°C			
Pressure gauge port size	1/8			
Weight (kg)	0.83			
Air supply side eff. area S (P=0.7MPa, P1=0.5MPa) <sup>(2)</sup> (mm <sup>2</sup> )	P/A	40	31	27
	P/B	31	34	27
Air exhaust side eff. area S ( P2=0.5MPa ) <sup>(2)</sup>	A/EA	60 mm <sup>2</sup>		
	B/EB	53 mm <sup>2</sup>		



Note 1) Use "ABR210" for pressure centre style and reverse pressure style.

Note 2) Synthesized effective area with 2 position single style solenoid valve.

### Option

Blank plate	AXT512-9A
-------------	-----------

### Model

No. of positions	Model	Effective area (With 3/4 sub-plate) (mm <sup>2</sup> ) (Nl/min)	Max. operating rate <sup>(1)</sup> (cycle/sec)	Response time <sup>(2)</sup> (sec)	Weight <sup>(3)</sup> (kg)
2 (Single)	VS7-8-FG-S-□-Q	58 (3140.80)	15	0.040 or less	0.655
2 (Double)	VS7-8-FG-D-□-Q	58 (3140.80)	15	0.020 or less	0.74
3 (Closed centre)	VS7-8-FHG-D-□-Q	58 (3140.80)	10	0.05 or less	0.89
3 (Exhaust centre)	VS7-8-FJG-D-□-Q	58 (3140.80)	10	0.05 or less	0.89
3 (Pilot check)	VS7-8-FPG-D-□-Q	40 (2159.30)	8	0.06 or less	2.12



(1) Min. operating frequency is based on JIS B8375. (Once in 30 days) (3) Weight without sub-plate (Sub-plate: 0.37kg)

(2) Based on JIS B8375-1975 (At 0.5MPa)

(4) (1) and (2) are the rates in the condition of controlled clean air.

### Accessories

Mounting bolt ( with washer )	TA-B-6 X 45
Packing	AXT510-13
Indicator light	( Option )

### Optional Specifications

Surge voltage suppressor	Available
Reverse pressure	R1/R2 port: Pressure in R1=P1 pressure R2=P2 pressure, P1≤P2

# VS7-8

## Double Pilot Check Spacer/Series FPG

### Cylinder mid-stroke/long term retention possible.

The use of the double pilot check spacer equipped with a built-in double check valve enables the cylinder to stop and remain at mid-stroke for long periods regardless of air leakage between the spool and sleeve.

### 3 Position Double Pilot Check Valve (Wedge packing style)

#### VS7-8-FHG-D-□R

3 position double pilot check valve achieves a reduction in air leakage as a result of main valve construction which features co-axial wedge packing (Max. leakage: 10 cm<sup>3</sup>/min (ANR)).

### ⚠ Caution

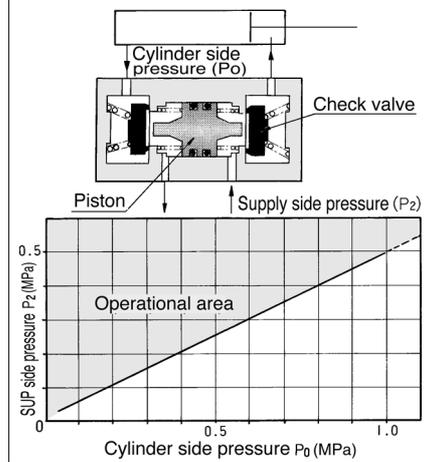
- Verify that there is no leakage from the pipes between valve and cylinder, and from fittings. Check for leaks by using neutral detergent solution before use. Also check the cylinder packing and the piston packing. If there is leakage, cylinder may not stop at the mid-stroke position, and could move immediately after the valve is de-energized.
- Be aware that if the exhaust side is restricted excessively, the intermediate stopping accuracy will decrease and will lead to improper intermediate stops.

### Double Pilot Check Spacer Specifications

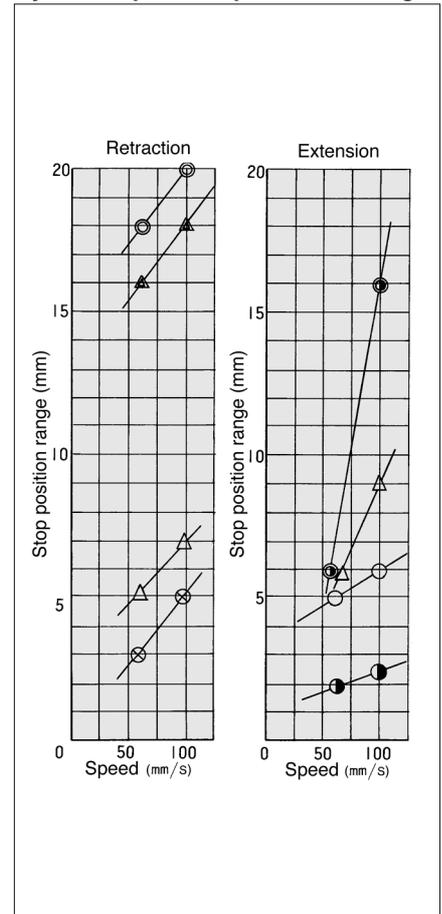
Double pilot check spacer model		VV72-FPG		
Applicable solenoid valve/air operated valve		Series VS7-8/VSA7-8		
Leakage (cm <sup>3</sup> /min (ANR))	With one side solenoid energized. (With one side pilot air pressured)	P	R1	280
			R2	
	Both sides solenoids de-energized. (With both sides pilots not air pressured)	P	R1	280
			R2	
		A	R1	0
		B	R2	

### Check Valve/Operation Pressure Characteristics

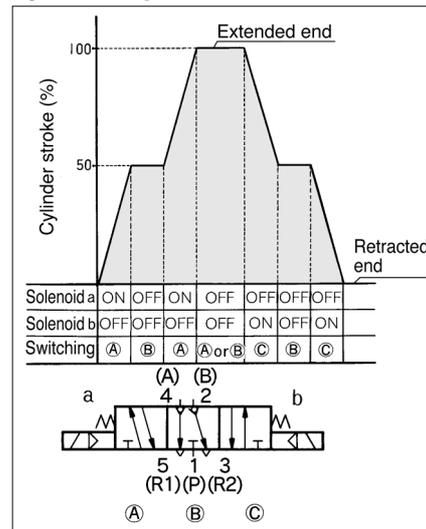
The check valve will operate correctly providing that cylinder side pressure is not in excess of two times the supply pressure.



### Cylinder Speed/Stop Position Range



### Cylinder Operation Chart



Cylinder		Supply pressure	Load	Load factor	
ø50-450 <sup>st</sup>	ø80-450 <sup>st</sup>			ø50	ø80
○	○	0.2MPa	25kg	51%	28%
⊗	⊗	0.5	25	25	11
●	●	0.2	35	72	39
△	△	0.5	35	36	16

## How to Order

**Thread**

—	Rc (PT)
F	G (PF)
N	NPT
T	NPTF

**Symbol**

FG		FJG	
YZ*		FPG	
FHG		FIG*	

\* Option

**No. of solenoids**

S	Single
D	Double

**Rated voltage**

1	100V AC
2	200V AC
3	24V DC
4	12V DC
9	Others (250V or less)

**Option**

—	None
N	Indicator light
M	Direct manual override
Z	Indicator light with surge voltage suppressor
MR	Wedge packing style with direct manual override
R	Wedge packing style
V	Individual pilot EXH

**Port size of sub-plate**

—	Without sub-plate
A03	Side piping 3/8
A04	Side piping 1/2
A06	Side piping 3/4
B03	Bottom piping 3/8
B04	Bottom piping 1/2
B06	Bottom piping 3/4

**Connector**

—	Connector
O	W/o connector

**Ordering source area code**

Code	areas
-	Japan, Asia Australia
E	Europe
N	North America

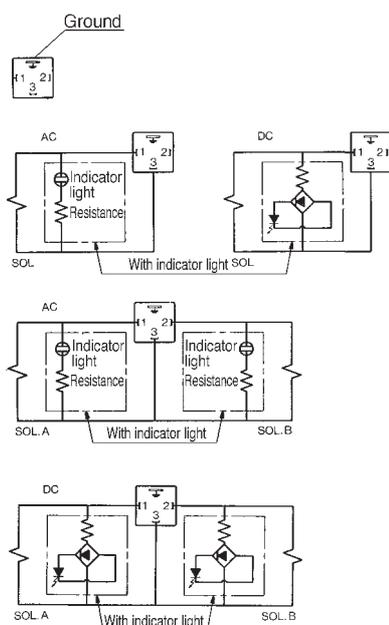
**Note:**  
Manifold exploded view see page 1.19-34 for details.

## ⚠ Precautions

Be sure to read before handling. Refer to p.0-33 to 0-36 for Safety Instructions and common precautions.

## ⚠ Caution

### DIN Connector (Wiring)



### Power Source and Wiring

- Make sure all contacts are secure.
- Voltage should be held within the allowable voltage range.

### Interface Regulator Specifications

#### Specifications

Interface regulator model	ARB350		
Applicable solenoid valve	VS7-8		
Regulation port	A	B	P
Max. operating pressure	1.0MPa <sup>(1)</sup>		
Set pressure range	0.1 to 0.83MPa <sup>(2)</sup>		
Ambient and fluid temperature	5 to 60°C <sup>(3)</sup>		
Pressure gauge port size	1/8		
Weight (kg)	0.83		
Air supply side eff. area (mm <sup>2</sup> )	P → A	31	27
S (P=0.7MPa, P1=0.5MPa)	P → B	31	27
Air exhaust side eff. area	A → EA	60 mm <sup>2</sup>	
S (P2=0.5MPa)	B → EB	53 mm <sup>2</sup>	

Note 1) Maximum operating pressure of solenoid valve is 0.9 MPa.

Note 2) Be sure to set pressure within setting pressure range of the solenoid valve.

Note 3) Solenoid valve: Max. 50°C

Note 4) Synthesized effective area with 2 position single style solenoid valve.

Note 5) •Supply pressure to interface regulator only from P port except when it is used with reverse pressure style valve.

- Use the ARB210 or ARB310 model to combine a pressure centre valve and the A and B port pressure reduction of a spacer style regulator.
- Use the ARB210 or ARB310 model to combine a reverse pressure valve and a spacer style regulator. The P port pressure reduction cannot be used.
- To use a perfect valve and a spacer style regulator, use a manifold or a sub plate as the standard and stack in the following order: the perfect spacer, spacer style regulator, and the valve.
- When a closed centre valve is combined with the A and B port pressure reduction of a spacer style regulator, it cannot be used for intermediate stops of the cylinder because of the leakage from the relief port of the regulator.

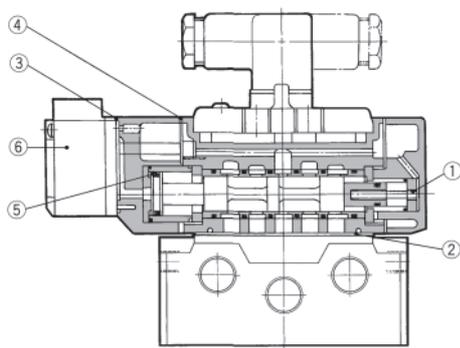
### How to calculate flow rate

Refer to p.0-36 for flow rate calculation.

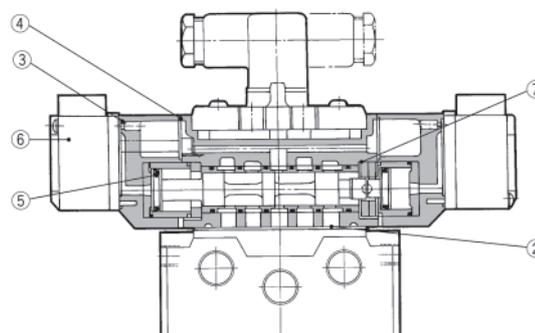
# VS7-8

## Construction

VS7-8-FG-S-□□-Q

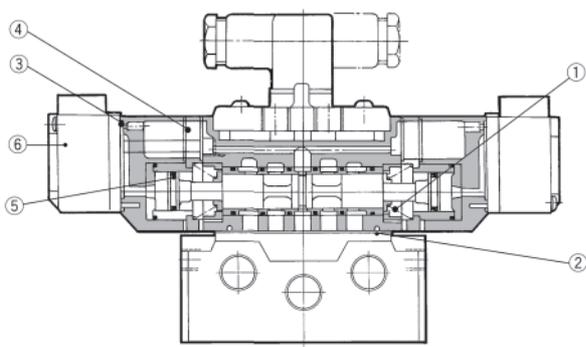


VS7-8-FG-D-□□-Q

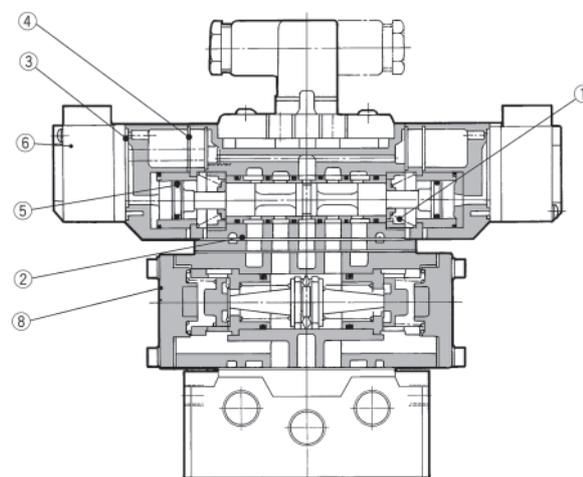


VS7-8-FHG-□□-Q

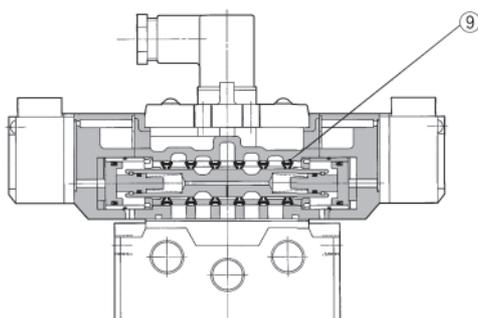
VS7-8-FJG-□□-Q



VS7-8-FPG-□□-Q



VS7-8-FHG-D-□R-Q

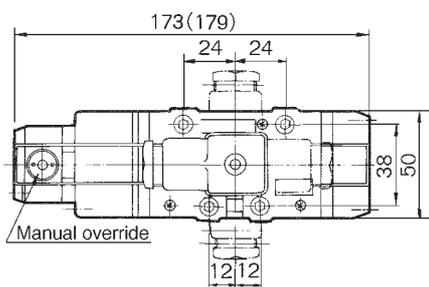
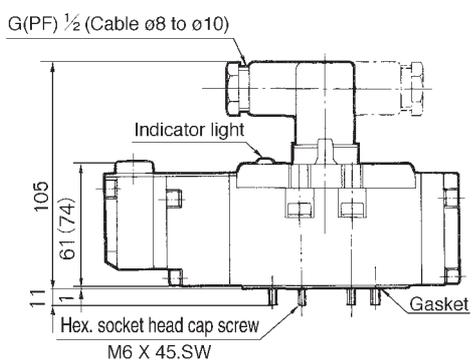


### Replacement Parts

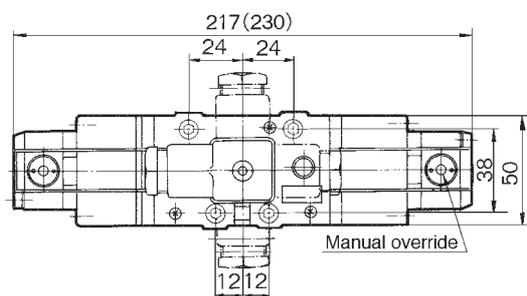
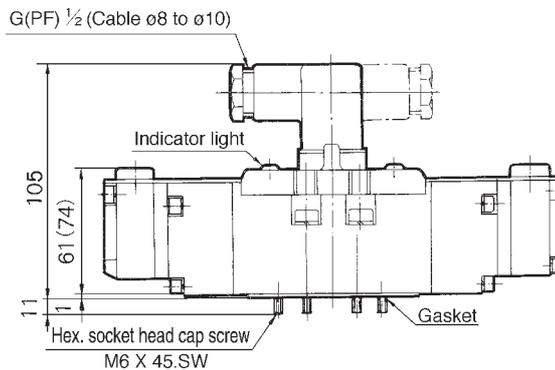
No.	Description	Material	Part No.				
			VS7-8-FG-S	VS7-8-FG-D	VS7-8-FHG	VS7-8-FJG	VS7-8-FPG
①	Return spring	SUS	AXT510-12	—	AXT510-21	AXT510-21	AXT510-21
②	Gasket	NBR	AXT510-13	AXT510-13	AXT510-13	AXT510-13	AXT510-13
③	Gasket	NBR	AXT510-14-2	AXT510-14-2	AXT510-14-2	AXT510-14-2	AXT510-14-2
④	Gasket	NBR	AXT510-14-1	AXT510-14-1	AXT510-14-1	AXT510-14-1	AXT510-14-1
⑤	Mini-Y-packing	NBR	MY-16N	MY-16N	MY-14N	MY-14N	MY-14N
⑥	Pilot valve assembly	—	AXT511C-□	AXT511C-□	AXT511C-□	AXT511C-□	AXT511C-□
⑦	Detent assembly	—	—	AXT510-9	—	—	—
⑧	Double pilot check spacer	—	—	—	—	—	VV72-FPG
⑨	Packing	NBR	—	—	AXT644-7-1	—	—

## With Sub-plate/Dimensions

**VS7-8-FG-S-□□-Q**

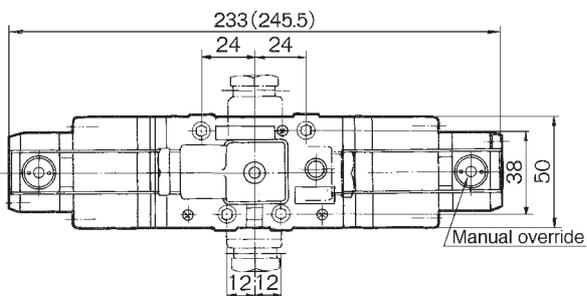
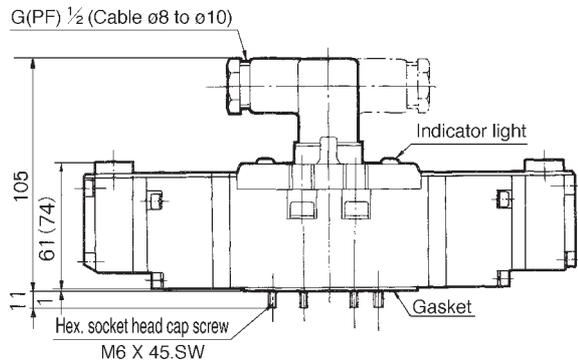


**VS7-8-FG-D-□□-Q**

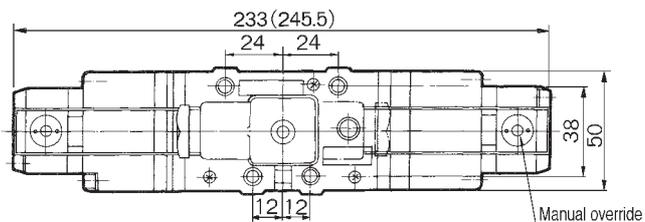
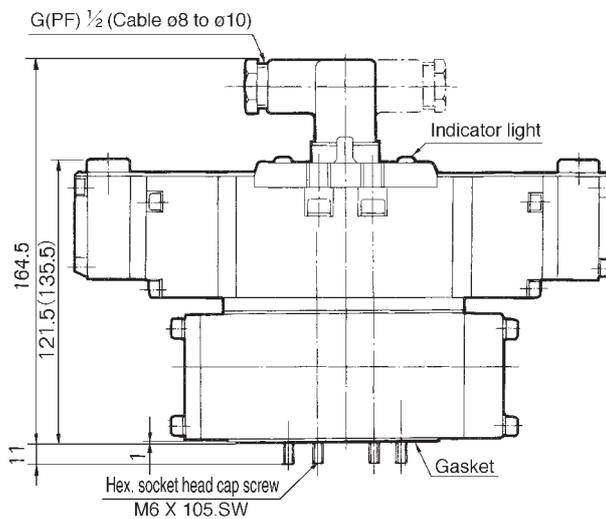


**VS7-8-FHG-□□-Q**

**VS7-8-FJG-□□-Q**



**VS7-8-FPG-□□-Q**

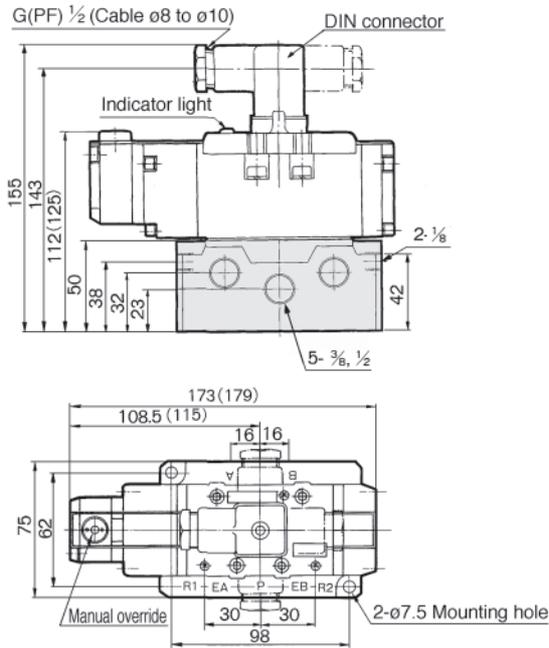


( ): In case of direct manual override style.

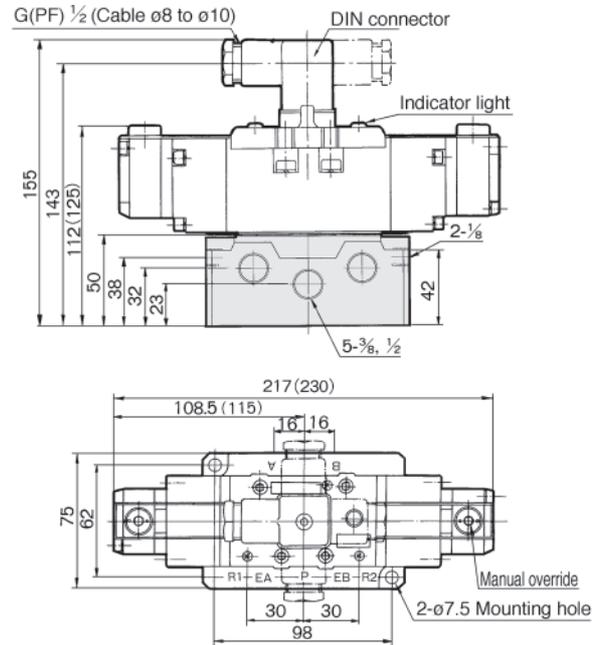
# VS7-8

## Without Sub-plate/Dimensions

VS7-8-FG-S-□□ Port size of sub-plate -Q

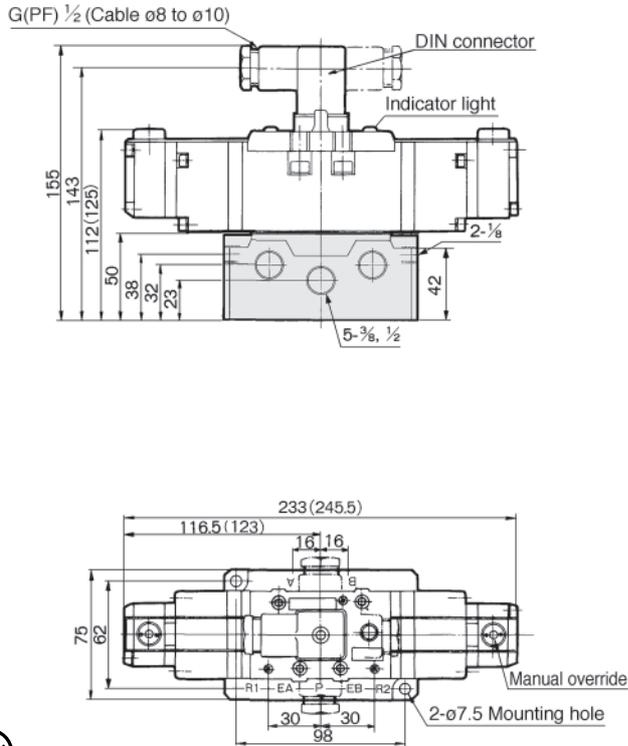


VS7-8-FG-D-□□ Port size of sub-plate -Q

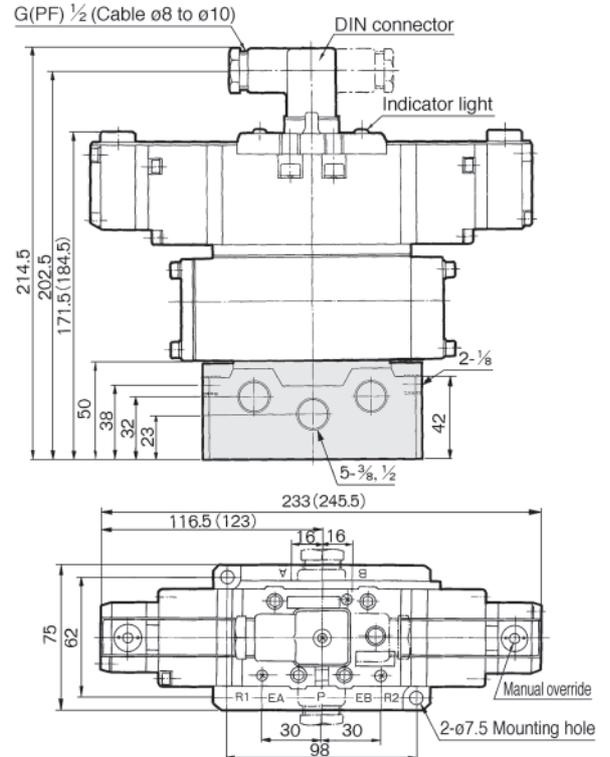


VS7-8-FHG-□□ Port size of sub-plate -Q

VS7-8-FJG-□□ Port size of sub-plate -Q



VS7-8-FPG-□□ Port size of sub-plate -Q



( ): In case of direct manual override style.

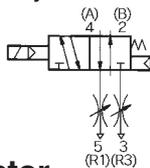


Note) Symbol EA and EB correspond to R1 and R2 respectively (R1=EA, R2=EB)

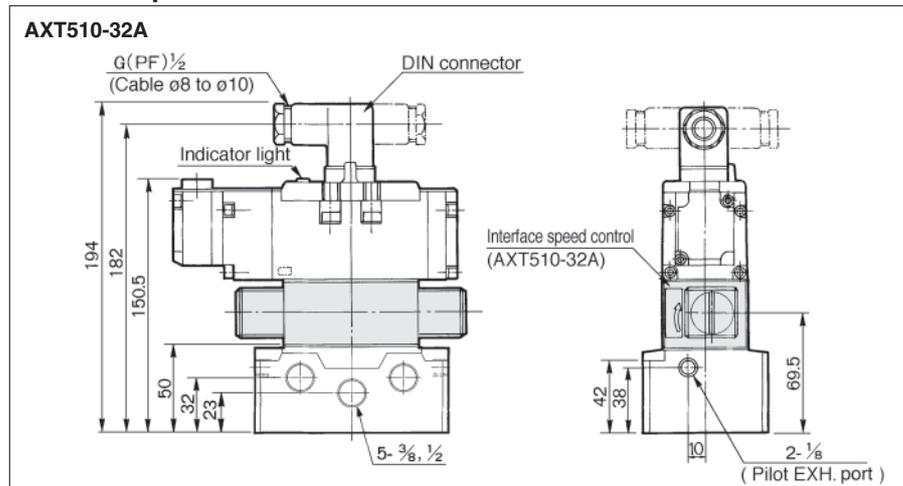
## Interface Speed Control



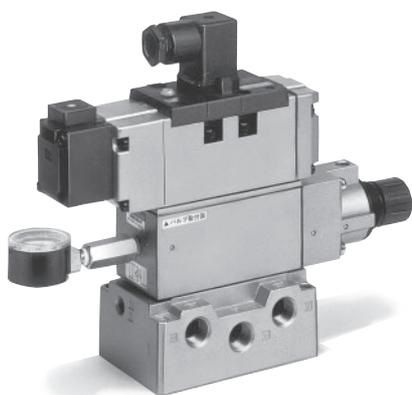
Symbol



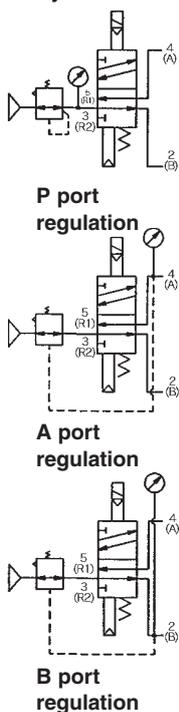
## Interface Speed Control/Dimensions



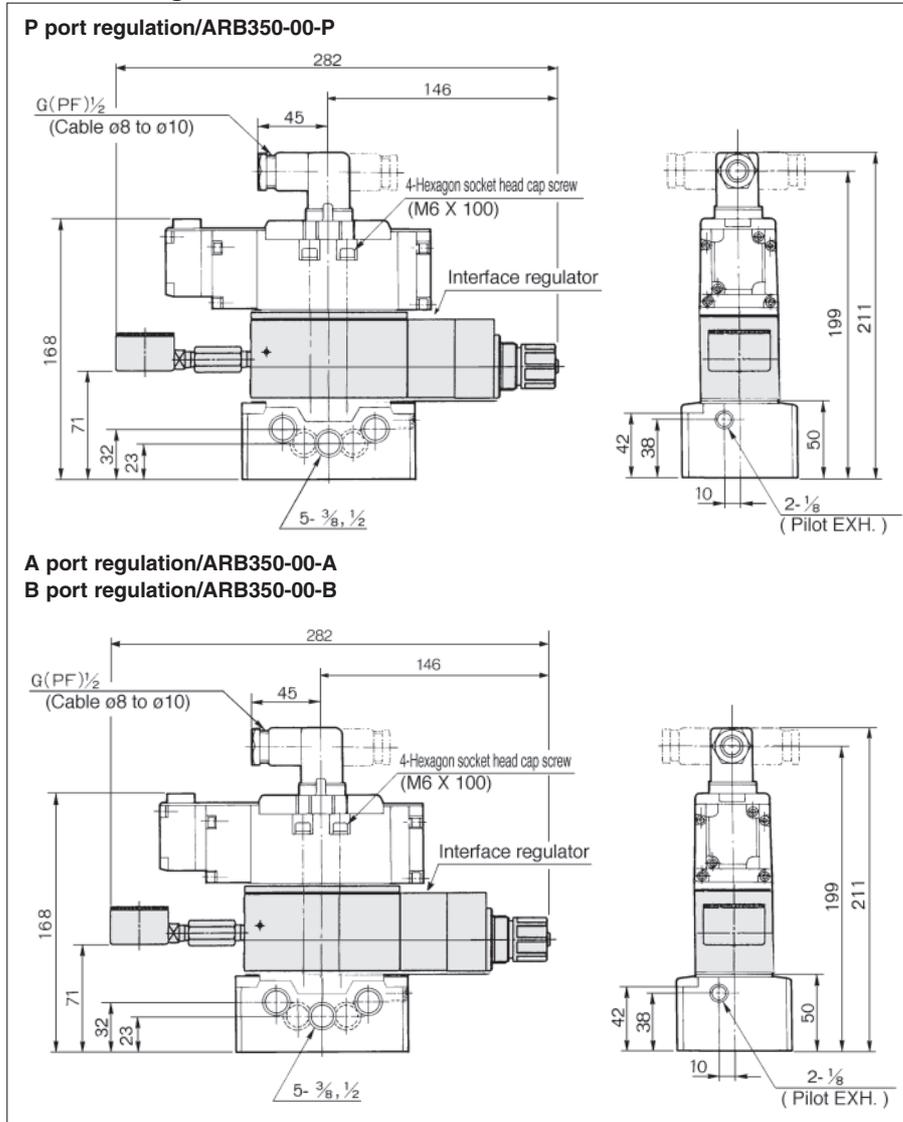
## Interface Regulator



Symbol



## Interface Regulator/Dimensions



# Series VS7-8 Sub-plate

## Sub-plate: Series VS7-2/VSA7-2



### Note:

Please note that single subplates and manifolds have changed colour from platinum silver to white as standard. Valves will remain platinum silver.

### Specifications

Applicable solenoid valve/air operated valve	Series ISO size ②
Sub-plate size	ISO size ②
Piping	Side piping: 3/8, 1/2, 3/4
	Bottom piping: 3/8, 1/2, 3/4
Weight	0.68kg (3/8, 1/2) 1.29kg (3/4)

### How to Order

**E** VS7-2-**A03**  

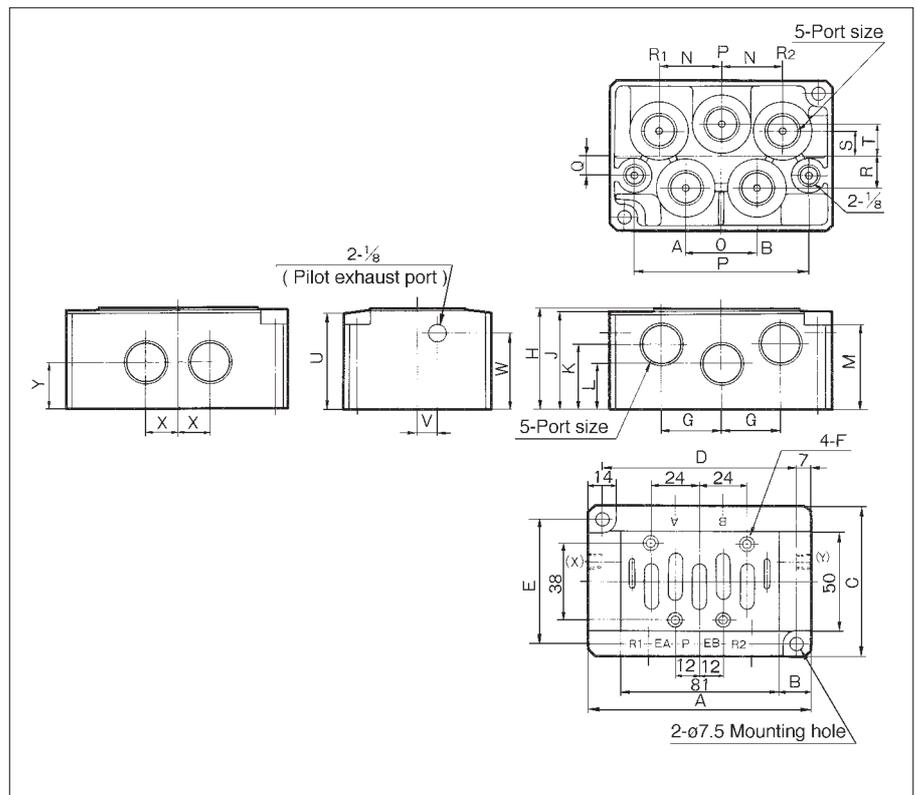
Piping	
<b>A03</b>	Side piping: 3/8
<b>A04</b>	Side piping: 1/2
<b>A06</b>	Side piping: 3/4
<b>B03</b>	Bottom piping: 3/8
<b>B04</b>	Bottom piping: 1/2
<b>B06</b>	Bottom piping: 3/4

Thread	
-	Rc (PT)
<b>F</b>	G (PF)
<b>N</b>	NPT
<b>T</b>	NPTF

### Ordering source area code

Code	areas
-	Japan, Asia Australia
<b>E</b>	Europe
<b>N</b>	North America

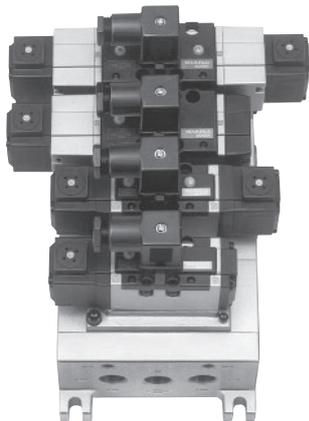
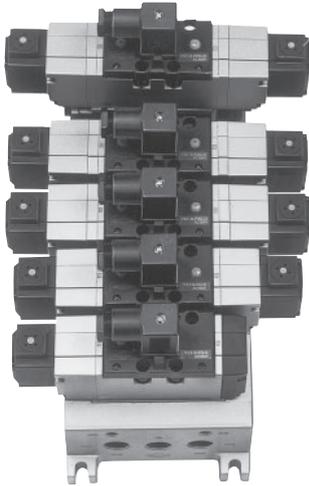
### Dimensions



Model	Symbol	Piping	Port size	A	B	C	D	E	F	G	H	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y
VS7-2-	A03	Side	3/8, 1/2	112	15.5	75	98	62	4-M6 Depth 10	30	50	49	32	23	42	31	36	88	10	16	12	16	47.5	10	38	16	23
	A04																										
VS7-2-	B03	Bottom	3/4	142	30.5	86	128	72	4-M6 Depth 12	42	63	62	42	30	55	42	40	116	11	22	16	23	61.5	11	53	20	30
	B04																										
VS7-2-	A06	Side	3/4	142	30.5	86	128	72	4-M6 Depth 12	42	63	62	42	30	55	42	40	116	11	22	16	23	61.5	11	53	20	30
VS7-2-	B06	Bottom	3/4	142	30.5	86	128	72	4-M6 Depth 12	42	63	62	42	30	55	42	40	116	11	22	16	23	61.5	11	53	20	30

# Series VS7-8 Manifold

## Manifold: Series VV72



### Note:

Please note that single subplates and manifolds have changed colour from platinum silver to white as standard. Valves will remain platinum silver.

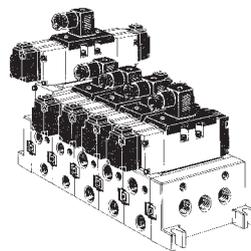
### Standard Specifications

Manifold block size		ISO Size ②
Applicable solenoid valve		Series ISO Size ②
Number of stations		1 to 10 <sup>□</sup>
Piping	A, B-port	3/8, 1/2
	P, R1, R2-port	1/2, 3/4
Individual SUP spacer		VV72-P-□
Individual EXH spacer		VV72-R-□
Gallery blank disc (Differential pressure style)		AXT512-14-1A (for P port)
		AXT512-14-2A (for R1, R2 port)

The manifold Series VV72<sup>□</sup> has a wide variety of functions and porting compatible with virtually any application need.

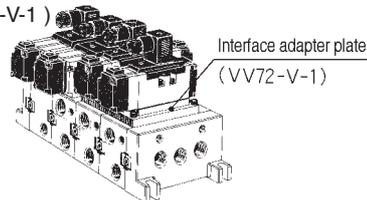
#### Common EXH Style

Every valve is supplied and exhausted by the same SUP and EXH ports running through the connected manifolds. This is the most popular configuration. When there are 5 or more stations operating simultaneously and pilot back pressure is 0.2kgf/cm<sup>2</sup> or more, it is recommended that all pilot EXH ports (PE) of the manifold base (4 on U side and 2 on D side, total 6 ports) be opened. Also, use "AN110-01" for silencer for pilot EXH.



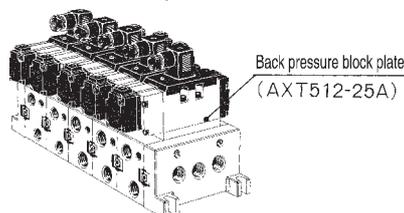
#### V Type

V type allows combinations with valves of varying body size. ( Interface adapter plate VV72-V-1 )



#### Main EXH Back Pressure Block Style

if there are many valve stations operating at the same time and main EXH back pressure may cause trouble, mount back pressure block plate ("AXT503-37A") to prevent effects of main EXH back pressure.



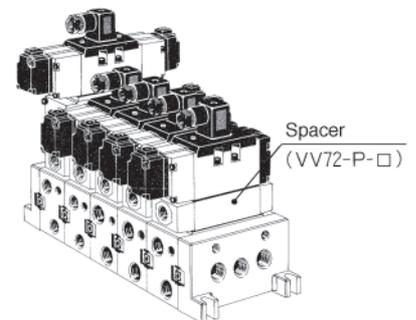
#### Individual EXH Style

Every valve has an independent EXH port of its own.

if An individual EXH spacer (VV72-R-03, 04) mounted on the manifold block allows each valve to exhaust individually.

#### Individual SUP Style

if An individual SUP spacer (VV72-P-03, 04) mounted on the manifold-block allows each valve to be supplied individually.



#### Multiple Pressure SUP Style

Allows supply of 2 or more different pressures to one manifold.

if Put in a gallery blank disc (AXT512-14-1A) between the stations to operate at different pressures. When using a dual pressures supply, the pressure can be supplied from both the left and right sides of the manifold. If 3 or more pressures are supplied, pressure should be supplied from the spacer (VV72-P-□) port.

#### Bottom Piping Style (3/8, 1/2)

When side piping appearance is not acceptable or space is limited, bottom piping for A or B ports is possible.

#### Individual Pilot EXH Style

if there are many valve stations operating at the same time or operation frequency is high, trouble caused by back pressure will be prevented by using individual pilot EXH style valve ("VS7-8-□-□V").

# VS7-8

## How to Order (Manifold)

E VV72 5 03R 04D Q

Stations	
1	1
:	:
10	10

Piping/A, B port	
03R	3/8 (Right)
04R	1/2 (Right)
03L	3/8 (Left)
04L	1/2 (Left)
03Y	3/8 (Bottom)
04Y	1/2 (Bottom)
*	Combination

Air release valve	
-	Without air release valve
E	With air release valve

Piping/P, R <sub>1</sub> , R <sub>2</sub> Port	
04D	1/2 (Bottom)
04U	1/2 (Top)
04B	1/2 (Both sides)
06D	3/4 (Bottom)
06U	3/4 (Top)
06B	3/4 (Both sides)

Silencer box	
-	Without silencer box
SB	With silencer box

 \* Mounting position of silencer box is in accordance with piping of R<sub>1</sub> and R<sub>2</sub> port.

Air release valve/Voltage	
-	Without air release valve
1	100A CV 50/60Hz
2	200A CV 50/60Hz
3	24V DC
4	12V DC
9	Others (250V or less)

### Ordering source area code

Code	areas
-	Japan, Asia Australia
E	Europe
N	North America

Note) When mixing, inscribe a "\*" mark and designate a separate piping specification.

 Contact SMC for other voltages (9)

 Protective class class I (Mark: )

Note) Manifold exploded view see page 1.19-34

## Option

Blank plate	AXT512-9A AXT512-18A (for air release valve adaptor plate)
Air release valve adaptor plate	AXT512-17A
Interface regulator	Relief style ARB350-00- A (P port regulation) A (A port regulation) B (B port regulation)
Interface for reverse pressure	AXT512-19A-1 3/8 AXT512-19A-2 1/2
R <sub>1</sub> , R <sub>2</sub> Individual EXH spacer	VV72-R2-04
Interface speed control	AXT510-32A
Main EXH back pressure block plate	AXT512-25A
Silencer for pilot EXH	AN110-01

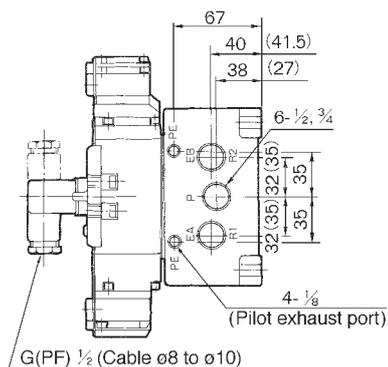
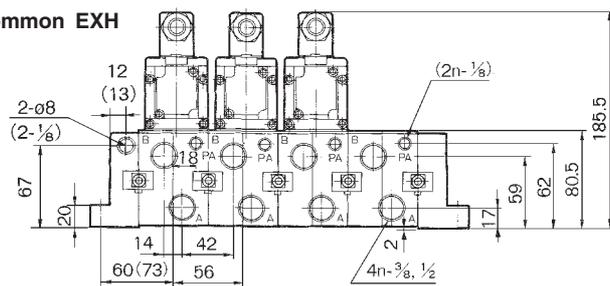
## Manifold/Dimensions

### L: Dimensions

Size	L	n										Equation
		1	2	3	4	5	6	7	8	9	10	
1/2	L1	120	176	232	288	344	400	456	512	568	624	n: stations L1=56n+64 L2=56n+80
	L2	136	192	248	304	360	416	472	528	584	640	
3/4	L1	146	202	258	314	370	426	482	538	594	650	n: stations L1=56n+90 L2=56n+106
	L2	162	218	274	330	386	442	498	554	610	666	

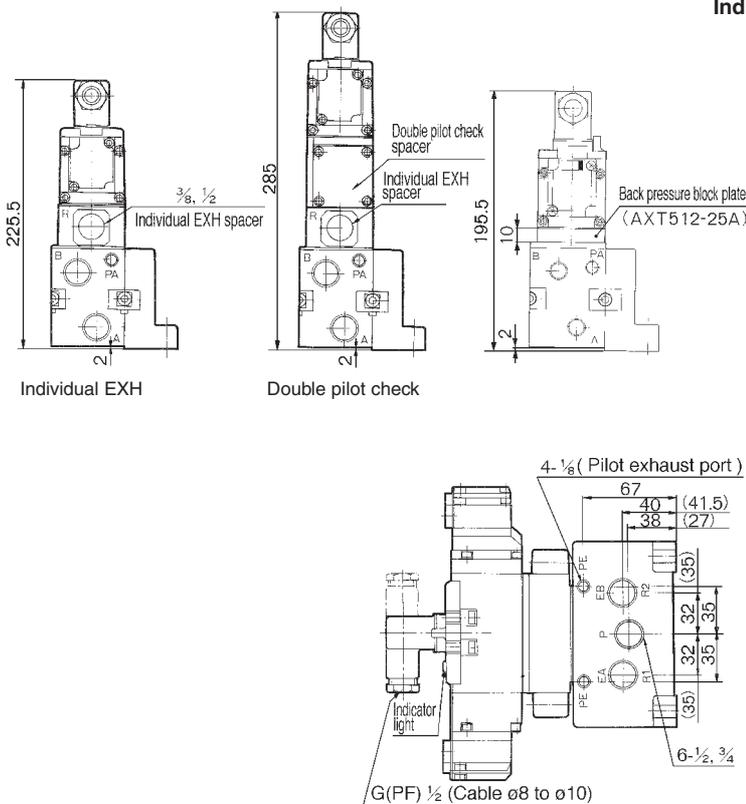
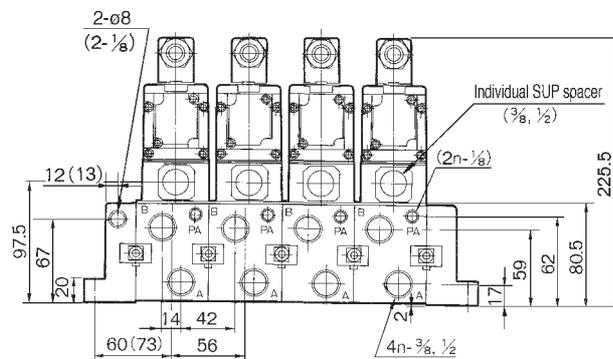
Manifold weight general formula  $M=0.96n+0.77$  (kg)

### Common EXH



( ): In case of direct manual override style.

### Individual SUP



( ): In case of direct manual override style.

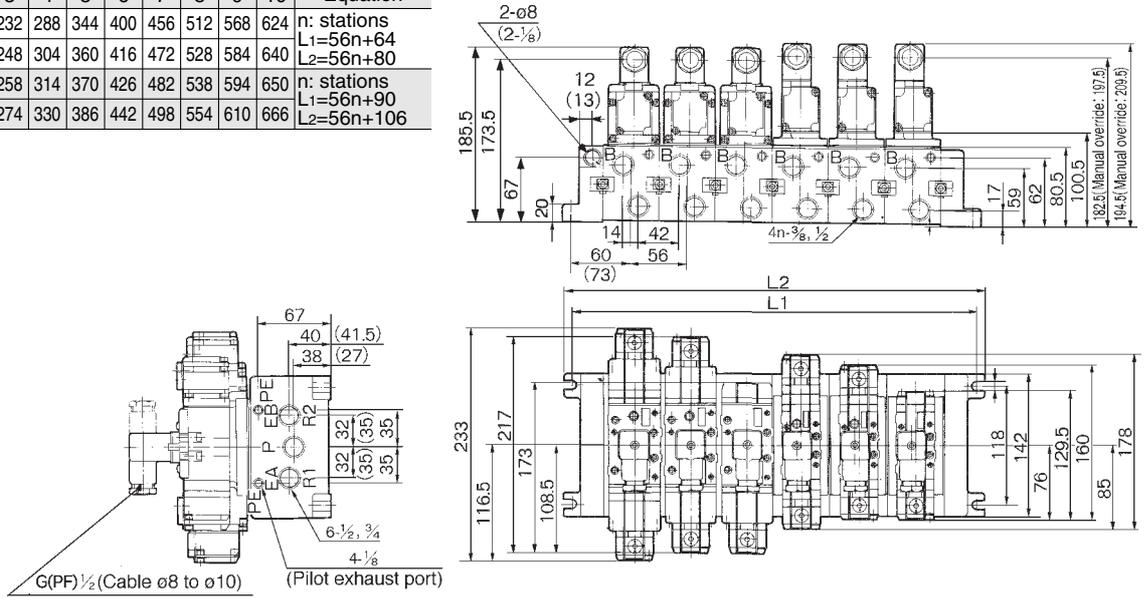
# VS7-8

## Manifold/Dimensions

### L: Dimensions

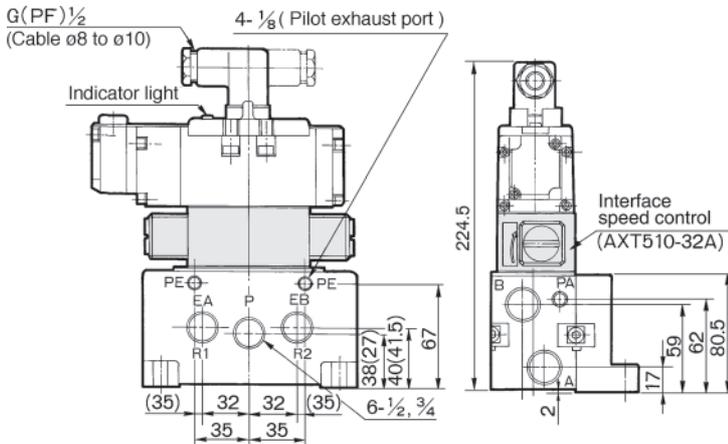
Size	L	n	n										Equation
			1	2	3	4	5	6	7	8	9	10	
1/2	L1		120	176	232	288	344	400	456	512	568	624	n: stations L1=56n+64 L2=56n+80
	L2		136	192	248	304	360	416	472	528	584	640	
3/4	L1		146	202	258	314	370	426	482	538	594	650	n: stations L1=56n+90 L2=56n+106
	L2		162	218	274	330	386	442	498	554	610	666	

### V Type

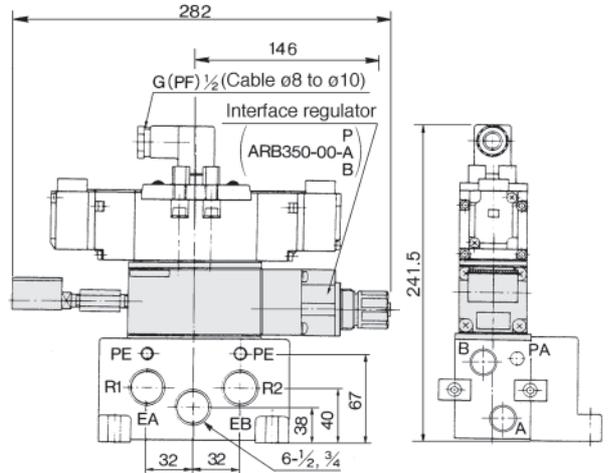


( ): In case of direct manual override style.

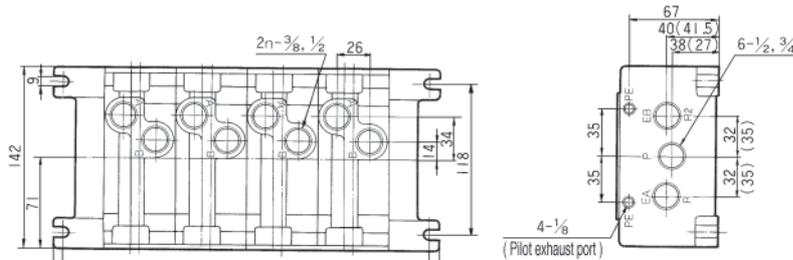
### Interface Speed Control



### Interface Regulator



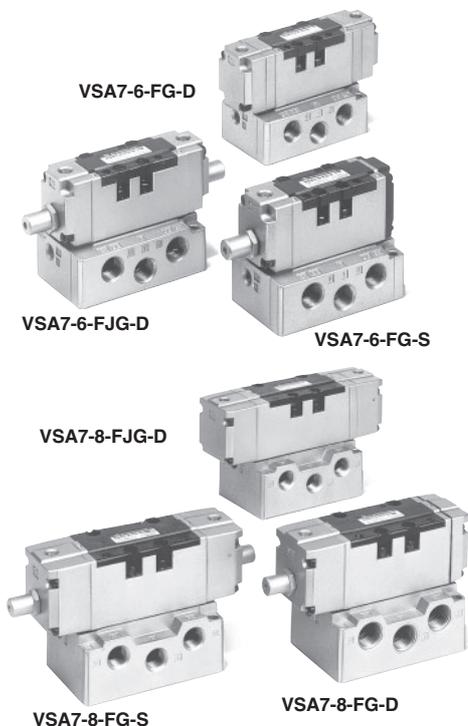
### Bottom Piping



( ): In case of direct manual override style.

# Air Operated/SIZE ① ②

## Series VSA7-6/VSA7-8



2 position	Single (FG-S)	Double (FG-D)	Reverse pressure* (YZ-S)	
3 position	Closed centre (FHG-D)	Exhaust centre (FJG-D)	Double pilot check (FPG-D)	Pressure centre* (FIG-D)

\* Option

### Specifications

Fluid	Air/Inert gas	
Max. operating pressure	1.0MPa	
Min. operating pressure <sup>(3)</sup>	YZ-S, FG-S <sup>(1)</sup>	0.1MPa
	Others	0MPa
Proof pressure	1.5MPa	
Ambient and fluid temperature	-10 to -60°C <sup>(2)</sup>	
Lubrication	Not required.	
Shock/Vibration resistance <sup>(4)</sup>	150/50m/s <sup>2</sup>	
Enclosure	Dust proof	
Manual override	Non-locking push style (Option)	
Pilot air pressure <sup>(2)</sup>	0.1 to 1.0 to 10.2 MPa	



Note 1) Min. operating pressure should be equivalent to or lower than pilot supply pressure.

Note 2) Use dry air at the low temperatures.

Note 3) Use controlled clean air.

Note 4) Shock resistance: No malfunction resulted from the impact test using a drop impact tester. The test was performed on the axis 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 2000 Hz. Test was performed at both energized and de-energized states to the axis and right angle directions of the main valve and armature. (Value in the initial stage.)

### Model

	No. of positions	Model	Effective area (mm <sup>2</sup> )(N/min)		No. of positions	Model	Effective area (mm <sup>2</sup> )(N/min)
Size ① Series VSA 7-6	2 (Single)	VSA7-6-FG-S	27 (1472.25)	Size ② Series VSA 7-8	2 (Single)	VSA7-8-FG-S	58(3140.80)
	2 (Double)	VSA7-6-FG-D	27 (1472.25)		2 (Double)	VSA7-8-FG-D	58(3140.80)
	3 (Closed)	VSA7-6-FHG-D	25.5 (1374.10)		3 (Closed)	VSA7-8-FHG-D	58(3140.80)
	3 (Exhaust)	VSA7-6-FJG-D	27 (1472.25)		3 (Exhaust)	VSA7-8-FJG-D	58(3140.80)
	3 (Pilot check)	VSA7-6-FPG-D	20 (1079.65)		3 (Pilot check)	VSA7-8-FPG-D	40(2159.30)
	3 (Pressure)	VSA7-6-FIG-D	25.5 (1374.10)		3 (Pressure)	VSA7-8-FIG-D	58(3140.80)
	2 (Reverse pressure)	VSA7-6-YZ-S	27 (1472.25)		2 (Reverse pressure)	VSA7-8-YZ-S	58(3140.80)

### How to Order

**Ordering source area code**

Code	areas
-	Japan, Asia Australia
E	Europe
N	North America

**Body size**

6	SIZE①
8	SIZE②

**Passage symbol**

FG		FJG	
YZ		FPG	
FHG		FIG	

**Pilot port position**

S	Single
D	Double

**Pilot port position**

1	Pilot cover, PA/PB port
2	Sub-plate, 14X/12Y port (PE port)

**Thread**

-	Rc (PT)
F	G (PF)
N	NPT
T	NPTF

**Port size**

Symbol	Size① Series VSA 7-6	Size② Series VSA 7-8
A02	Side piping 1/4*	-
A03	Side piping 3/8	Side piping 3/8
A04	-	Side piping 1/2
B02	Bottom piping 1/4*	-
B03	Bottom piping 3/8	Bottom piping 3/8
B04	-	Bottom piping 1/2

\* R port: 3/8

**Option (Manual override)**

-	Without manual override
M	With manual override

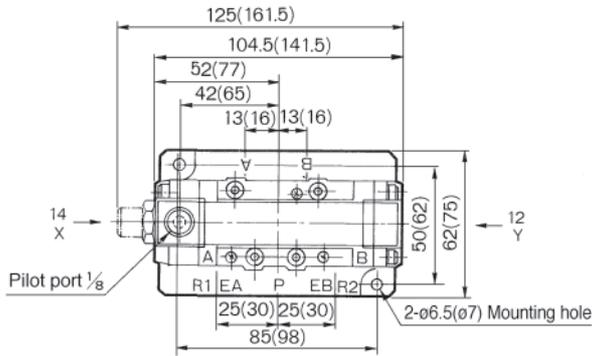
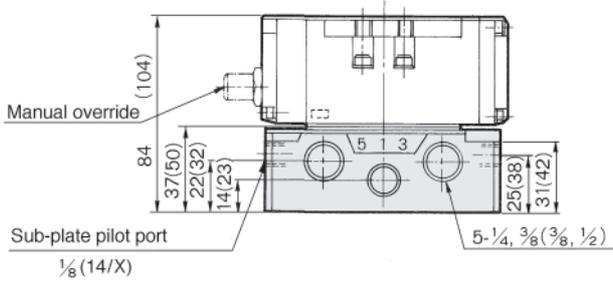
**Example Model:** E VSA7-6-FG-D-1-A03

# VSA7-6/VSA7-8

## Air Operated/Dimensions

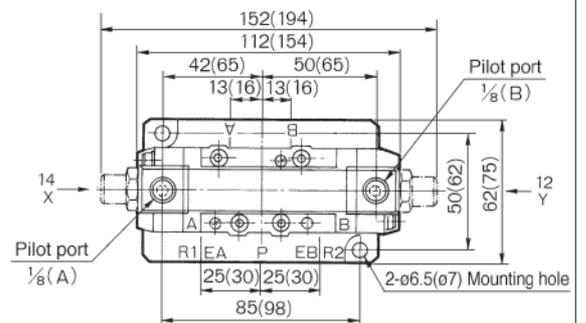
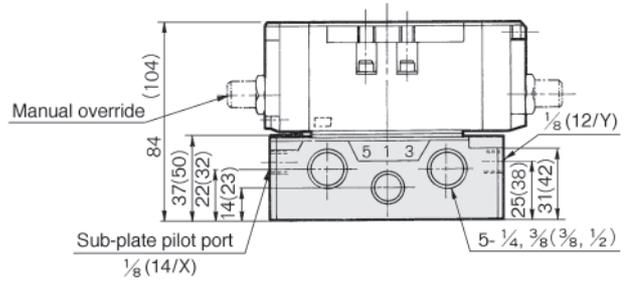
SIZE① VSA7-6-FG-S-□□-□  
YG

SIZE② VSA7-8-FG-S-□□-□  
YG



SIZE① VSA7-6-FG-D-□□-□

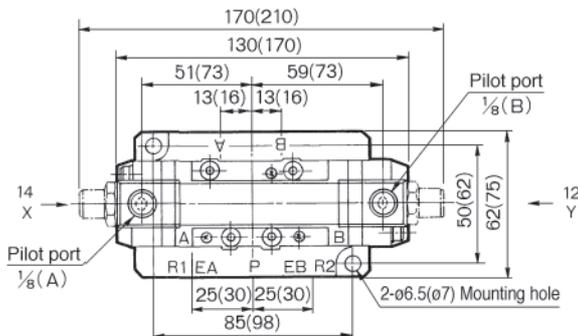
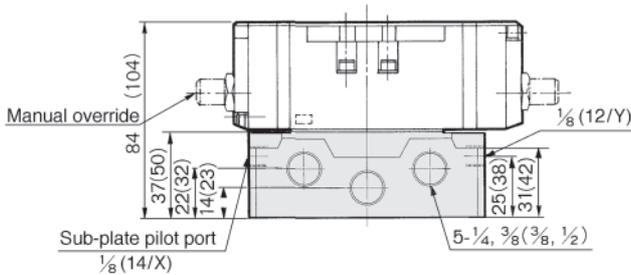
SIZE② VSA7-8-FG-D-□□-□



( ): In case of VSA7-8

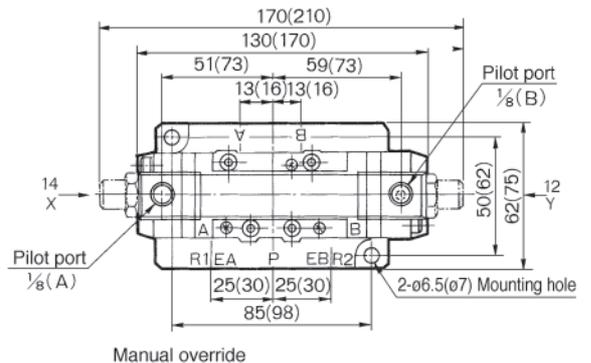
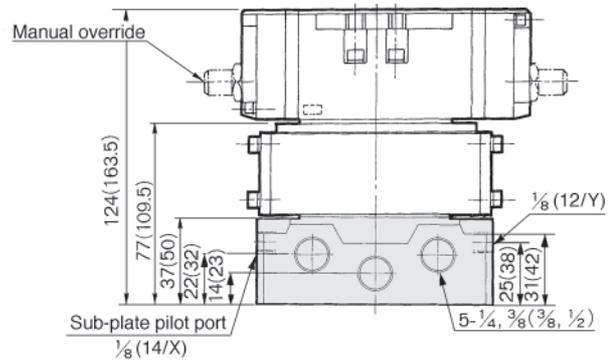
SIZE① VSA7-6-FHG-FJG-□□-□  
FHG  
FIG

SIZE② VSA7-8-FHG-FJG-□□-□  
FHG  
FIG



SIZE① VSA7-6-FPG-FPG-□□-□

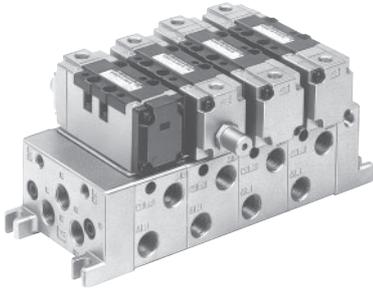
SIZE② VSA7-8-FPG-FPG-□□-□



( ): In case of VSA7-8

# Air Operated: SIZE 1 Manifold

## Manifold: Series VVA71



### Standard Specifications

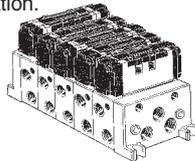
Manifold block size	ISO size 1	
Applicable valve	Series ISO size 1	
Stations	1 to 10*	
Piping	A, B port	1/4, 3/8 One-touch fitting: ø6, ø8, ø10
	P, R1, R2 port	3/8 One-touch fitting: ø12
Control unit	Air filter (Auto drain, Manual drain), Regulator, Pressure switch, Air release valve	
Individual SUP spacer	VV71-P-□(02: 1/4, 03: 3/8, C10: ø10)	
Individual EXH spacer	VV71-R-□(02: 1/4, 03: 3/8, C10: ø10)	
Block plate (Differential pressure style)	AXT502-14	

\* Including F.R. Unit (equivalent to 2 stations).

The manifold Series VVA71 has a wide variety of functions and piping, compatible with virtually any application.

#### Common EXH Style

Every valve is supplied and exhausted by the same SUP and EXH ports running through the connected manifolds. This is the most popular configuration.



#### Multiple Pressure SUP Style

Allows supply of 2 or more different levels of pressures to one manifold.

Put in a gallery blank disc (AXT502-14) between the stations to operate at different pressures. A dual pressure supply can be applied to both the left and right sides of the manifold. If 3 or more pressures are supplied, the individual SUP spacer should be used.

#### Bottom Piping Style 1/4, 3/8 (A, B port)

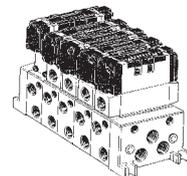
When side piping appearance is not acceptable or space is limited, either some of, or all ports, can be arranged with bottom piping.

#### Individual EXH Style

An individual EXH spacer (VVA71-R-□) mounted on the manifold block allows each valve to exhaust individually.

#### Individual SUP Style

An individual SUP spacer (VVA71-P-□) mounted on the manifold block allows each valve to be supplied individually.



### How to Order

VVA71 - 5 - 03R - 03D 1

#### Stations

1	1 station
⋮	⋮
10	10 stations*

\* Including F.R. Unit (2 stations)

#### Piping (A, B port)

02R	1/4 (Right)
03R	3/8 (Right)
02L	1/4 (Left)
03L	3/8 (Left)
02Y	1/4 (Bottom)
03Y	3/8 (Bottom)
C6R	One-touch fitting ø6 (Right)
C8R	One-touch fitting ø8 (Right)
C10R	One-touch fitting ø10 (Right)
C6L	One-touch fitting ø6 (Left)
C8L	One-touch fitting ø8 (Left)
C10L	One-touch fitting ø10 (Left)
*	Mix

\* Indicate piping specifications.

#### Pilot supply port

1	Valve body side	
2	Manifold block side	

#### Piping (P, R1, R2 port)

03D	3/8 (Bottom)
03U	3/8 (Top)
03B	3/8 (Both sides)
C12D	One-touch fitting ø12 (Bottom)
C12U	One-touch fitting ø12 (Top)
C12B	One-touch fitting ø12 (Both sides)
**	Mix

\*\* Indicate piping specifications.

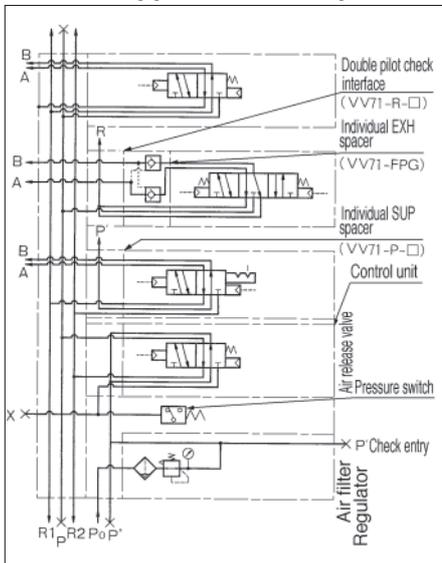
#### Control Unit

-	None
A	Filter with auto drain, regulator, air release valve*
AP	Filter with auto drain, regulator, air release valve, pressure switch
M	Filter with manual drain, regulator, air release valve*
MP	Filter with manual drain, regulator, air release valve, pressure switch
F	Filter with auto drain, regulator (air release valve blank plate)
G	Filter with manual drain, regulator (air release valve blank plate)
C	Air release valve*(filter, air release valve blank plate)
E	Air release valve*

\* Indicate pilot supply port.

- 1 VSA7-6-FG-S-1  
2 VSA7-6-FG-S-2

### Manifold application example



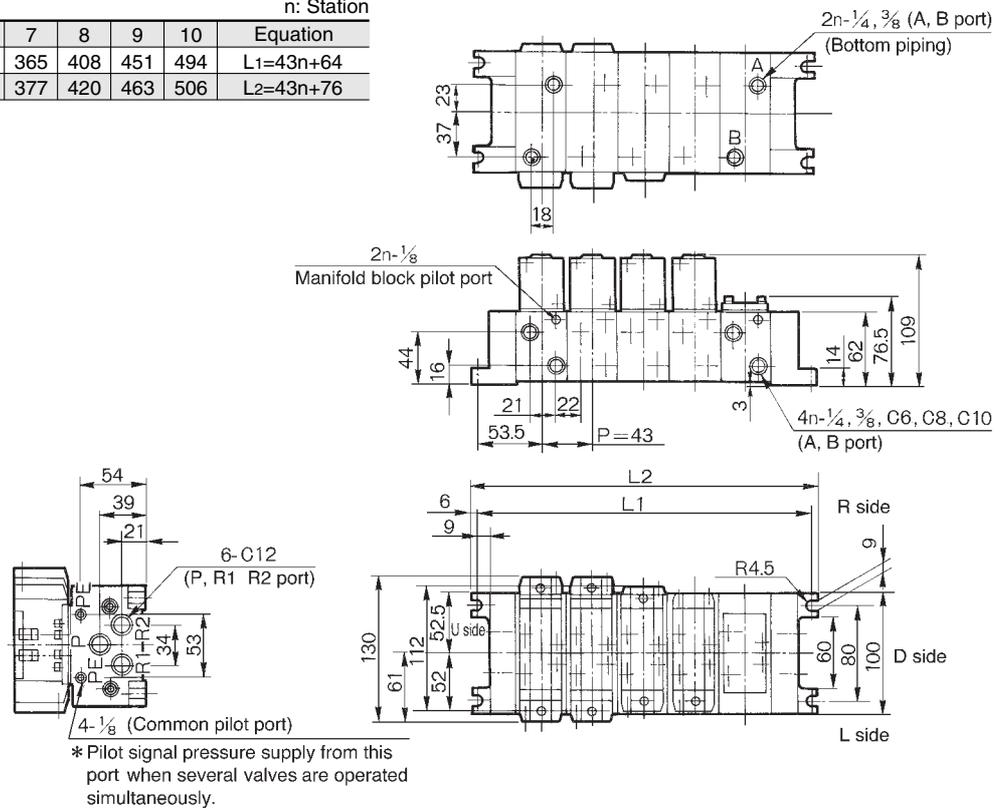
# VSA7-6/VSA7-8

## Manifold/Dimensions

### L: Dimensions

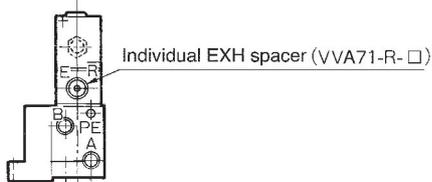
		n: Station									
L	n	2	3	4	5	6	7	8	9	10	Equation
L1		150	193	236	279	322	365	408	451	494	$L1=43n+64$
L2		162	205	248	291	334	377	420	463	506	$L2=43n+76$

### Common EXH

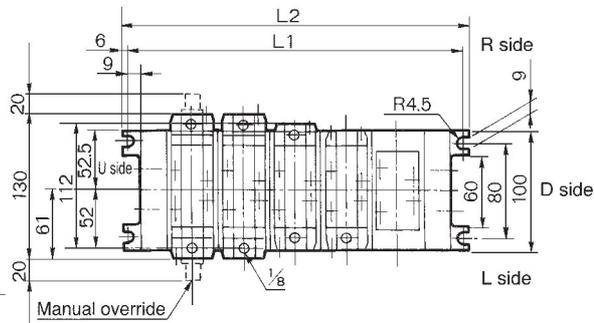
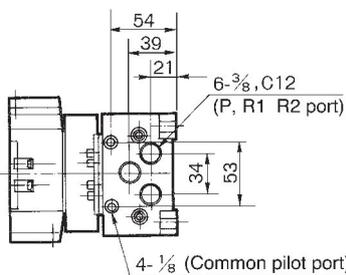
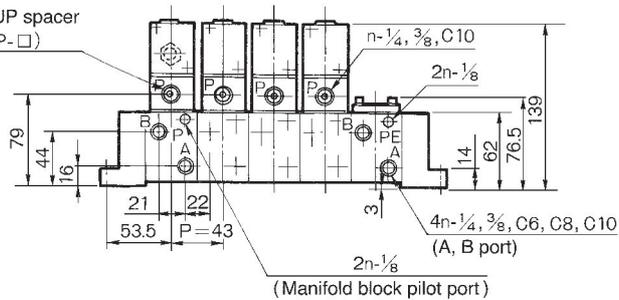


### Individual SUP

(Individual EXH)



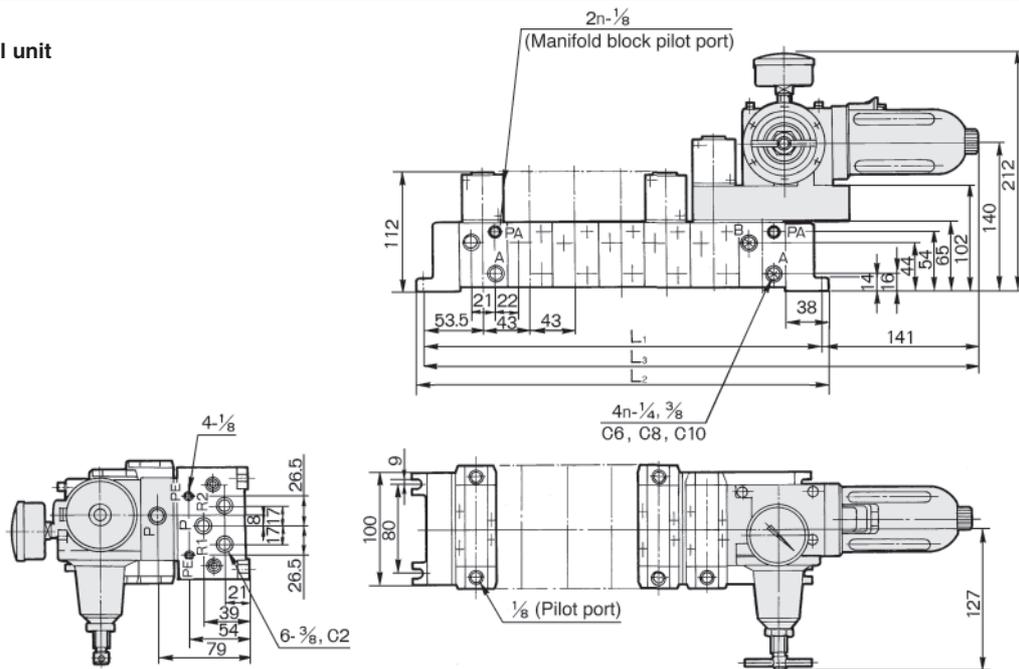
Individual SUP spacer (VVA71-P-□)



\* Pilot signal pressure supply from this port when several valves are operated simultaneously.

## Manifold/Dimensions

### Control unit

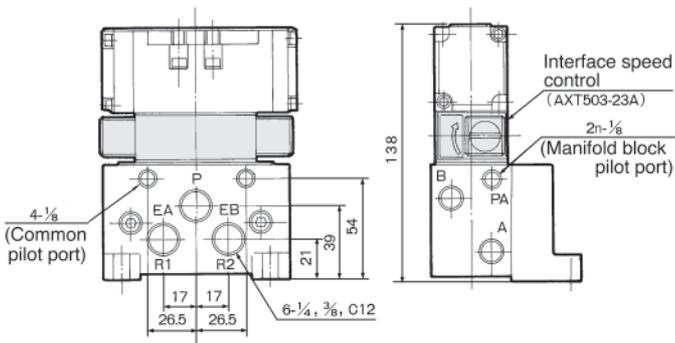


### L: Dimensions

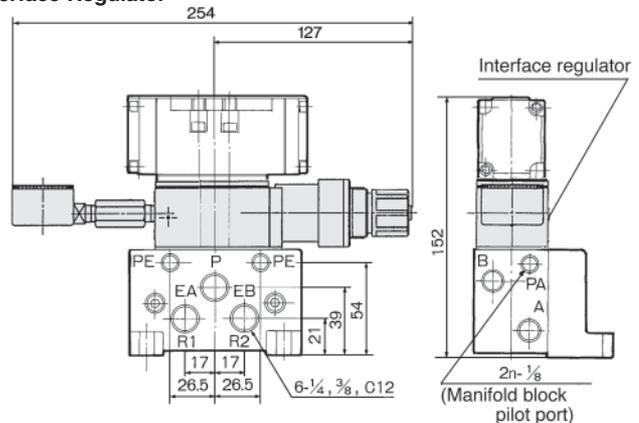
n: Station

L \ n	2	3	4	5	6	7	8	9	10	Equation
L <sub>1</sub>	150	193	236	279	322	365	408	451	494	L <sub>1</sub> =43n+64
L <sub>2</sub>	162	205	248	291	334	377	420	463	506	L <sub>2</sub> =43n+76
L <sub>3</sub>	297	340	383	426	469	512	555	598	641	L <sub>3</sub> =43n+211

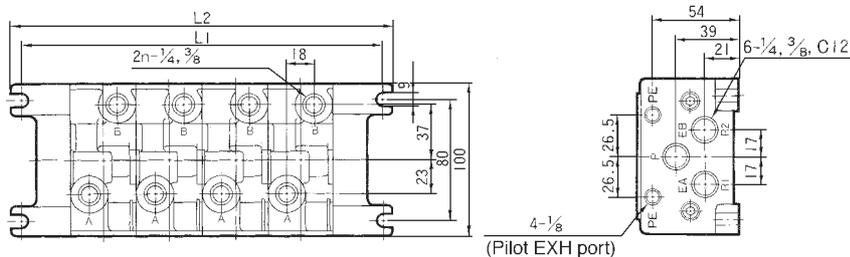
### Interface Speed Control



### Interface Regulator

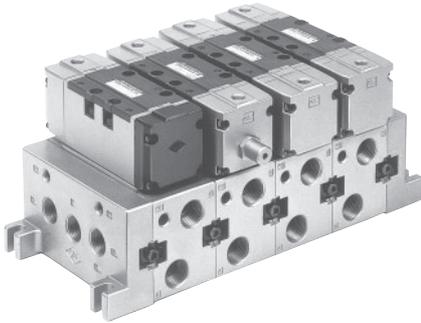


### Bottom Piping



# Air Operated: SIZE 2 Manifold

## Manifold: Series VVA72



### Standard Specifications

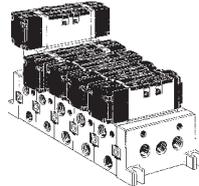
Manifold block size	ISO size 2	
Applicable valve	Series ISO size 2	
Stations	1 to 10*	
Piping	A, B port	3/8 1/2
	P, R1, R2 port	1/2 3/4
Individual SUP spacer	VV72-P-□	
Individual EXH spacer	VV72-R-□	
Block plate (Differential pressure style)	AXT512-14-1A (for P port)	
	AXT512-14-2A (for R1, R2 port)	

\* Including F. R. Unit (equivalent to 2 stations).

The manifold Series VVA72□ has a wide variety of functions and piping, compatible with virtually any application.

### Common EXH Style

Every valve is supplied and exhausted by the same SUP and EXH ports running through the connected manifolds. This is the most popular configuration.

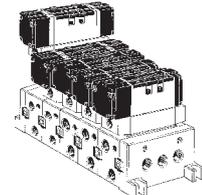


### Individual EXH Style

An individual EXH spacer (VVA72-R-03/04) mounted on the manifold block allows each valve to exhaust individually.

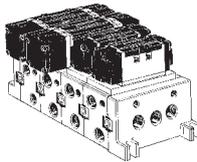
### Individual SUP Style

An individual SUP spacer (VVA72-P-03/04) mounted on the manifold block allows each valve to be supplied individually.



### V Type

V type allows combinations with valves of varying body size. (Interface adapter plate VVA72-V-1)



### Multiple Pressure SUP Style

Allows supply of 2 or more different pressures to one manifold. Put in a gallery blank disc (AXT502-14-1A) between the stations to operate at different pressures. A dual pressure supply can be applied to both the left and right sides of the manifold. If 3 or more pressures are supplied, the individual SUP spacer (VV71-P-□) should be used.

### Bottom Piping Style(3/8, 2/1)

When side piping appearance is not acceptable or space is limited, A or B port can be arranged with bottom piping.

### How to Order

VVA72-5-03R-□-04D-1

#### Stations

1	1 station
⋮	⋮
10	10 stations*

#### Piping (A, B port)

03R	3/8 (Right)
04R	1/2 (Right)
03L	3/8 (Left)
04L	1/2 (Left)
03Y	3/8 (Bottom)
04Y	1/2 (Bottom)
*	Mix

\* Indicate piping specifications.

#### Pilot supply port

1	Valve body side	
2	Manifold block side	

#### Piping (P, R1, R2 port)

04D	1/2 (Bottom)
04U	1/2 (Top)
04B	1/2 (Both sides)
06D	3/4 (Bottom)
06U	3/4 (Top)
06B	3/4 (Both sides)

#### Air release valve

—	Without air release valve
E	With air release valve*

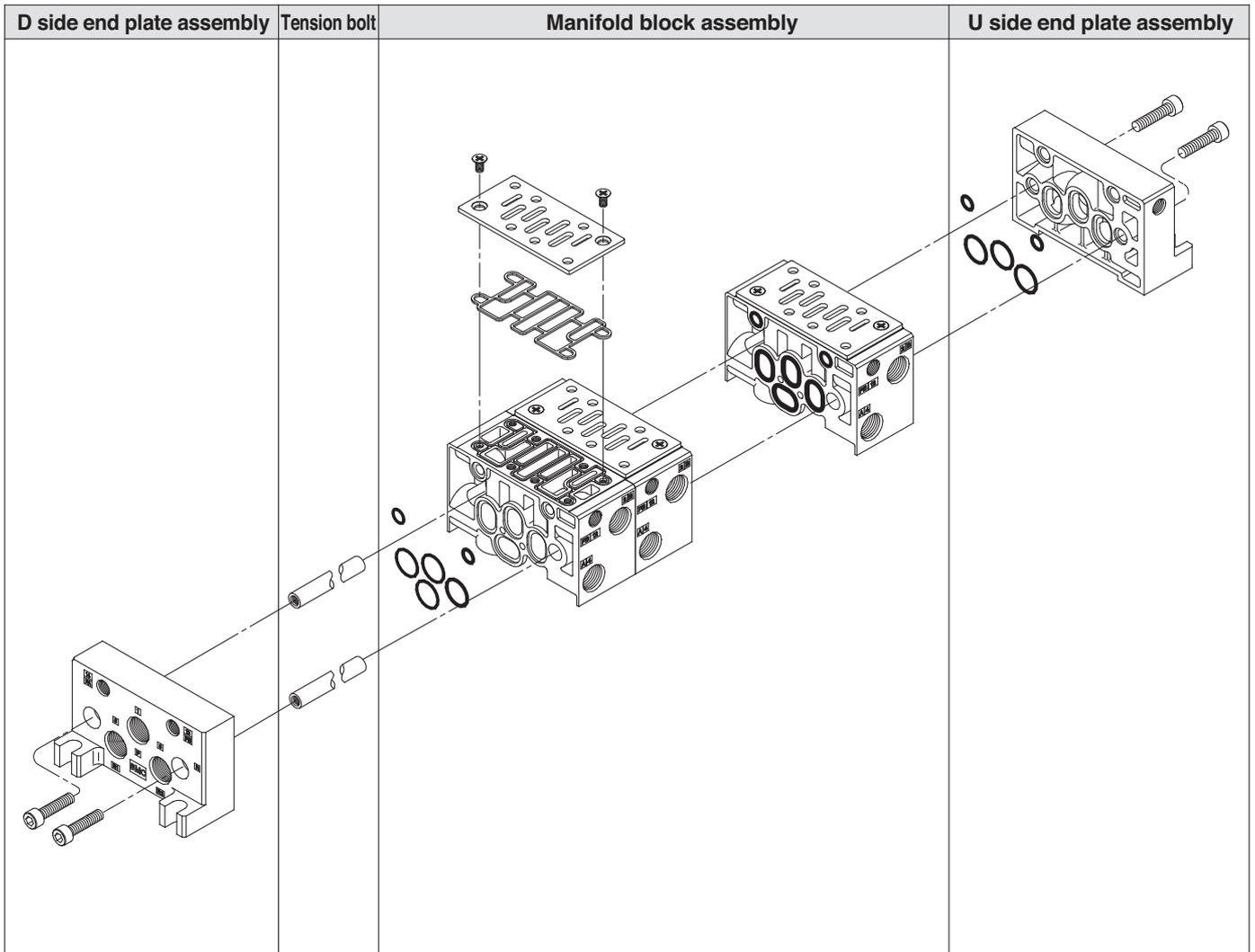
\* Indicates pilot supply port.

- 1 VSA7-6-FG-S-1  
2 VSA7-6-FG-S-2





## Manifold Exploded View VS7-6



### < End plate assembly >

**E** AXT502 -  **A** -

#### End plate position

<b>L</b>	L side
<b>R</b>	R side

#### Ordering source area code

Code	areas
-	Japan, Asia Australia
<b>E</b>	Europe
<b>N</b>	North America

#### P, R port size

<b>02</b>	1/4
<b>03</b>	3/8
<b>C12</b>	ø12 One-touch fitting

### <Tension bolt part number >

AXT502 - 34 -

#### Number of stations

<b>2</b>	For 2 stations
<b>3</b>	For 3 stations
⋮	⋮
<b>10</b>	For 10 stations

Note) These tie-rods are solid pieces for each number of stations.

### < Manifold block assembly >

\* This manifold block assembly includes tension bolts for a single station addition.

**E** AXT502 - 1A -   -

#### Porting specification

<b>A</b>	Side
<b>B</b>	Bottom

#### Cylinder port position

<b>L</b>	L side
<b>R</b>	R side

#### Ordering source area code

Code	areas
-	Japan, Asia Australia
<b>E</b>	Europe
<b>N</b>	North America

#### Cylinder port size

<b>02</b>	1/4
<b>03</b>	3/8
<b>C6</b> <small>Note 1)</small>	ø6 One-touch fitting
<b>C8</b> <small>Note 1)</small>	ø8 One-touch fitting
<b>C10</b> <small>Note 1)</small>	ø10 One-touch fitting

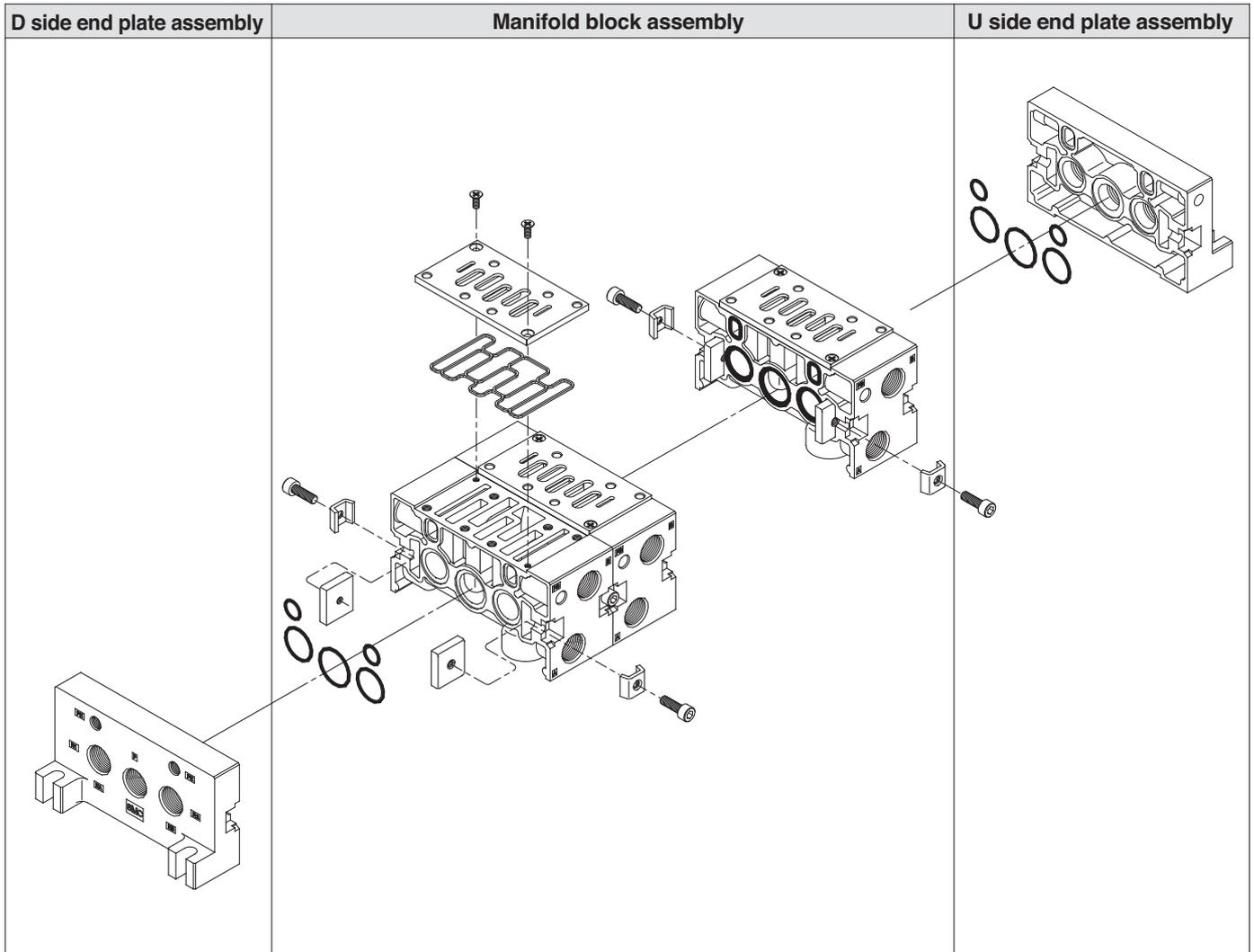
Note 1) Side ported only

### < Manifold block replacement parts >

Part No.	Description	Qty.	Material
AXT502-19	O-ring	4	NBR
AXT502-20	O-ring	2	NBR
AXT502-22-2	Plate	1	SPCC
AXT502-31	Gasket	1	NBR
M4 X 8	Oval countersunk head screw	2	SWRH3

# VS7-8

## Manifold Exploded View VS7-8



### < End plate assembly >

**E** AXT512 - **A** - **A**

End plate position

L	L side
R	R side

P, R port size

04	1/2
06	3/4
C12	ø12 One-touch fitting

Ordering source area code

Code	areas
-	Japan, Asia Australia
E	Europe
N	North America

### <Manifold block assembly>

**E** AXT512 - 1A - **A** - **A** - **A**

Porting specification

A	Side
B	Bottom

Cylinder port position

L	L side
R	R side

Ordering source area code

Code	areas
-	Japan, Asia Australia
E	Europe
N	North America

Cylinder port size

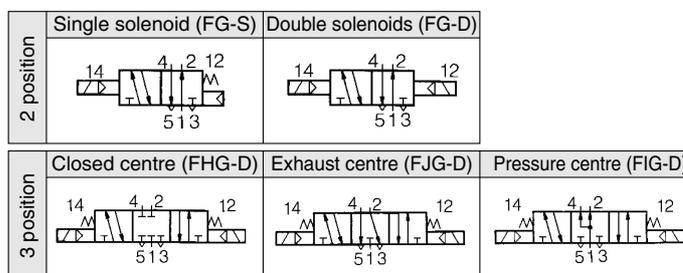
03	3/8
04	1/2

### < Manifold block replacement parts >

Part No.	Description	Qty.	Material
AXT512-13	O-ring	2	NBR
AS568-022	O-ring	1	NBR
AS568-020	O-ring	2	NBR
AXT512-5	Gasket	1	NBR
AXT512-4	Plate	1	SPCC
M4X10	Oval countersunk head screw	2	SWRH3
AXT512-6-1	Connection fitting A	2	
AXT512-6-4	Connection fitting B	2	
AXT512-6-3	Hexagon socket head screw	2	

# ISO CNOMO Standard Solenoid Valve Metal Seal - SIZES ①②③

## Series VS7-6•8•10



### Standard Specifications

Fluid		Air and inert gas	
Operating pressure (MPa)	Single	2 position	0.15 to 0.9
	Double	2 position	0.1 to 0.9
		3 position	0.15 to 0.9
Ambient and fluid temperature		Max. 50°C	
Manual operation		Non-locking	
Electrical entry		DIN43650 connector	
Lubrication		Unnecessary (Turbine oil class 1 - ISO VG32 if used)	
Environmental protection rating		IP65	
Shock/Vibration resistance		300/50m/s <sup>2</sup>	



Note 1) Shock resistance: No malfunction resulted from the impact test using a drop impact tester.

The test was performed on the axis and right angle direction of the main valve and armature, for both energized and de-energized states.

Vibration resistance: No malfunction occurred in a one-sweep test between 8.3 and 2000Hz.

Test was performed at both energized and de-energized states to the axis and right angle direction of the main valve and armature. (value in the initial stage.)

- Solenoid interface conforms to CNOMO.
- Manifold interface to ISO standards.
- Low power consumption: 1.8W per solenoid.
- Internal or external pilot supply.
- Available in ISO 1, 2 and 3 sizes.
- Large flow capacity.
- Fast response and long life.

### Pilot Valve Specifications

Rated voltage (V)		100V AC 50/60Hz, 200V AC 50/60Hz, 24V DC, 12V DC	
Power consumption	DC (W)	1.8	
	AC Inrush current (VA)	5.4	
	AC Holding current (VA)	3.6	
Allowable voltage (V)		-15% to +10% of rated voltage	
Coil insulation		Class B (130°C) or equivalent	

### Model

No. of positions	Model	Flow (Nl/min)	Max. operating frequency (Hz)	Response time (Ms)	Weight (g)
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#### Size ①

2 (Single)	VS7-6-FG-S-□-Q	1476	20	25	420
2 (Double)	VS7-6-FG-D-□-Q	1476	20	15	518
3 (Closed centre)	VS7-6-FHG-D-□-Q	1378	10	45	546
3 (Exhaust centre)	VS7-6-FJG-D-□-Q	1476	10	45	546
3 (Pressure centre)	VP7-6-FIG-D-□-Q	1080	10	45	546

#### Size ②

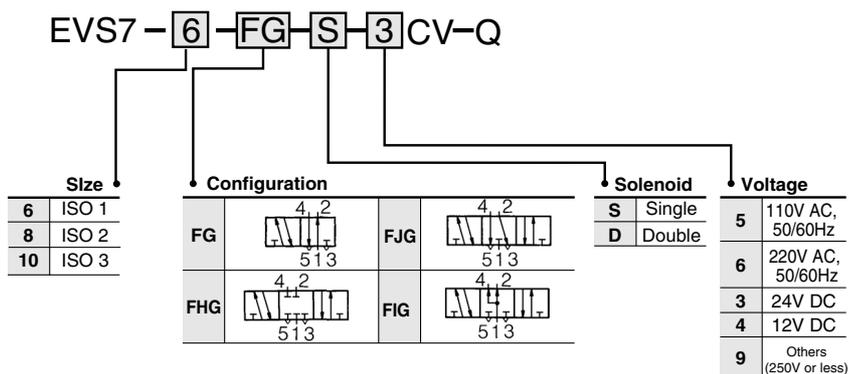
2 (Single)	VS7-8-FG-S-□-Q	3148	20	25	698
2 (Double)	VS7-8-FG-D-□-Q	3148	20	15	806
3 (Closed centre)	VS7-8-FHG-D-□-Q	3148	10	45	850
3 (Exhaust centre)	VS7-8-FJG-D-□-Q	3148	10	45	850
3 (Pressure centre)	VS7-8-FIG-D-□-Q	3148	10	45	850

#### Size ③

2 (Single)	VS7-10-FG-S-□-Q	4900	20	25	926
2 (Double)	VS7-10-FG-D-□-Q	4900	20	15	1026
3 (Closed centre)	VS7-10-FHG-D-□-Q	4690	10	45	1080
3 (Exhaust centre)	VS7-10-FJG-D-□-Q	4690	10	45	1080
3 (Pressure centre)	VS7-10-FIG-D-□-Q	4690	10	45	1080

# VS7-6•8•10

## How to Order Valve



Contact SMC for other voltages (9)

## How to Order Sub-plate - Size ①

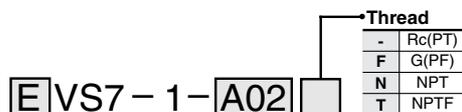
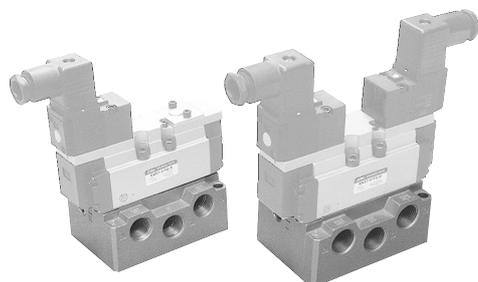


### Specifications

Applicable solenoid valve	ISO size 1
Sub-plate size	ISO size 1
Piping*	Side piping, 1/4 3/8
	Bottom piping, 1/4 3/8
Weight	0.37kg

\*) All R ports: 3/8

### How to Order Sub-plate



#### Ordering source area code

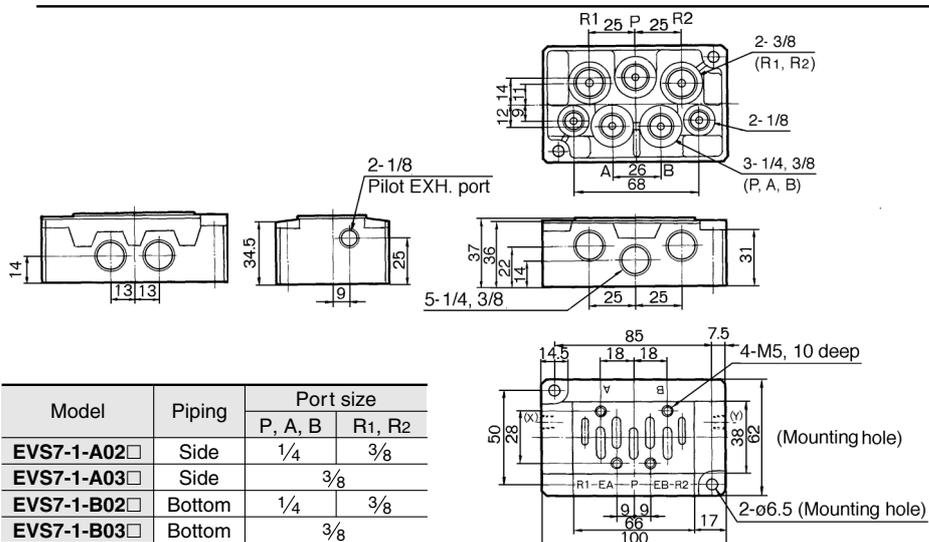
Code	areas
-	Japan, Asia Australia
E	Europe
N	North America

#### Piping and port size

A02	Side* 1/4
A03	Side 3/8
B02	Bottom* 1/4
B03	Bottom 3/8

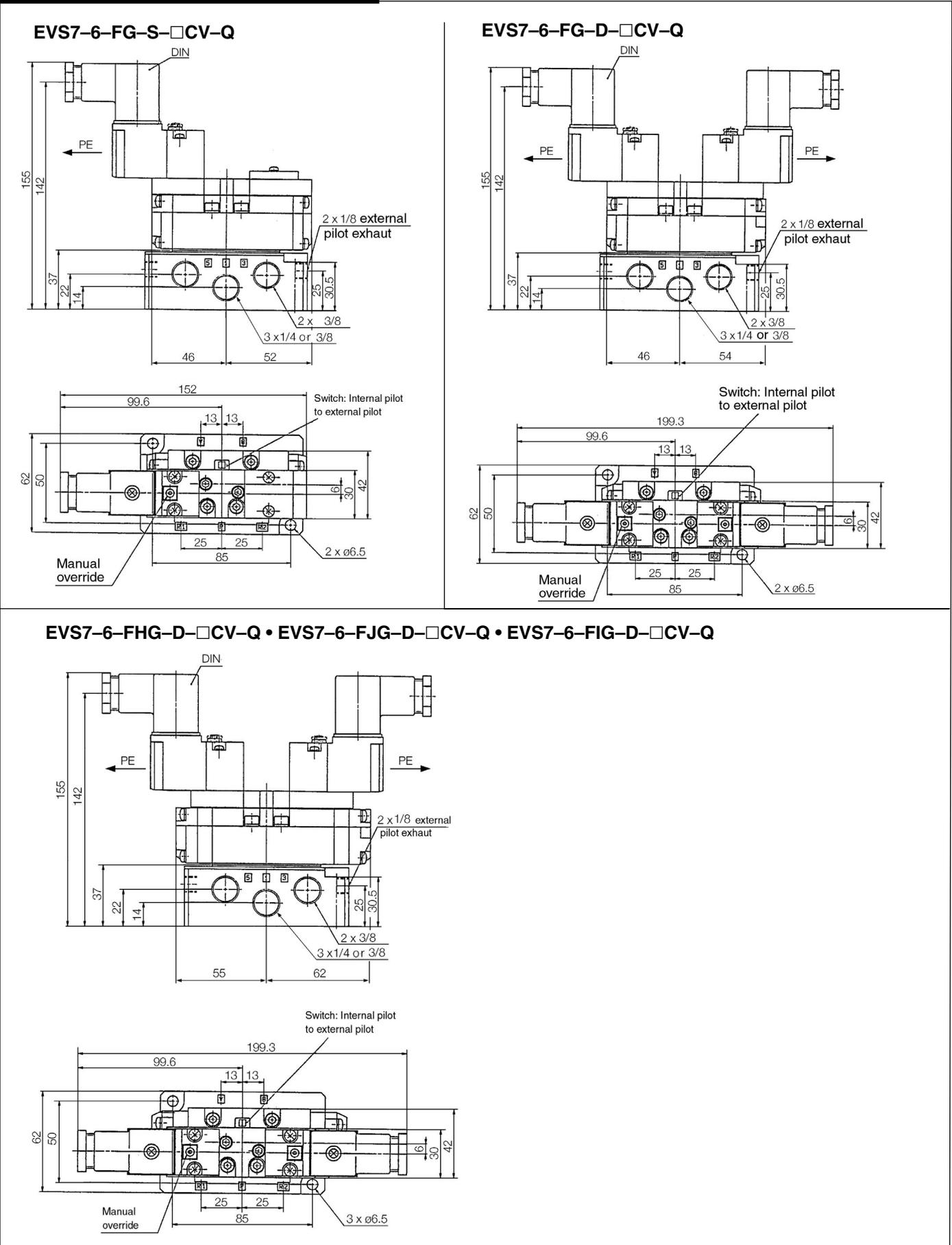
\*R port: 3/8

### Dimensions



# ISO/CNOMO type VS7-6•8•10

## Dimensions with Sub-plate - Size ①



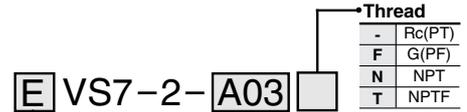
# VS7-6•8•10

## How to Order Sub-plate - Size ②



Applicable solenoid valve	ISO size 2
Sub-plate size	ISO size 2
Piping	Side piping: 3/8, 1/2, 3/4
	Bottom piping: 3/8, 1/2, 3/4
Weight	0.68 (3/8, 1/2) 1.29 (3/4)

## How to Order Sub-plate

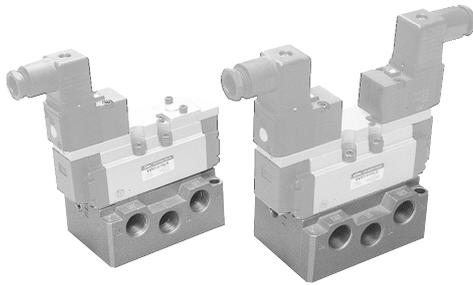


### Ordering source area code

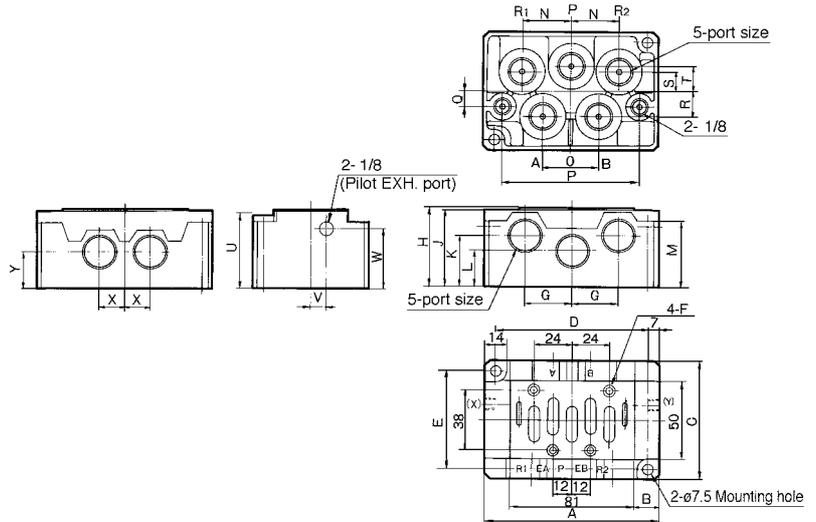
Code	areas
-	Japan, Asia Australia
E	Europe
N	North America

### Piping and Port size

<b>A03</b>	Side 3/8
<b>A04</b>	Side 1/2
<b>A06</b>	Side 3/4
<b>B03</b>	Bottom 3/8
<b>B04</b>	Bottom 1/2
<b>B06</b>	Bottom 3/4



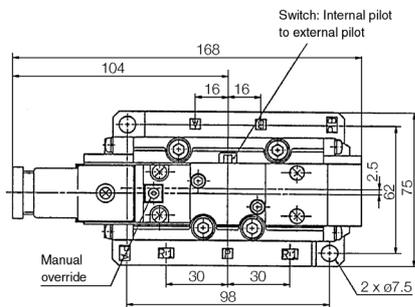
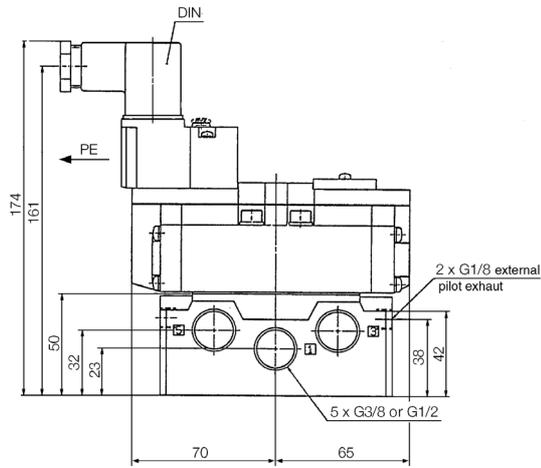
## Dimensions



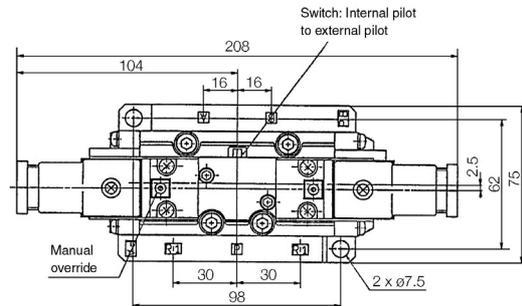
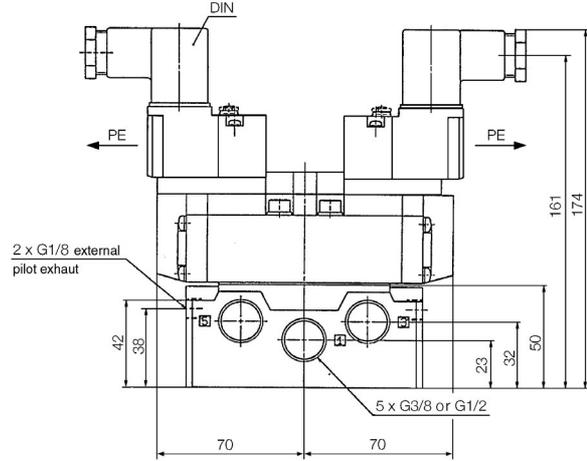
	Piping	Port size	A	B	C	D	E	F	G	H	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y
<b>EV7-2-A03</b>	Side	3/8, 1/2	112	15.5	75	98	62	4-M6, 12 Deep	30	50	49	32	23	42	31	36	88	10	16	12	16	47.5	10	38	16	23
<b>EV7-2-B03</b>																										
<b>EV7-2-A06</b>	Side	3/4	142	30.5	86	128	72	4-M6, 12 Deep	42	63	62	42	30	55	42	40	116	11	22	16	23	60	11	53	20	30
<b>EV7-2-B06</b>																										

## Dimensions with Sub-plate - Size ②

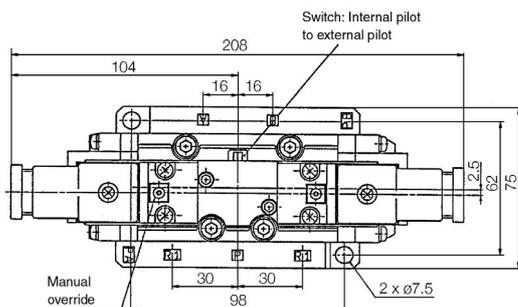
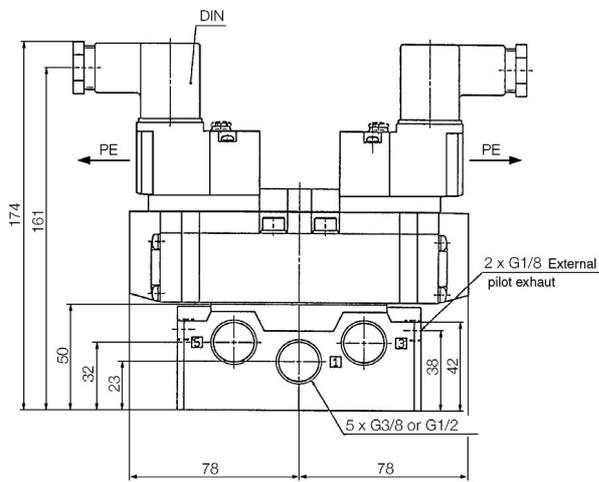
**EVS7-8-FG-S-□CV-Q**



**EVS7-8-FG-D-□CV-Q**

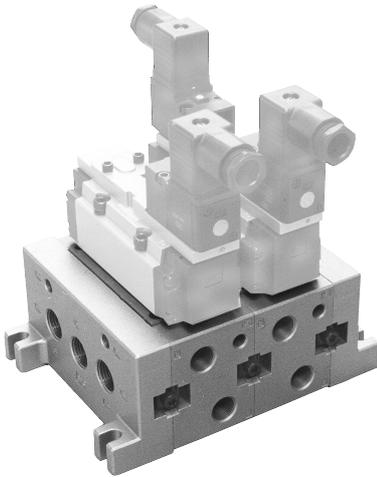


**EVS7-8-FHG-D-□CV-Q • EVS7-8-FJG-D-□CV-Q • EVS7-8-FIG-D-□CV-Q**



## How to Order Manifold

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### Specifications

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\*) These are available for ISO1 and ISO2 size manifolds and are common to those and on the VS7-6/8 and VQ7-6/8 series valves. For more details on Specifications, options, how to order and dimensions please refer to these series.

### How to Order Manifold

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\*) These are available for ISO1 and ISO2 size manifolds and are common to those and on the VS7-6/8 and VQ7-6/8 series valves. For more details on Specifications, options, how to order and dimensions please refer to these series.

### Options

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\*) These are available for ISO1 and ISO2 size manifolds and are common to those and on the VS7-6/8 and VQ7-6/8 series valves. For more details on Specifications, options, how to order and dimensions please refer to these series.

### Dimensions

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\*) These are available for ISO1 and ISO2 size manifolds and are common to those and on the VS7-6/8 and VQ7-6/8 series valves. For more details on Specifications, options, how to order and dimensions please refer to these series.