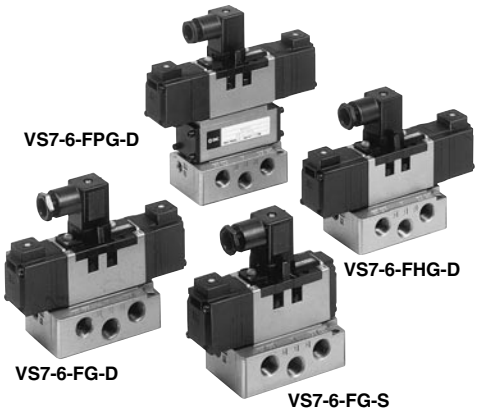
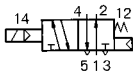
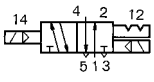
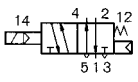
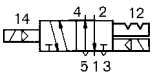
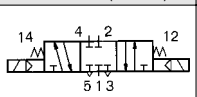
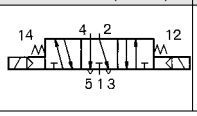
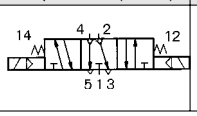
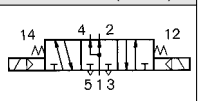
ISO Interface Solenoid Valve/SIZE①
Metal Seal
Series VS7-6



	Single solenoid (FG-S)	Double solenoid (FG-D)	Reverse pressure (YZ-S)*	Reverse pressure (YZ-D)*
2 position				

	Closed centre (FHG-D)	Exhaust centre (FJG-D)	Double pilot check (FPG-D)	Pressure centre (FLG-D)*
3 position				

* 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) (1)	150/50 m/s²
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/Spacifications

Part No.*	$AXT511^{A}_{B}$-1 (V)	$AXT511^{A}_{B}$-2 (V)	$AXT511^{A}_{B}$-3 (V)	$AXT511^{A}_{B}$-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 (1)		ARB250		
Applicable solenoid valve		VS7-6		
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) (2) (mm²)	P/A	15	16	13
	P/B	16	16	11
Air exhaust side eff. area S (P2=0.5MPa) (2)	A/EA	25 mm²		
	B/EB	18 mm²		

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) (mm²) (Nℓ/min)	Max. operating rate (1) (cycle/sec.)	Response time (2) (sec)	Weight (3) (kg)
2 (Single)	**VS7-6-FG-S-□-Q**	27 (1472.25)	20	0.025 or less	0.460
2 (Double)	**VS7-6-FG-D-□-Q**	27 (1472.25)	20	0.015 or less	0.560
3 (Closed centre)	**VS7-6-FHG-D-□-Q**	25.5 (1374.10)	10	0.045 or less	0.635
3 (Exhaust centre)	**VS7-6-FJG-D-□-Q**	27 (1374.10)	10	0.045 or less	0.635
3 (Pilot check)	**VS7-6-FPG-D-□-Q**	20 (1079.65)	10	0.05 or less	0.990

(1) Min. operating frequency is based on JIS B8375. (Once every 30 days)
(2) Based on JIS B8375-1975 (At 0.5MPa)
(3) Weight without sub-plate (Sub-plate: 0.37kg)
(4) (1) and (2) are the rates in the condition of controlled clean air.

Note:

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

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

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 cm³/min (ANR)).

⚠ Caution

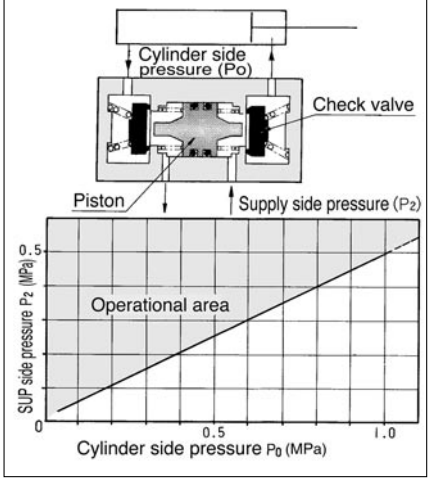
- Verify that there is no leakage from the pipes between valve and cylinder, and from fittings. Check for leaks by using neutral detergent solution before use. Also check the cylinder packing and the piston packing. If there is leakage, cylinder may not stop at the mid-stroke position, and could move 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

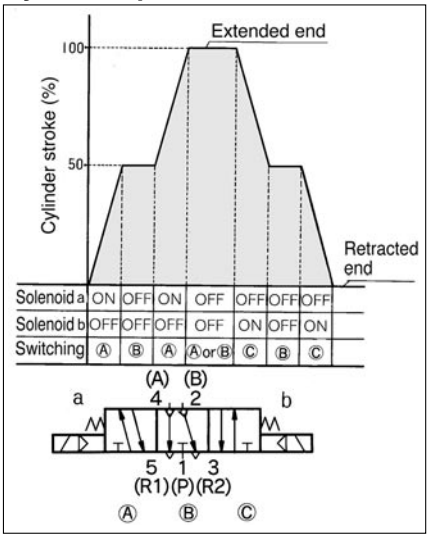
Double pilot check spacer model		VV71-FPG		
Applicable solenoid valve/air operated valve		Series VS7-6/VSA7-6		
Leakage (cm³/min (ANR))	With one side solenoid energized. (With one side pilot air pressured)	P	R_1	130
			R_2	
	Both sides solenoids de-energized. (With both sides pilots not air pressured)	P	R_1	130
			R_2	
		B	R_1	0
		A	R_2	

Check Valve/Operation Pressure Characteristics

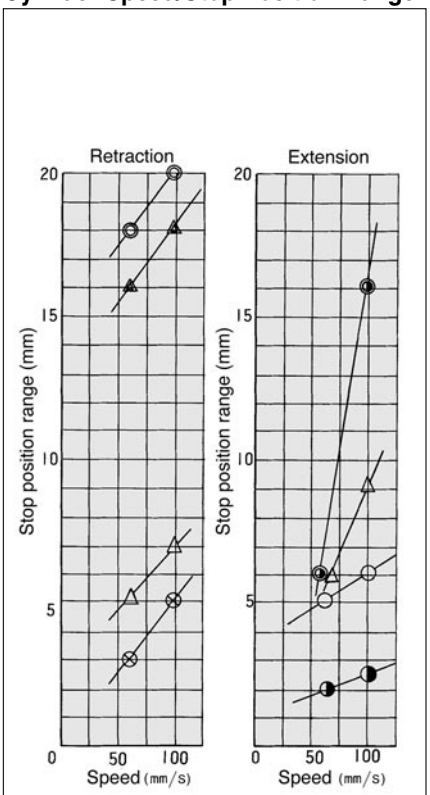
The check valve will operate correctly providing that cylinder side pressure is not in excess of two times the supply pressure.



Cylinder Operation Chart



Cylinder Speed/Stop Position Range



Cylinder ø50-450st	Cylinder ø80-450st	Supply pressure	Load	Load factor ø50	Load factor 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

FG		FJG	
YZ*		FPG	
FHG		FIG*	

* Option

Number of solenoid

S	Single
D	Double

Rated voltage

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

Order Made Contact SMC for other voltages (9)

Protective class class I (Mark: ⏚)

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

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

Port size of sub-plate

—	Without sub-plate
A02	Side piping 1/4*
A03	Side piping 3/8
B02	Bottom piping 1/4*
B03	Bottom piping 3/8

* R port: 3/8

Connector

—	Connector
0	W/o connector

Thread

—	Rc (PT)
F	G (PF)
N	NPT
T	NPTF

Ordering source area code

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

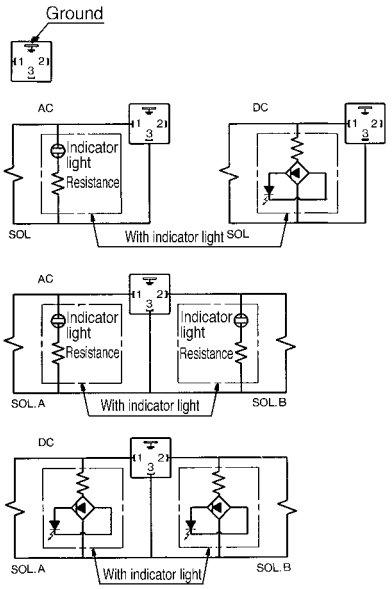
Note:
Manifold exploded view see page 1.19-33 for details.

⚠ 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)



Power Source and Wiring

①Make sure all contacts are secure.
②Voltage should be held within the allowable
voltage range.

Interface Regulator Specifications

Specifications

Interface regulator model		ARB250		
Applicable solenoid valve		VS7-6		
Regulation port		A	B	P
Max. operating pressure		1.0MPa (1)		
Setting pressure range		0.1 to 0.83MPa (1)		
Ambient and fluid temperature		5 to 60°C (3)		
Pressure gauge port size		1/8		
Weight (kg)		0.55		
Air supply side eff area (mm^2) S (P=0.7MPa, P1=0.5MPa)	P→A	15	16	13
	P→B	16	16	11
Air exhaust side eff area S (P2=0.5MPa)	A→EA	25 mm^2		
	B→EB	18 mm^2		

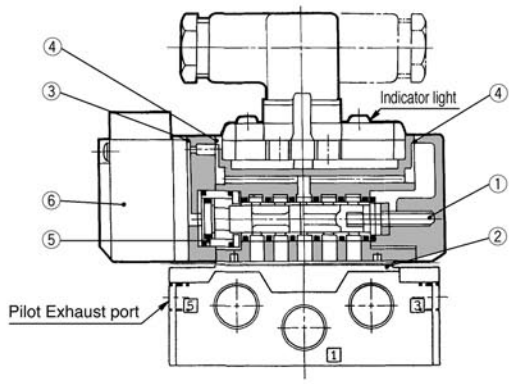
Note 1) Maximum operating pressure of solenoid valve is 0.9 MPa.
Note 2) Be sure to set pressure within setting pressure range of the solenoid valve.
Note 3) Solenoid valve: Max. 50°C
Note 4) Synthesized effective area with 2 position single style solenoid valve.
Note 5) •Supply pressure to interface 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

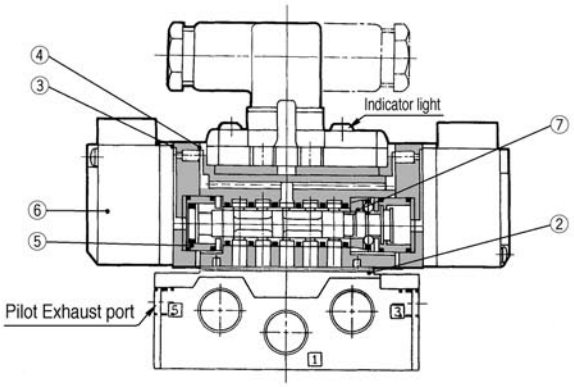
Refer to p.0-36 for flow rate calculations.

Construction

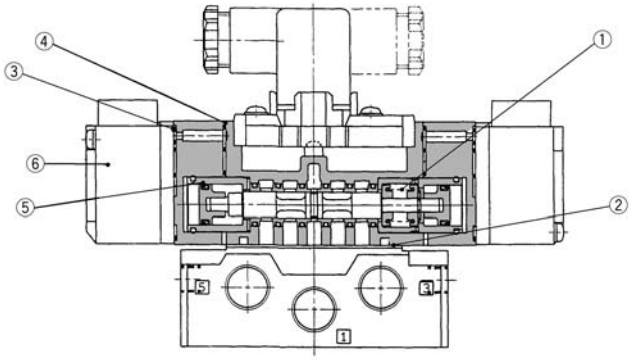
VS7-6-FG-S-□□-Q



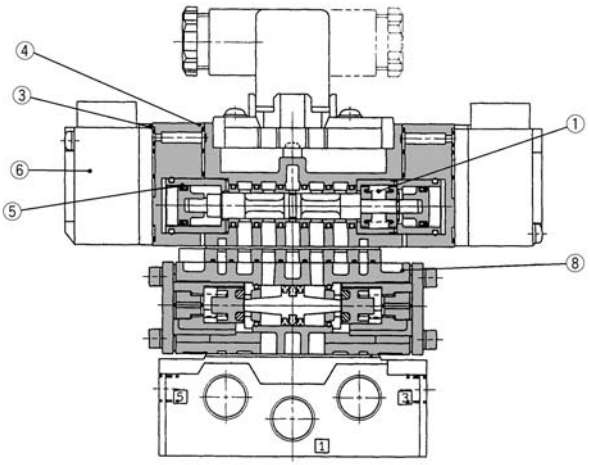
VS7-6-FG-D-□□-Q



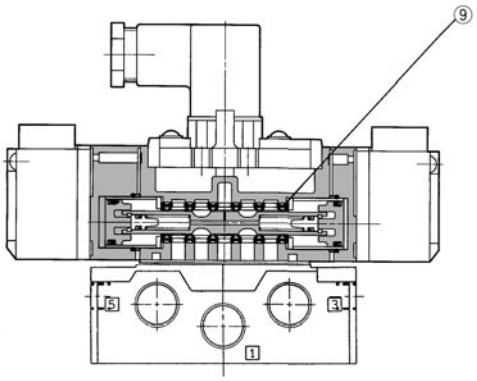
VS7-6-FHG-□□-Q
VS7-6-FJG-□□-Q



VS7-6-FPG-□□-Q



VS7-6-FHG-D-□R-Q

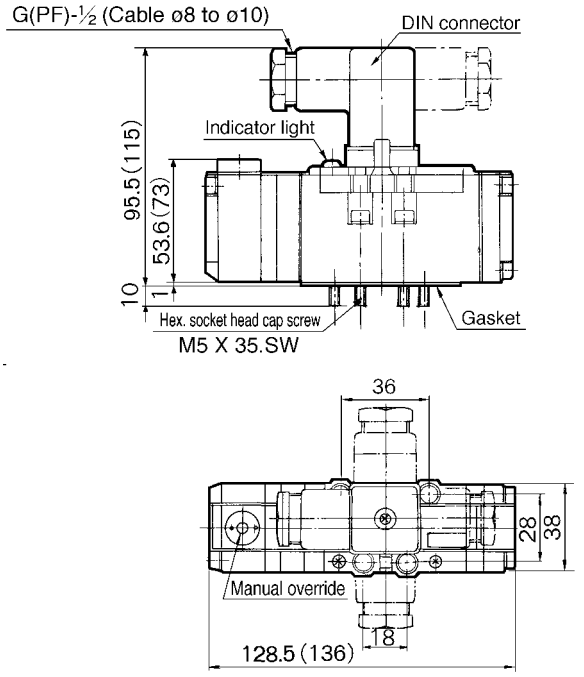


Replacement Parts

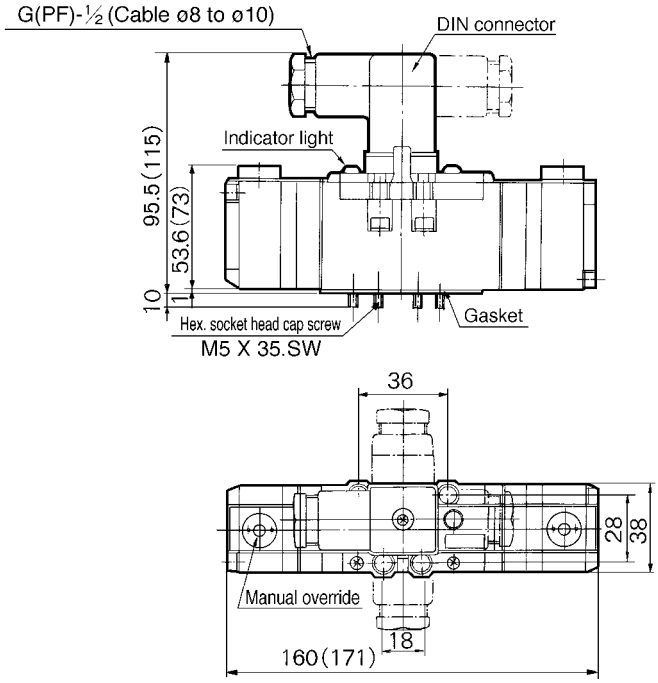
No.	Description	Material	Part No.				
			VS7-6-FG-S	VS7-6-FG-D	VS7-6-FHG	VS7-6-FJG	VS7-6-FPG
①	Return spring	SUS	AXT500-12-2	—	VFS3000-17-2	VFS3000-17-2	VFS3000-17-2
②	Gasket	NBR	AXT500-13	AXT500-13	AXT500-13	AXT500-13	AXT500-13
③	Gasket	NBR	AXT503-35	AXT503-35	AXT503-35	AXT503-35	AXT503-35
④	Gasket	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

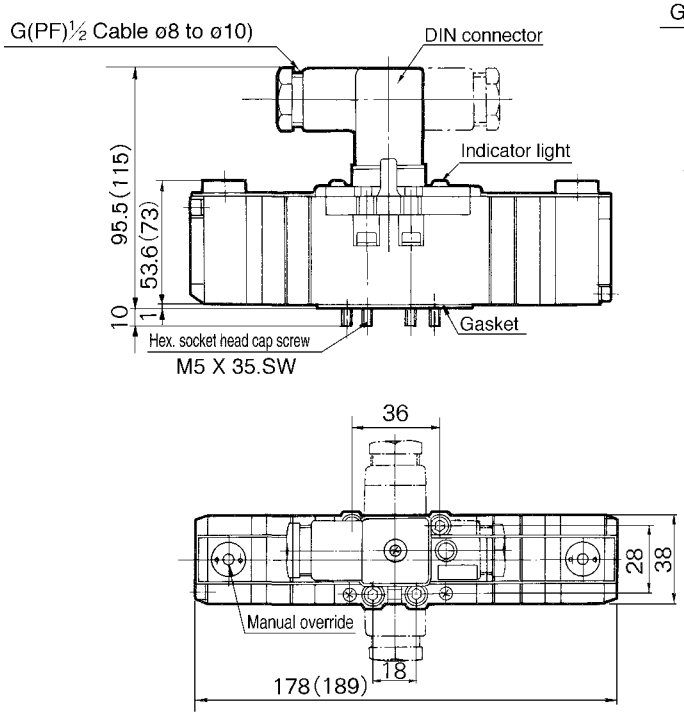


VS7-6-FG-D-□□-Q

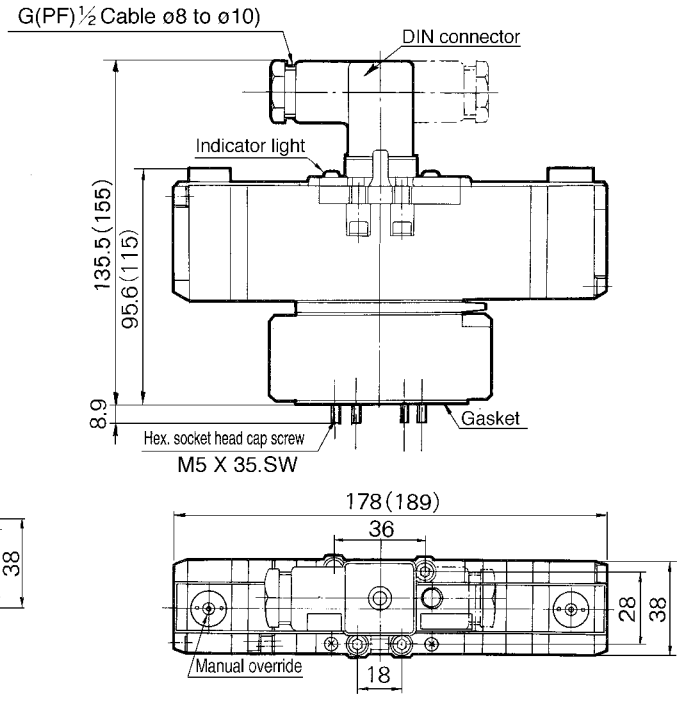


( ): In case of direct manual override style.

VS7-6-FHG-□□-Q
VS7-6-FJG-□□-Q



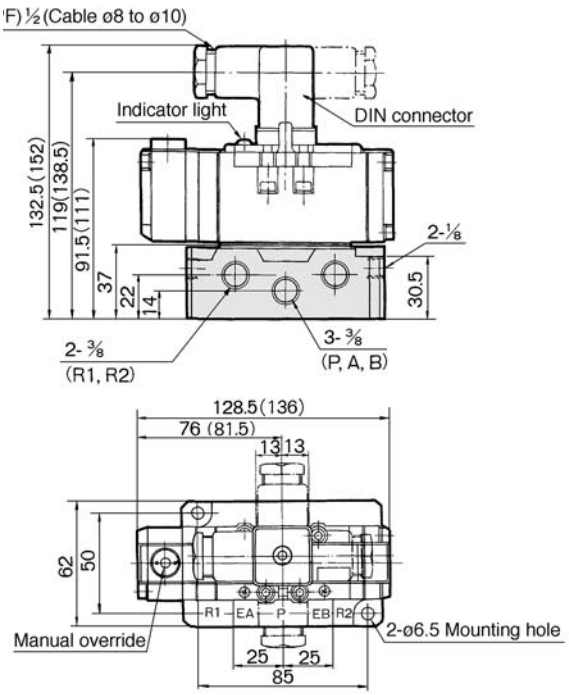
VS7-6-FPG-□□-Q



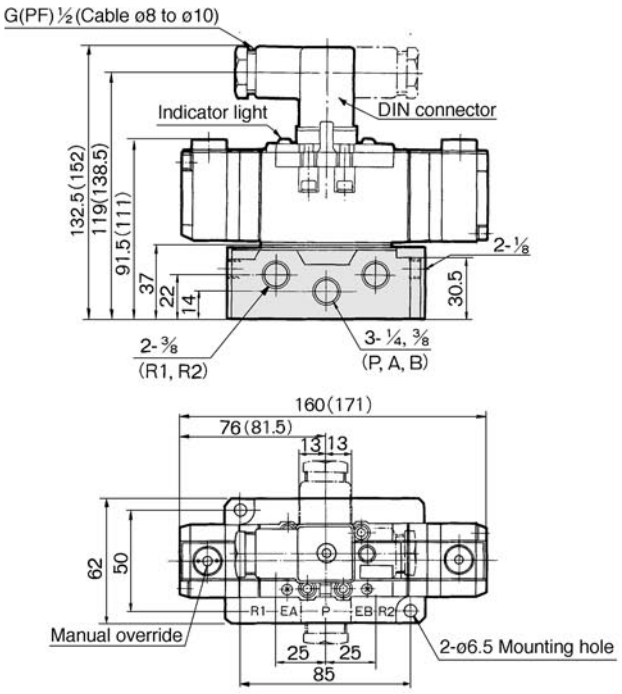
( ): In case of direct manual override style.

With Sub-plate/Dimensions

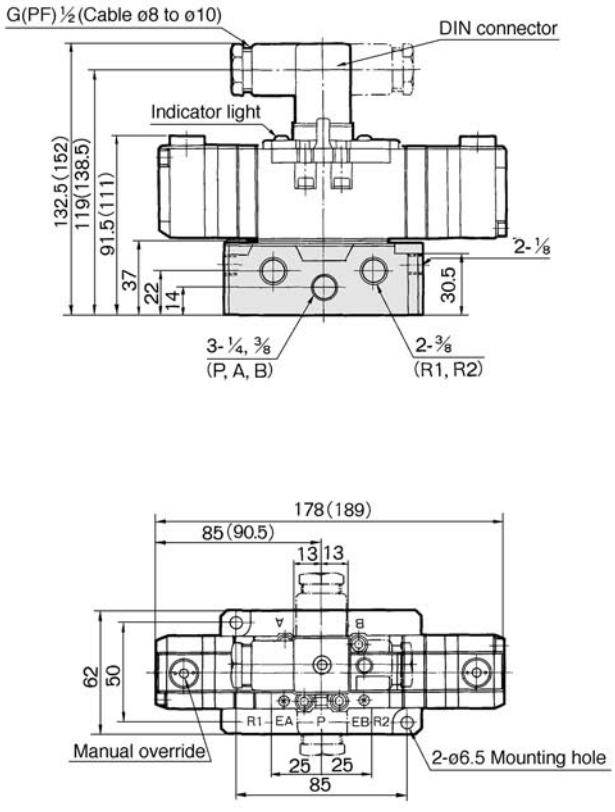
VS7-6-FG-S-□□ Port size of sub-plate -Q



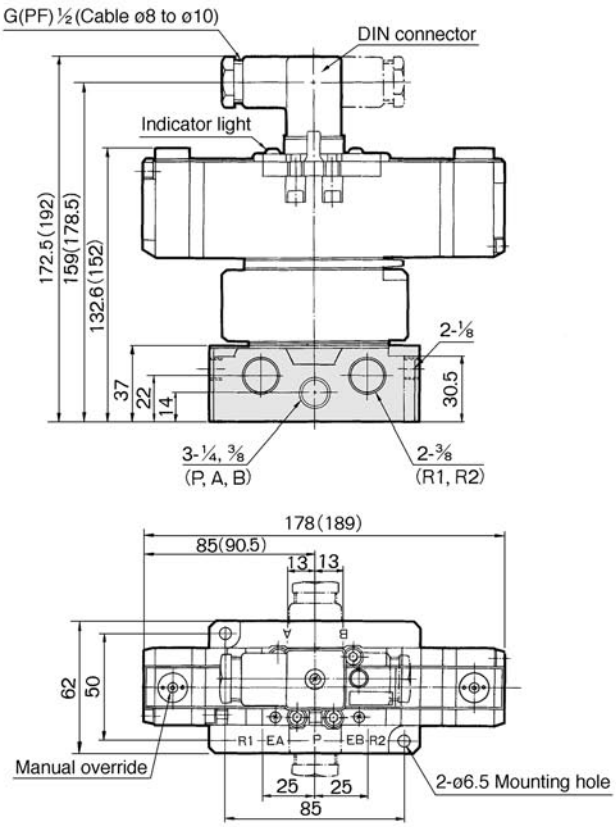
VS7-6-FG-D-□□ Port size of sub-plate -Q



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



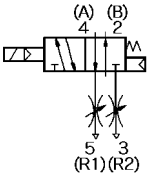
VS7-6-FPG-□□ Port size of sub-plate -Q



( ): In case of direct manual override style.

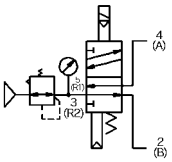
¡Interface Speed Control

Symbol

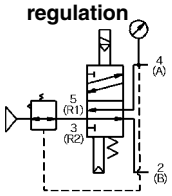


¡Interface Regulator

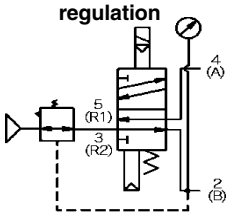
Symbol



P port regulation



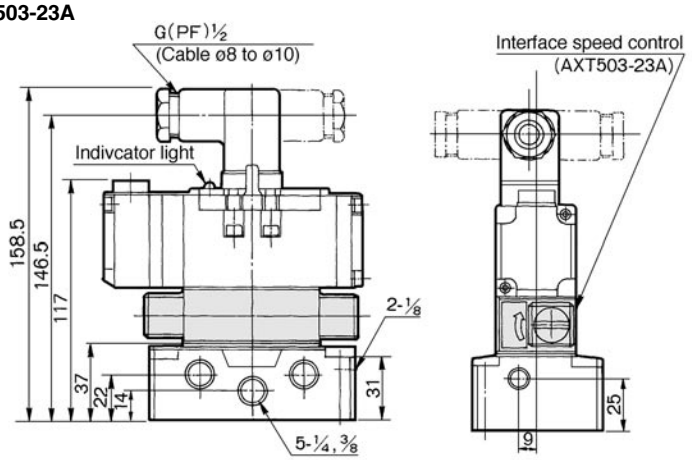
A port regulation



B port regulation

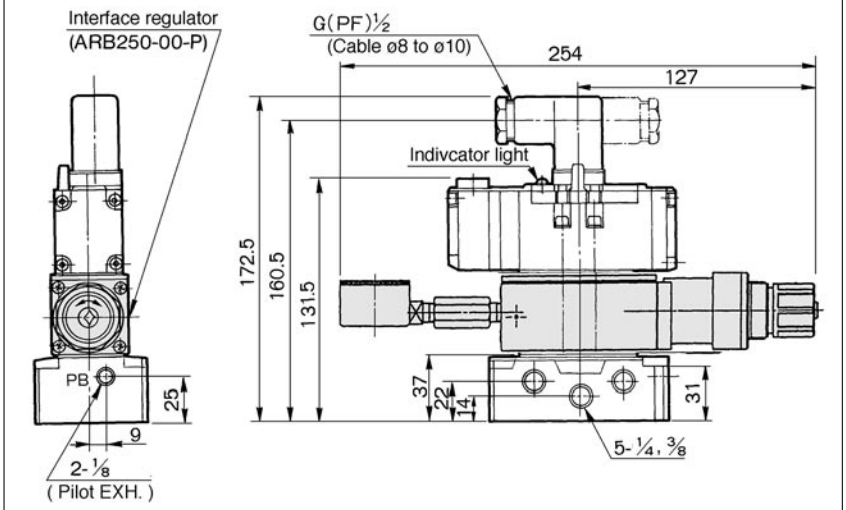
Interface Speed Control

AXT503-23A

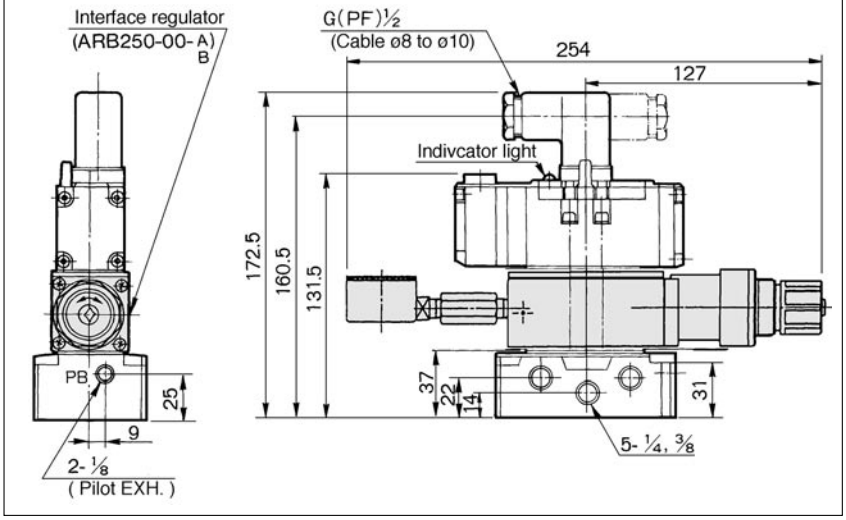


Interface Regulator/Dimensions

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

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

* R port: 3/8

Thread

—	Rc (PT)
F	G (PF)
N	NPT
T	NPTF

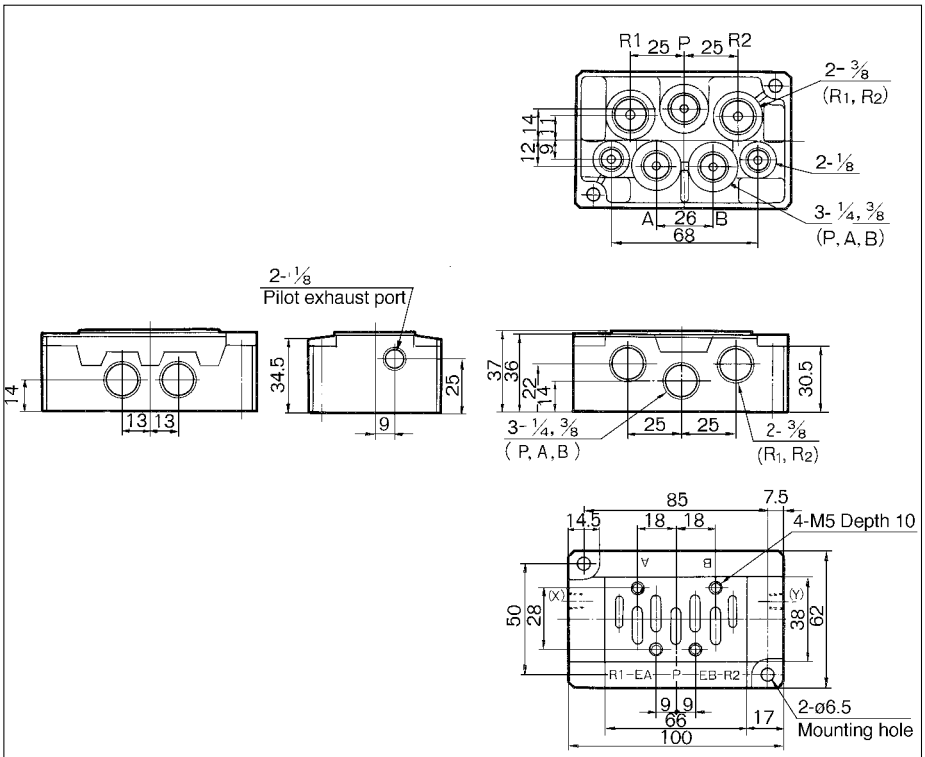
Ordering source area code

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

Note:

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

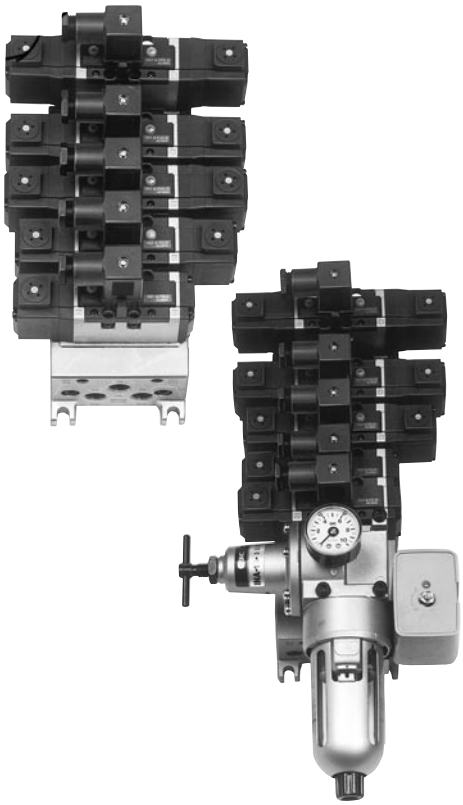
Dimensions



Model	Piping	Port size	
		P, A, B	R1, R2
VS7-1-A02	Side	1/4	3/8
VS7-1-A03	Side	3/8	
VS7-1-B02	Bottom	1/4	3/8
VS7-1-B03	Bottom	3/8	

Series VS7-6
Manifold

Manifold: Series VV71



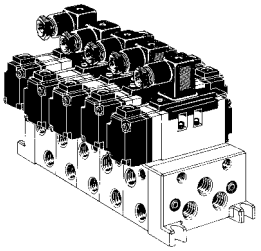
Standard Specifications

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/cm² 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.



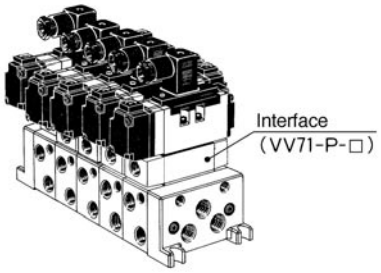
Multiple Pressure SUP Style
Allows supply of 2 or more different pressure to one manifold.
¡Put in a gallery blank disc (AXT502-14) between the stations to operate at different pressures. A dual pressure supply can be supplied from both the left and right sides of the manifold. If 3 or more pressures 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.

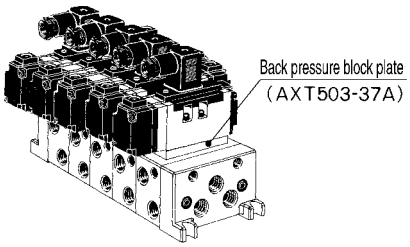
Individual Pilot EXH Style
If there are many valve stations operating at the same time or operation frequency is high, trouble caused by back pressure will be prevented by using individual pilot EXH style valve (“VS7-6-□-□”).

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.



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.



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

VS7-6

How to Order (Manifold)

E VV71 5 – 03R – □ 03D □ □ – Q

Stations

1	1
⋮	⋮
10	10*

* Includes F. R. Unit (equivalent to 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 for ø6 tube (Right)
C8R	One-touch for ø8 tube (Right)
C10R	One-touch for ø10 tube (Right)
C6L	One-touch for ø6 tube (Left)
C8L	One-touch for ø8 tube (Left)
C10L	One-touch for ø10 tube (Left)
*	Combination

* Please provide piping specifications.

Control unit

–	Without
A	Filter with auto-drain, regulator, air release valve
AP	Filter with auto-drain, regulator, pressure switch, air release valve
M	Filter with manual drain, regulator, air release valve
MP	Filter with manual drain, regulator, pressure switch, air release valve
F	Filter with auto-drain, regulator (air release valve-blank)
G	Filter with manual drain, regulator (air release valve-blank)
C	Air release valve (filter, regulator-blank)
E	Air release valve

Piping/P, R1, R2 Port

02D	1/4 (Bottom)
02U	1/4 (Top)
02B	1/4 (Both sides)
03D	3/8 (Bottom)
03U	3/8 (Top)
03B	3/8 (Both sides)
C12D	One-touch fitting for ø12 tube (Bottom)
C12U	One-touch fitting for ø12 tube (Top)
C12B	One-touch fitting for ø12 tube (Both sides)
*	Combination

* Please provide piping specifications.

Silencer box

–	W/o silencer box
SB	Silencer box

* Mounting position of silencer box is in accordance with piping of R1 and R2 ports.

Air release valve/Rated voltage

–	Without air release valve
1	100V AC 50/60Hz
2	200V AC 50/60Hz
3	24V DC
4	12V DC
9	Others(250V or less)

Order Made Contact SMC for other voltages (9)

Protective class class I (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

Symbol / Control unit	—	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

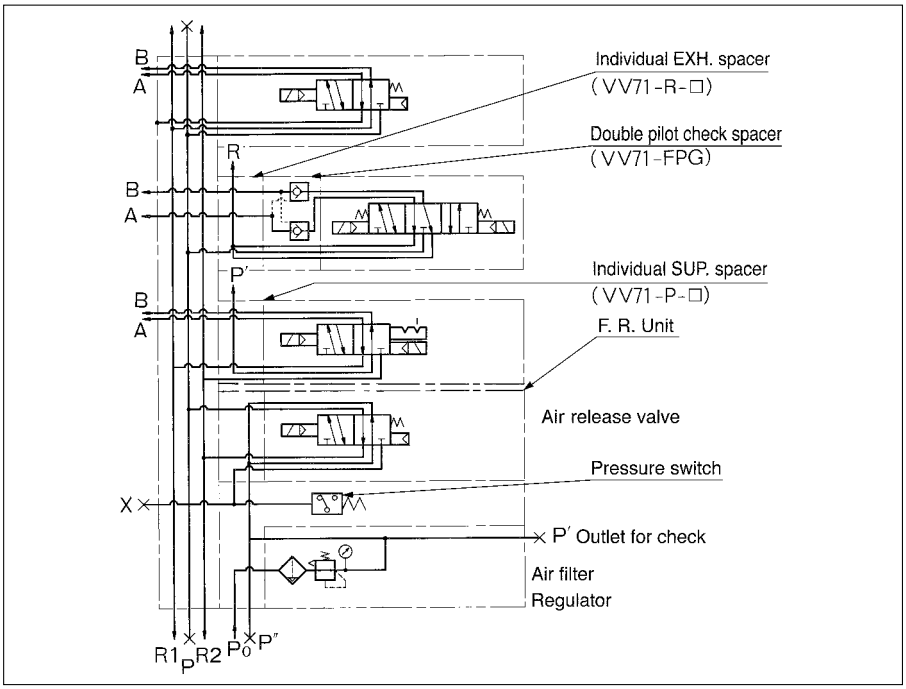
F. R. Unit/Specifications

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

Options

Blank plate	AXT502-9A (for manifold)	Interface for reverse pressure	AXT502-21A-1 (3/8)
	AXT502-18A (for air release valve adaptor plate)	R1, R2 individual EXH spacer	VV71-R2-03
		Interface speed control	AXT503-23A
	MP2 (for control unit/filter regulation valve)	Lock up cylinder adaptor plate	AXT502-26A
	MP3 (for pressure switch)	Interface regulator / Relieving style	ARB250-00- P port regulation / A port regulation / B port regulation
Air release valve adaptor plate	AXT502-17A	Main EXH back pressure block plate	AXT503-37A
F. R. Unit	VAW-A (Adaptor plate, filter with auto drain cock, regulator)	Silencer for pilot EXH	AN110-01
	VAW-M (Adaptor plate, filter with manual drain cock, regulator)	Residual pressure release valve spacer	VV71-R-AB
Pressure switch	IS3100-X230 (2-M5 X 12)	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

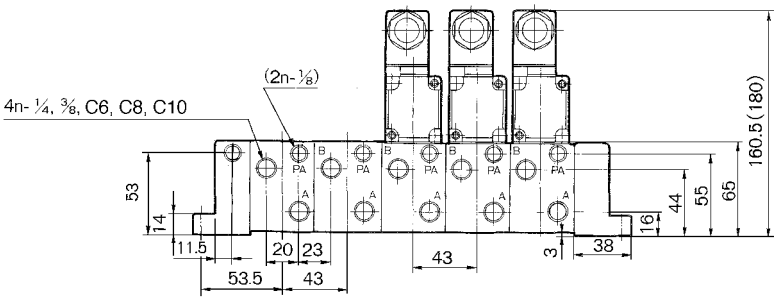
Manifold/Applications

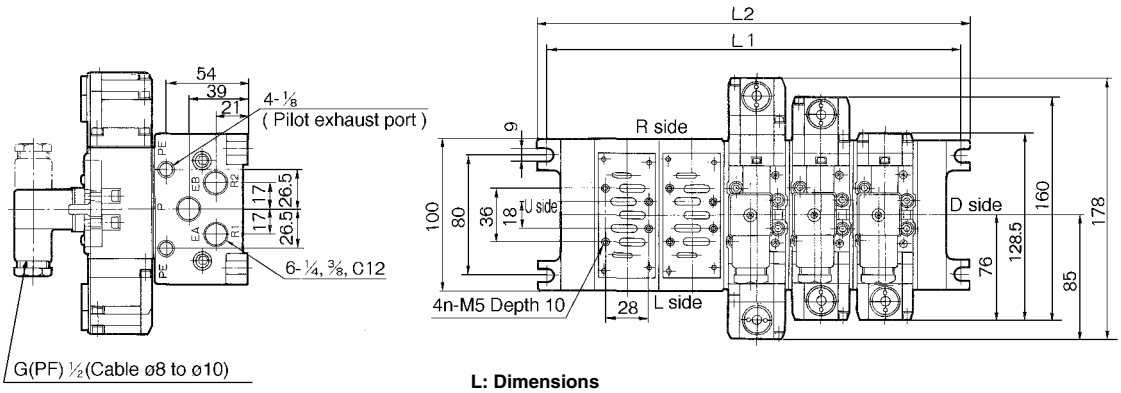


SMC

Manifold/Dimensions

Common EXH





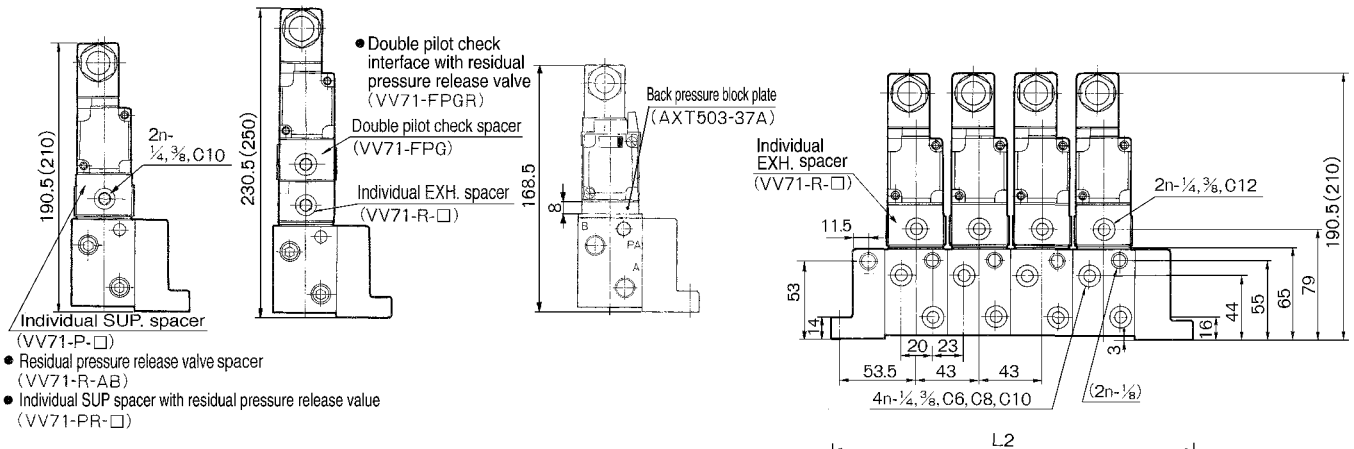
( ): In case of direct manual override style.

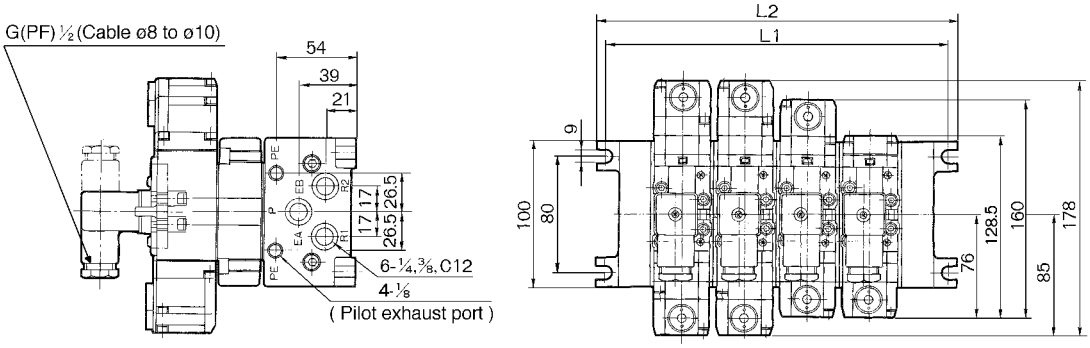
L: Dimensions n: Station

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)

Individual EXH

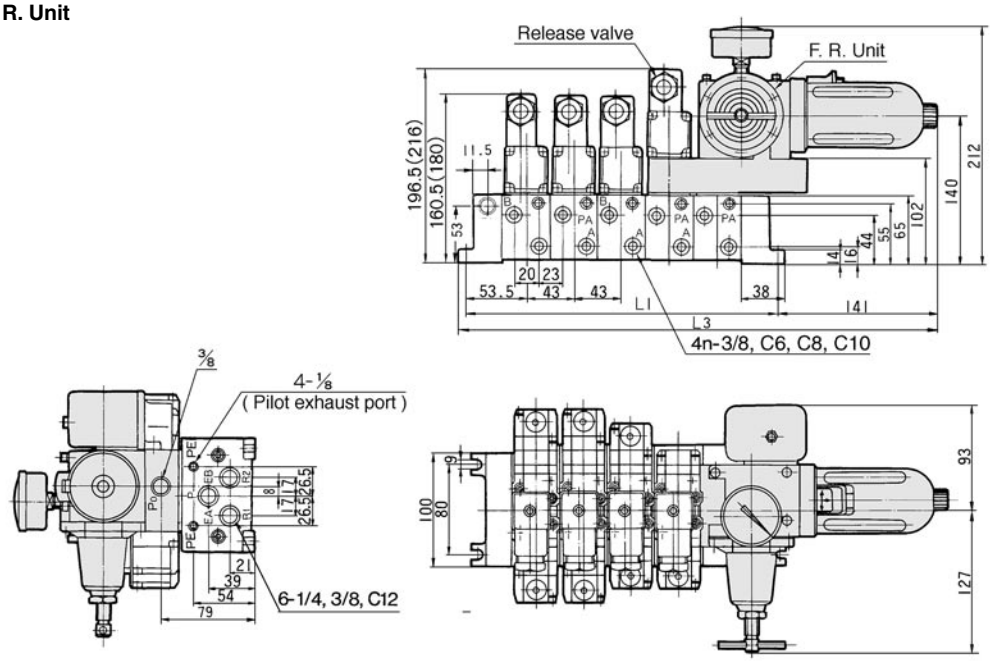




( ): In case of direct manual override style.

Manifold/Dimensions

F. R. Unit

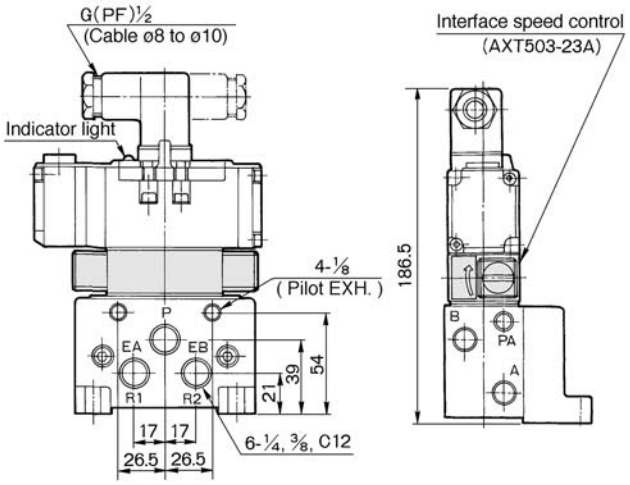


L: Dimensions n: Station

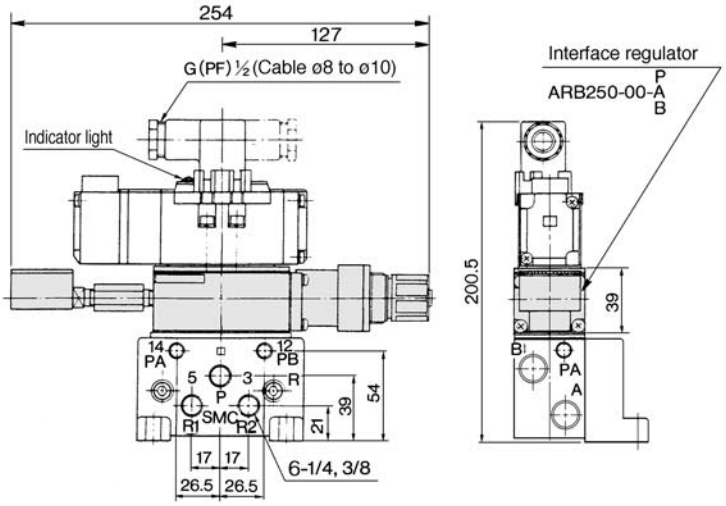
L \ n	2	3	4	5	6	7	8	9	10	Equation
L1	150	193	236	279	322	365	408	451	494	L1=43n+64
L2	162	205	248	291	334	377	420	463	506	L2=43n+76
L3	297	340	383	426	469	512	555	598	641	L3=43n+211

( ): In case of direct manual override style.

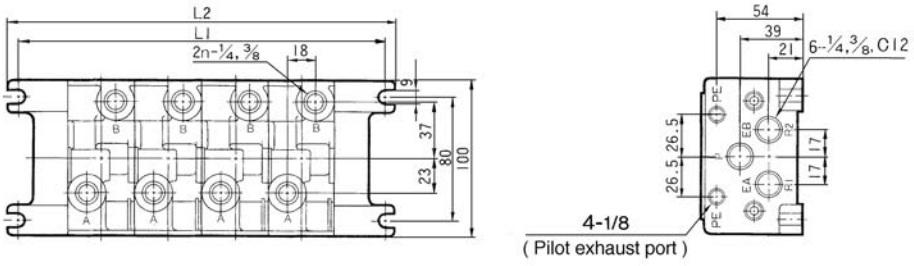
Interface Speed Control



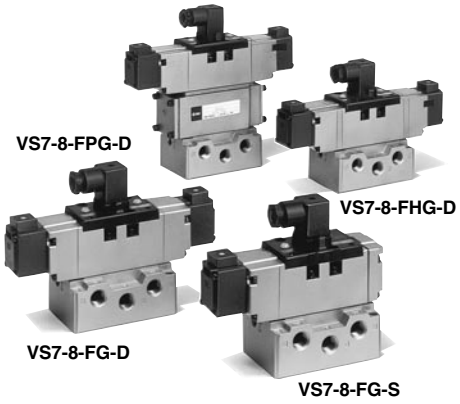
Interface Regulator

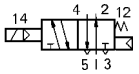
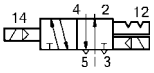
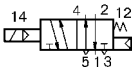
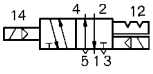
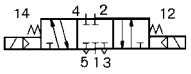
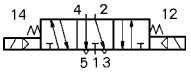
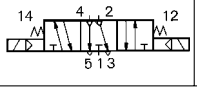
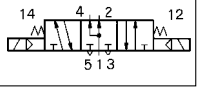


Bottom Piping



ISO Interface Solenoid Valve/SIZE②
Metal Seal
Series VS7-8



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 (1)	150/50 m/s²
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/Spacifications

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 (1)		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) (2) (mm²)	P/A	40	31	27
	P/B	31	34	27
Air exhaust side eff. area S (P2=0.5MPa) (2)	A/EA	60 mm²		
	B/EB	53 mm²		

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 (WithH3/8 sub-plate) (mm²) (N ℓ/min)	Max. operating rate (1) (cycle/sec)	Response time (2) (sec)	Weight (3) (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)
(2) Based on JIS B8375-1975 (At 0.5MPa)
(3) Weight without sub-plate (Sub-plate: 0.37kg)
(4) (1) and (2) are the rates in the condition of controlled clean air.

Note:

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

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

Double Pilot Check Spacer/Series FPG

Cyinder 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 cm³/min (ANR)).

⚠ Caution

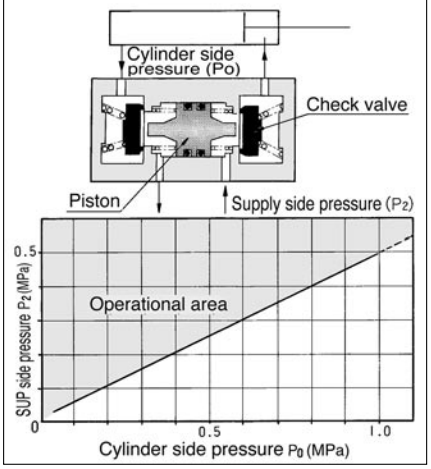
- Verify that there is no leakage from the pipes between valve and cylinder, and from fittings. Check for leaks by using neutral detergent solution before use. Also check the cylinder packing and the piston packing. If there is leakage, cylinder may not stop at the mid-stroke position, and could move 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

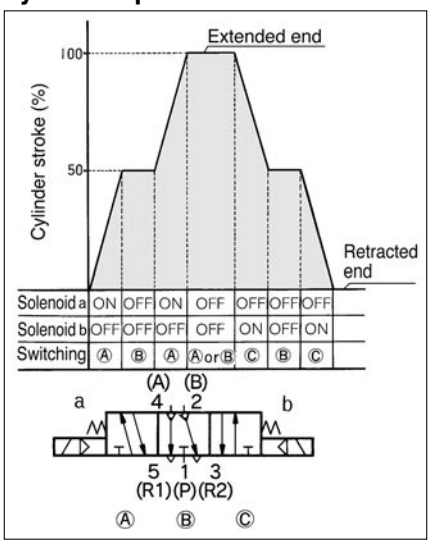
Double pilot check spacer model		VV72-FPG		
Applicable solenoid valve/air operated valve		Series VS7-8/VSA7-8		
Leakage (cm³/min (ANR))	With one side solenoid energized. (With one side pilot air pressured)	P	R1	280
			R2	
	Both sides solenoids de-energized. (With both sides pilots not air pressured)	P	R1	280
			R2	
		A	R1	0
		B	R2	

Check Valve/Operation Pressure Characteristics

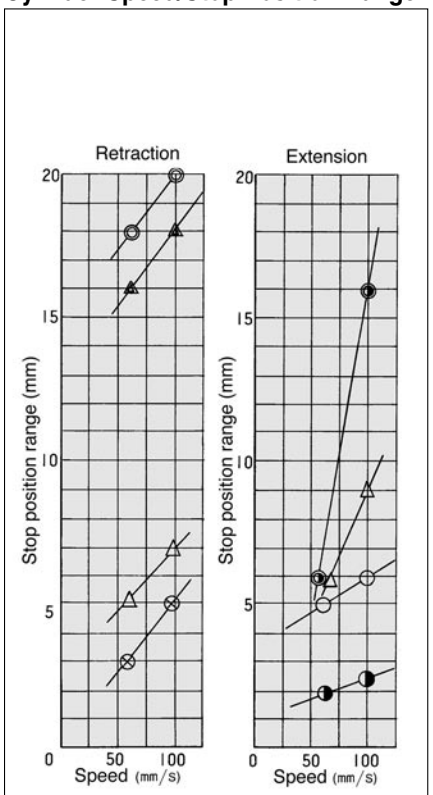
The check valve will operate correctry providing that cylinder side pressure is not in excess of two times the supply pressure.



Cylinder Operation Chart



Cylinder Speed/Stop Position Range



Cylinder ø50-450st	Cylinder ø80-450st	Supply pressure	Load	Load factor ø50	Load factor ø80
—◎—	—○—	0.2MPa	25kg	51%	28%
	—⊗—	0.5	25	25	11
—◑—	—◑—	0.2	35	72	39
—△—	—△—	0.5	35	36	16

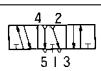
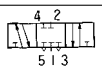
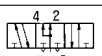
How to Order

E VS7 − 8 − FG − S − 1 □ □ □ □ − Q

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)

Contact SMC for other voltages (9)

Protective class class I (Mark: ⏚)

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

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

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
0	W/o connector

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

Ordering source area code

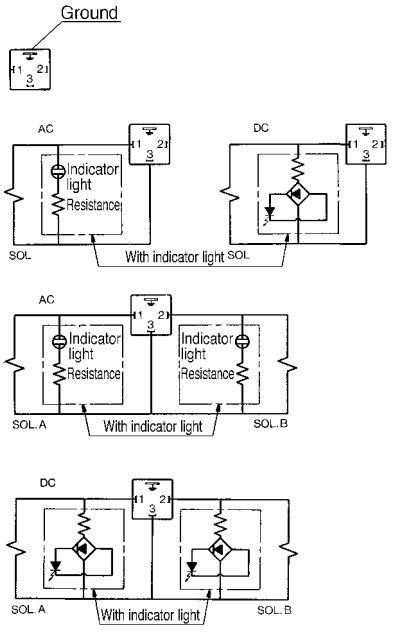
Code	areas
-	Japan, Asia Australia
E	Europe
N	North America

⚠ 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

①Make sure all contacts are secure.
②Voltage 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 (1)		
Set pressure range		0.1 to 0.83MPa (2)		
Ambient and fluid temperature		5 to 60°C (3)		
Pressure gauge port size		1/8		
Weight (kg)		0.83		
Air supply side eff. area (mm^2) S (P=0.7MPa, P1=0.5MPa)	P→A	40	31	27
	P→B	31	34	27
Air exhaust side eff. area S (P2=0.5MPa)	A→EA	60 mm^2		
	B→EB	53 mm^2		

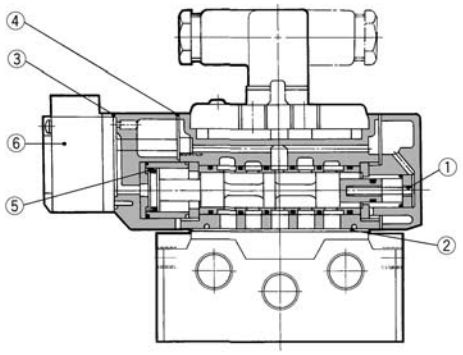
Note 1) Maximum operating pressure of solenoid valve is 0.9 MPa.
Note 2) Be sure to set pressure within setting pressure range of the solenoid valve.
Note 3) Solenoid valve: Max. 50°C
Note 4) Synthesized effective area with 2 position single style solenoid valve.
Note 5) •Supply pressure to interface 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

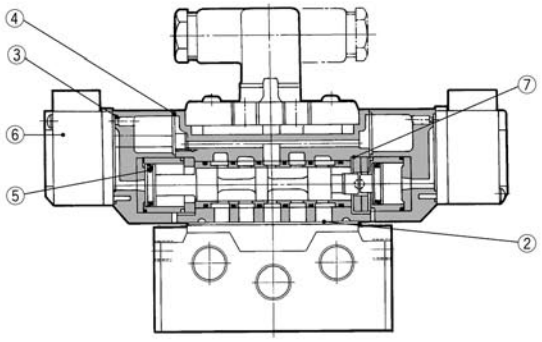
Refer to p.0-36 for flow rate calculation.

Construction

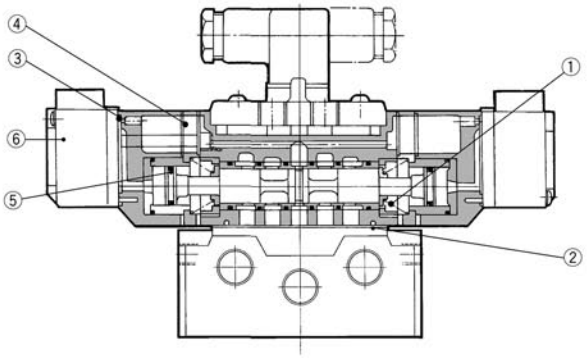
VS7-8-FG-S-□□-Q



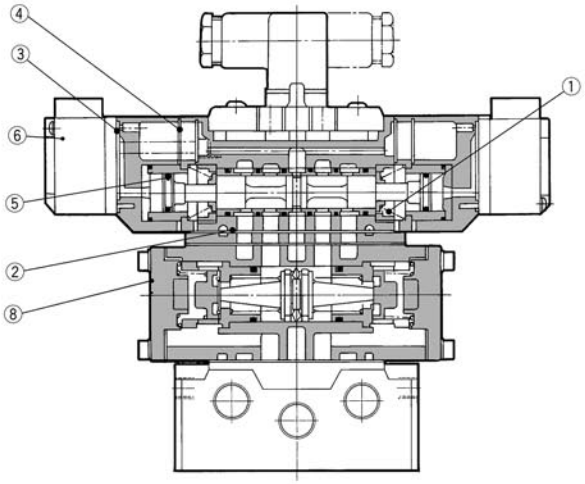
VS7-8-FG-D-□□-Q



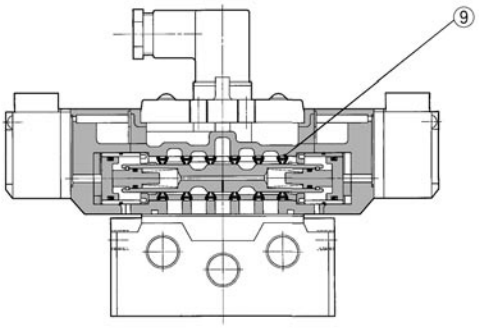
VS7-8-FHG-□□-Q
VS7-8-FJG-□□-Q



VS7-8-FPG-□□-Q



VS7-8-FHG-D-□R-Q

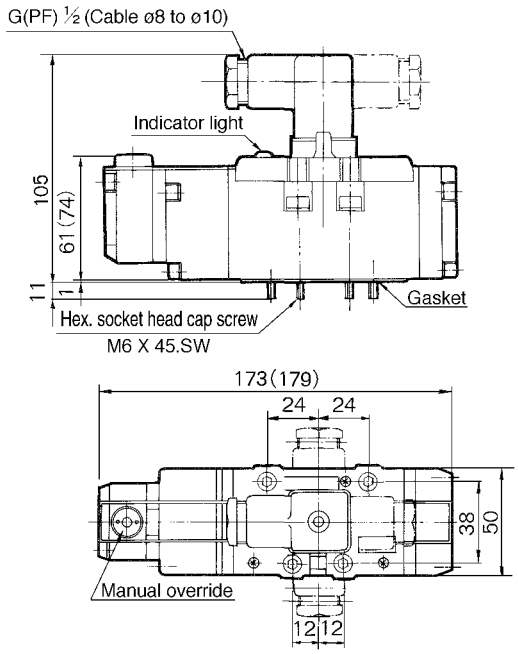


Replacement Parts

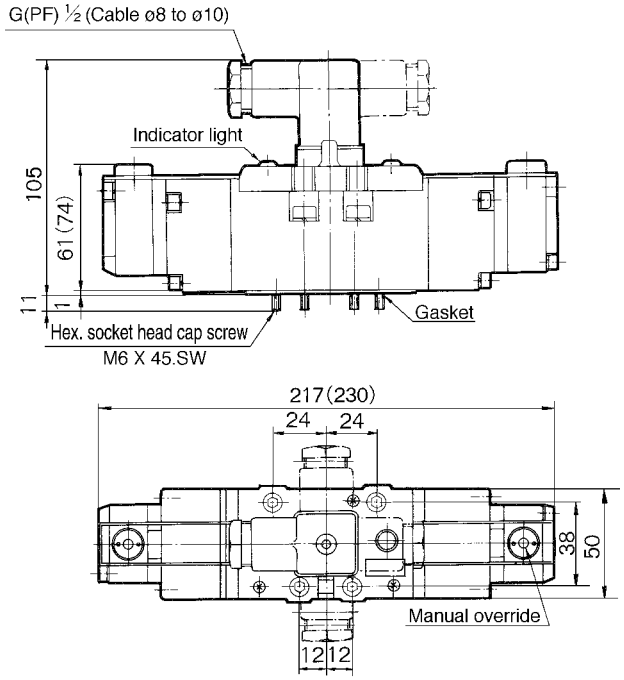
No.	Description	Material	Part No.				
			VS7-8-FG-S	**VS7-8-FG-D**	**VS7-8-FHG**	**VS7-8-FJG**	**VS7-8-FPG**
①	Return spring	SUS	AXT510-12	—	AXT510-21	AXT510-21	AXT510-21
②	Gasket	NBR	AXT510-13	AXT510-13	AXT510-13	AXT510-13	AXT510-13
③	Gasket	NBR	AXT510-14-2	AXT510-14-2	AXT510-14-2	AXT510-14-2	AXT510-14-2
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

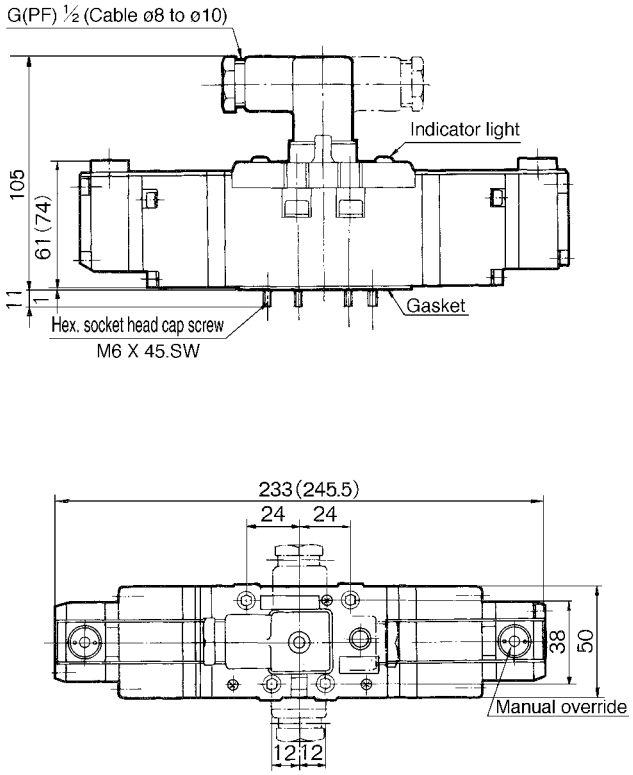
VS7-8-FG-S-□□-Q



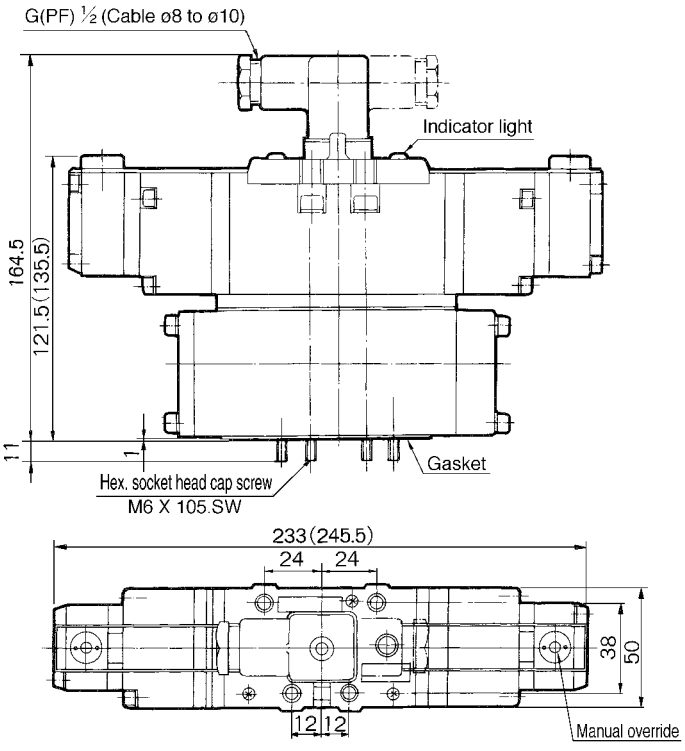
VS7-8-FG-D-□□-Q



VS7-8-FHG-□□-Q
VS7-8-FJG-□□-Q



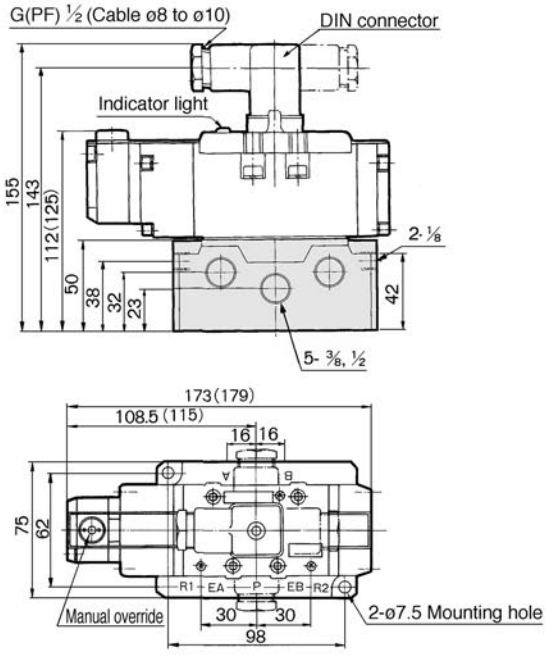
VS7-8-FPG-□□-Q



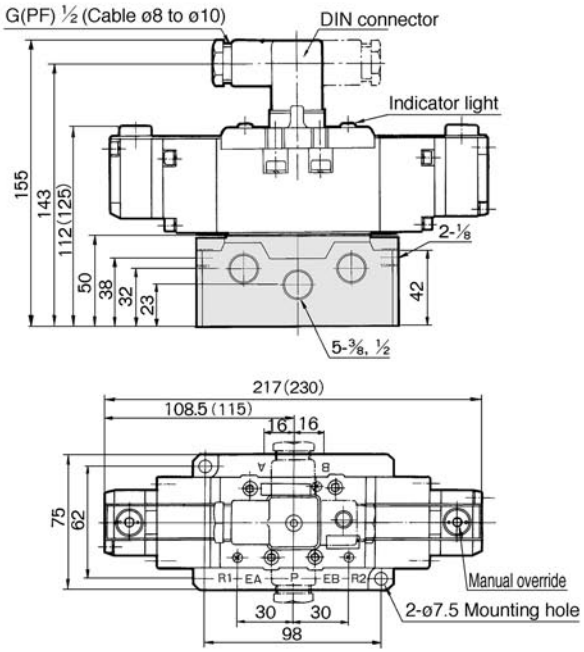
( ): In case of direct manual override style.

Without Sub-plate/Dimensions

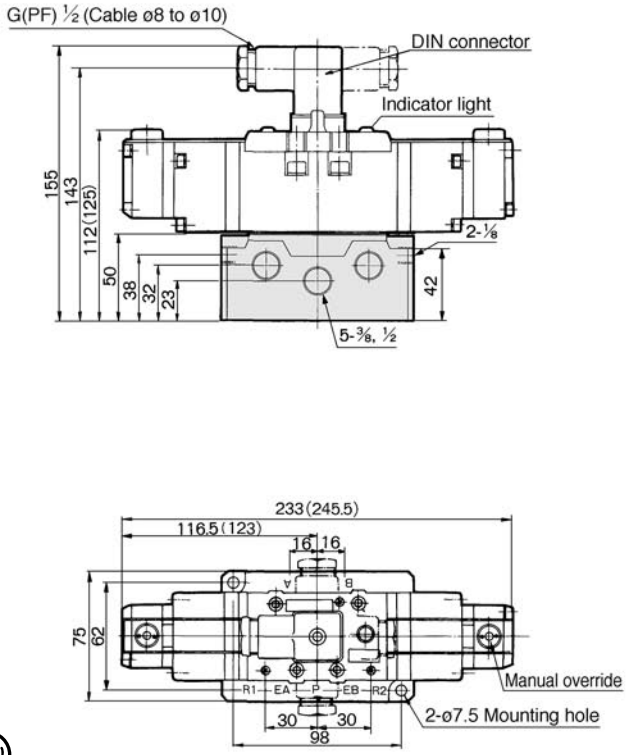
VS7-8-FG-S-□□ Port size of sub-plate -Q



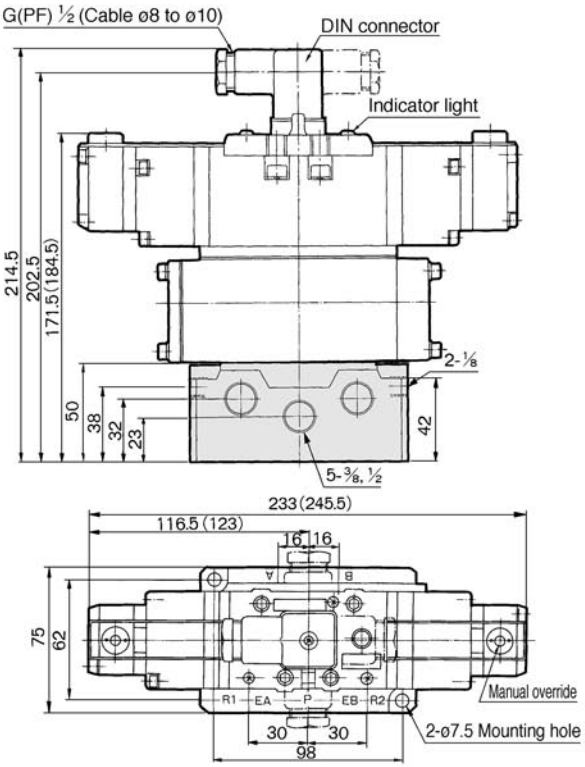
VS7-8-FG-D-□□ Port size of sub-plate -Q



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

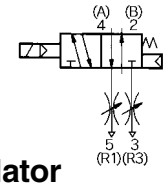


( ): In case of direct manual override style.

Note) Symbol EA and EB correspond to R_1 and R_2 respectively (R_1=EA, R_2=EB)

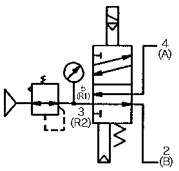
¡Interface Speed Control

Symbol

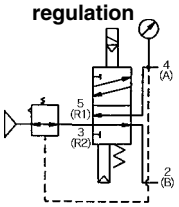


¡Interface Regulator

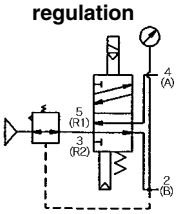
Symbol



P port regulation



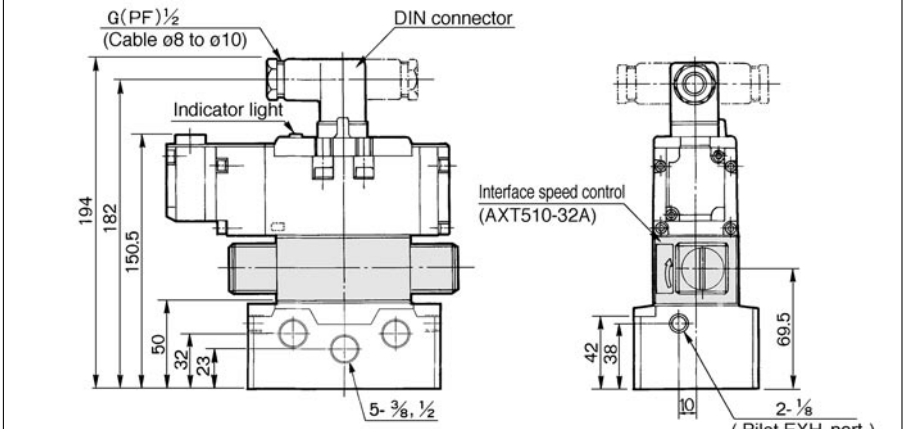
A port regulation



B port regulation

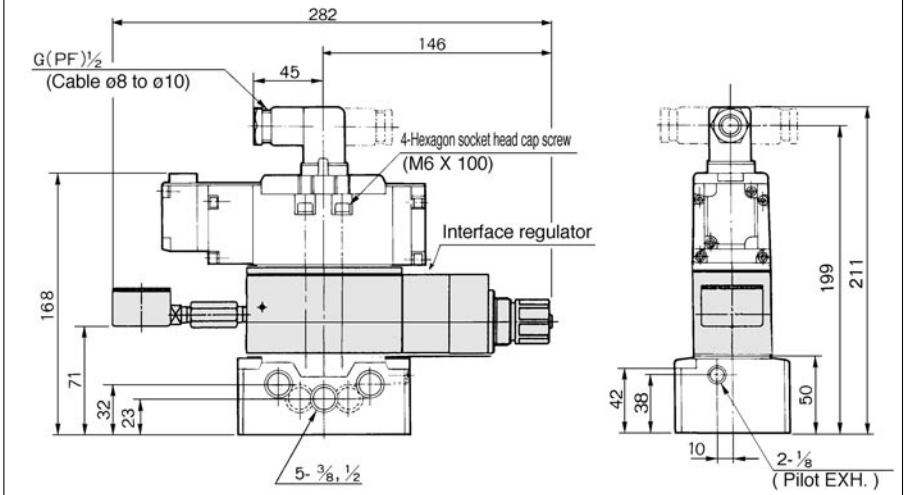
Interface Speed Control/Dimensions

AXT510-32A

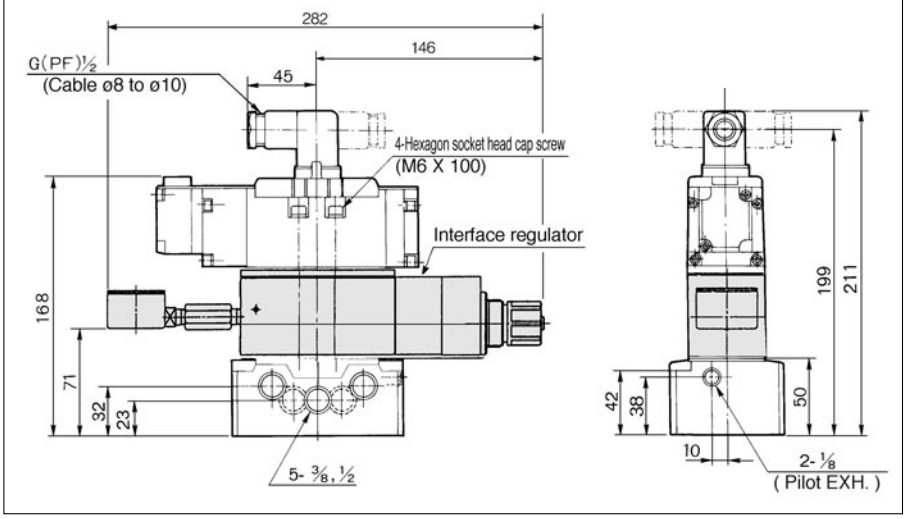


Interface Regulator/Dimensions

P port regulation/ARB350-00-P



A port regulation/ARB350-00-A
B port regulation/ARB350-00-B



Series VS7-8
Sub-plate

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

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

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

Thread

—	Rc (PT)
F	G (PF)
N	NPT
T	NPTF

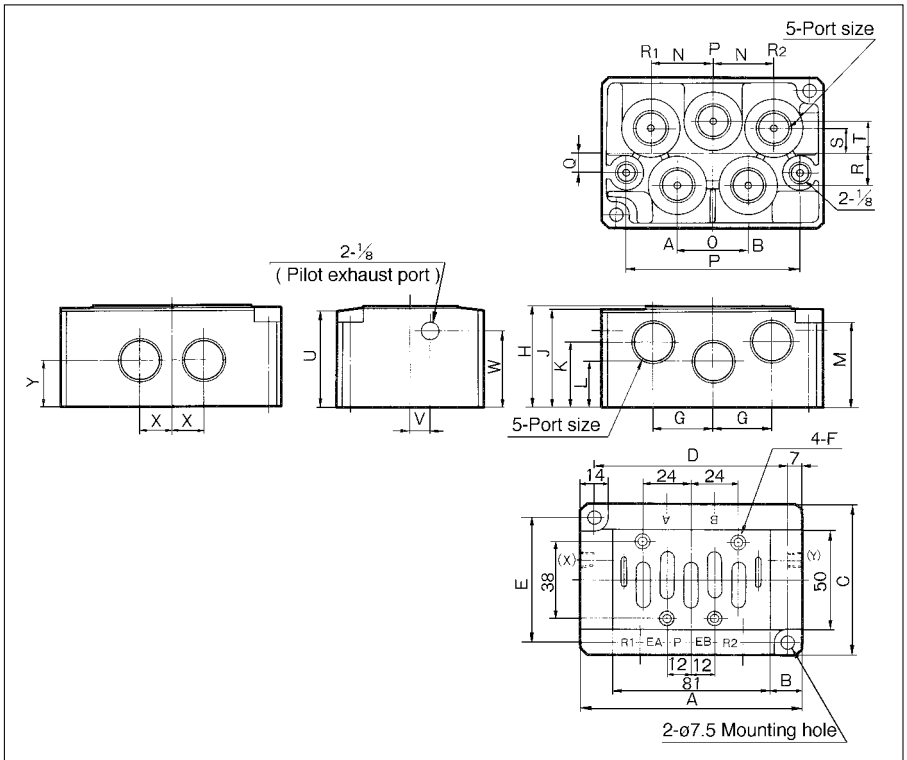
Ordering source area code

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

Note:

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

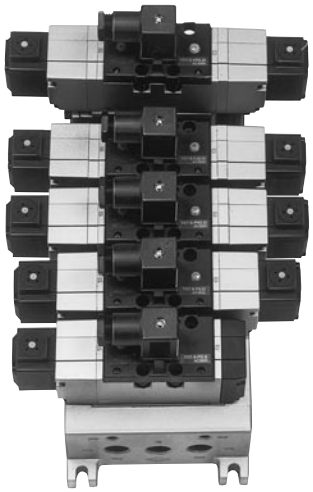
Dimensions

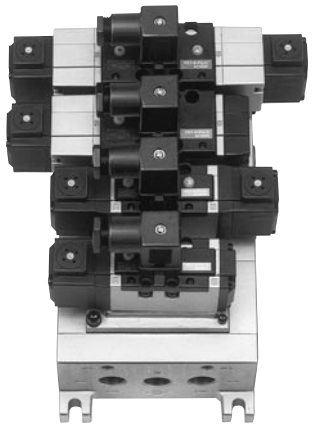


Model \ Symbol	Piping	Port size	A	B	C	D	E	F	G	H	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y
VS7-2- A03 A04	Side	3/8 , 1/2	112	15.5	75	98	62	4-M6 Depth 10	30	50	49	32	23	42	31	36	88	10	16	12	16	47.5	10	38	16	23
VS7-2- B03 B04	Bottom																									
VS7-2-A06	Side	3/4	142	30.5	86	128	72	4-M6 Depth 12	42	63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

Series VS7-8
Manifold

Manifold: Series VV72



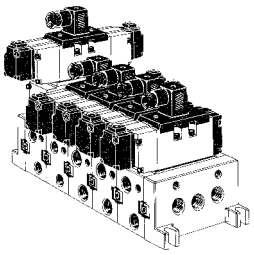


Standard Specifications

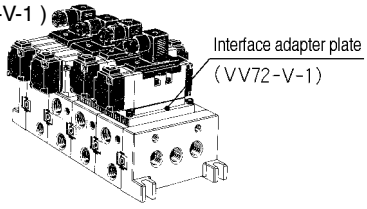
Manifold block size		ISO Size ②
Applicable solenoid valve		Series ISO Size ②
Number of stations		1 to 10*
Piping	A, B-port	3/8, 1/2
	P, R1, R2-port	1/2, 3/4
Individual SUP spacer		VV72-P-□
Individual EXH spacer		VV72-R-□
Gallery blank disc (Differential pressure style)		AXT512-14-1A (for P port)
		AXT512-14-2A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

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

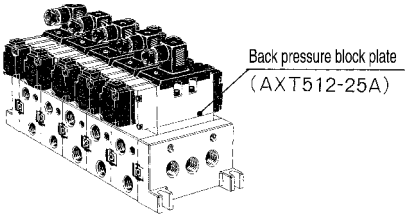
Common EXH Style
Every valve is supplied and exhausted by the same SUP and EXH ports running through the connected manifolds. This is the most popular configuration. When there are 5 or more stations operating simultaneously and pilot back pressure is 0.2kgf/cm² or more, it is recommended that all pilot 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)

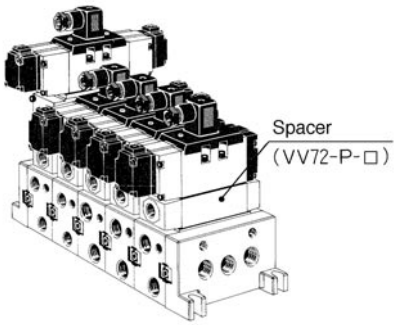


Main EXH Back Pressure Block Style
¡If there are many valve stations operating at the same time and main EXH back pressure may cause trouble, mount back pressure block plate (“AXT503-37A”) to prevent effects of main EXH back pressure.



Individual EXH Style
Every valve has an independent EXH port of its own.
¡An individual EXH spacer (VV72-R-03, 04) mounted on the manifold block allows each valve to exhaust individually.

Individual SUP Style
¡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.
¡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”).

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

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

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

Air release valve

–	Without air release valve
E	With air release valve

Piping/P, R_1, R_2 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_1 and R_2 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)

Order Made Contact SMC for other voltages (9)

Protective class class I (Mark: ⏚)

Note) Manifold exploded view see page 1.19-34

Ordering source area code

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

Option

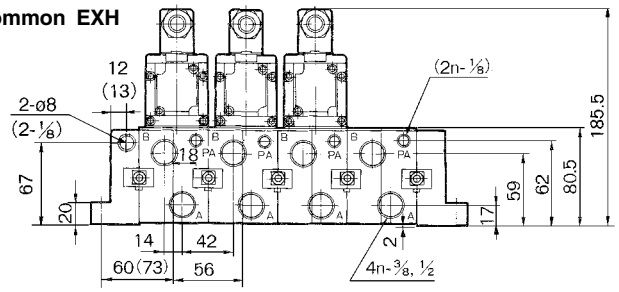
Blank plate		AXT512-9A
		AXT512-18A (for air release valve adaptor plate)
Air release valve adaptor plate		AXT512-17A
Interface regulator	Relief style	ARB350-00- P (P port reguralation) A (A port reguralation) B (B port reguralation)
Interface for reverse pressure		AXT512-19A-1 3/8 AXT512-19A-2 1/2
R_1, R_2 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

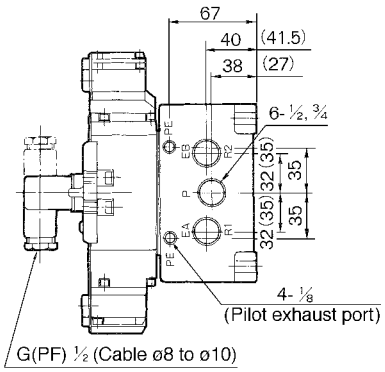
Manifold/Dimensions

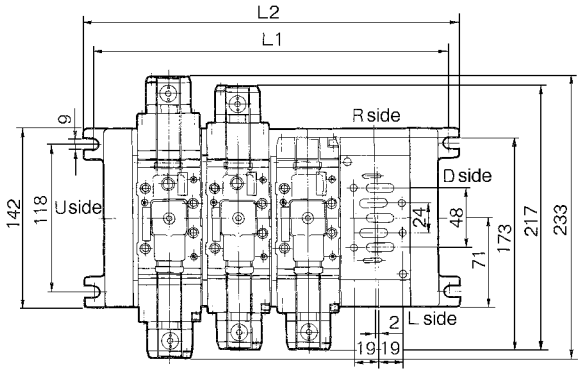
L: Dimensions

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

Common EXH

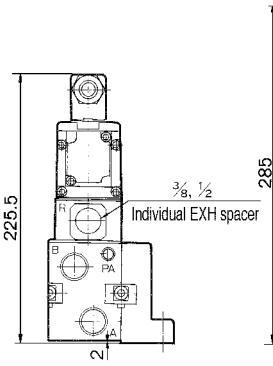




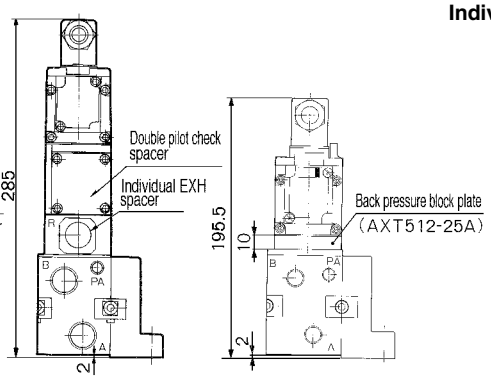


( ): In case of direct manual override style.

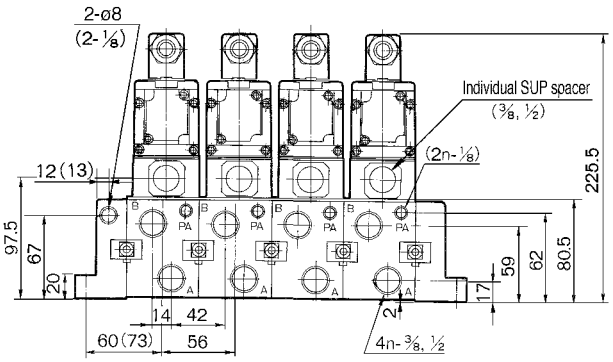
Individual SUP

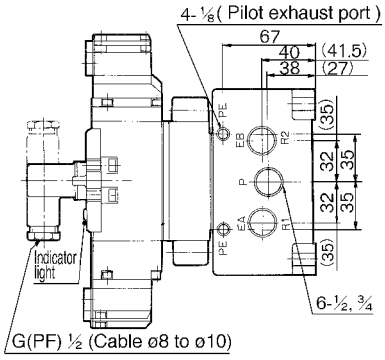


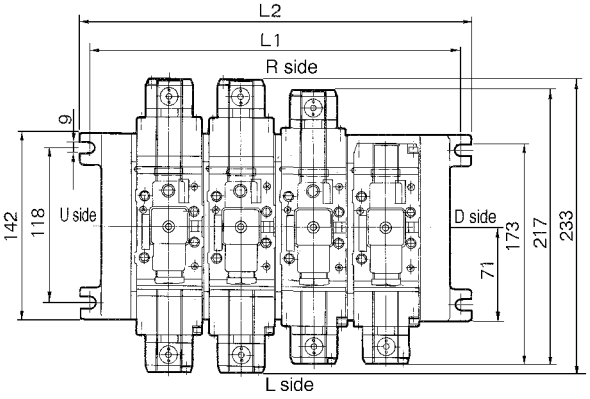
Individual EXH



Double pilot check







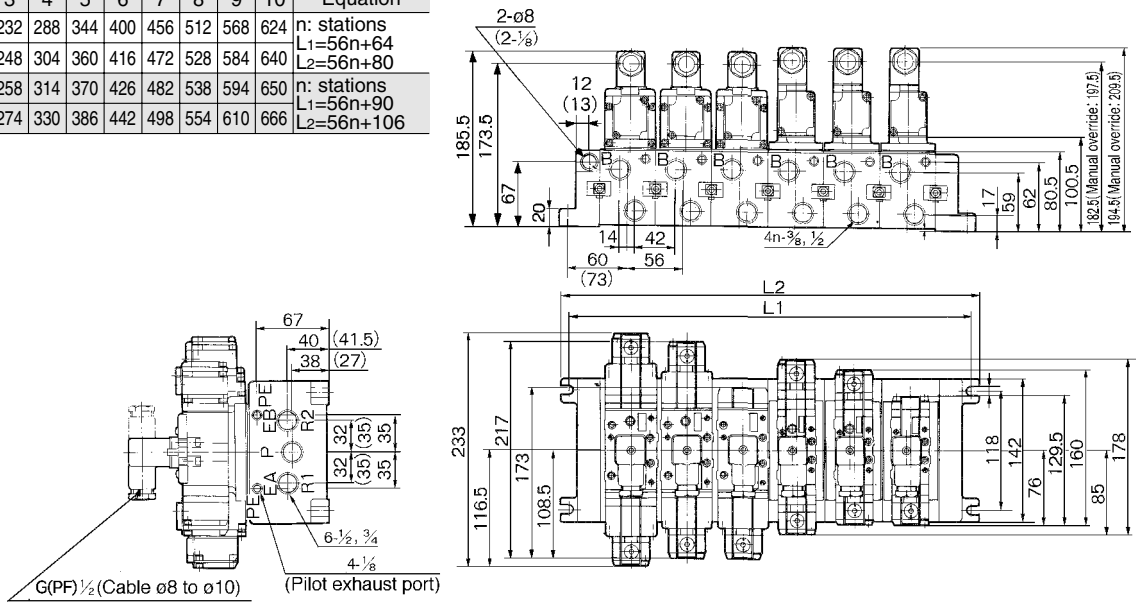
( ): In case of direct manual override style.

Manifold/Dimensions

L: Dimensions

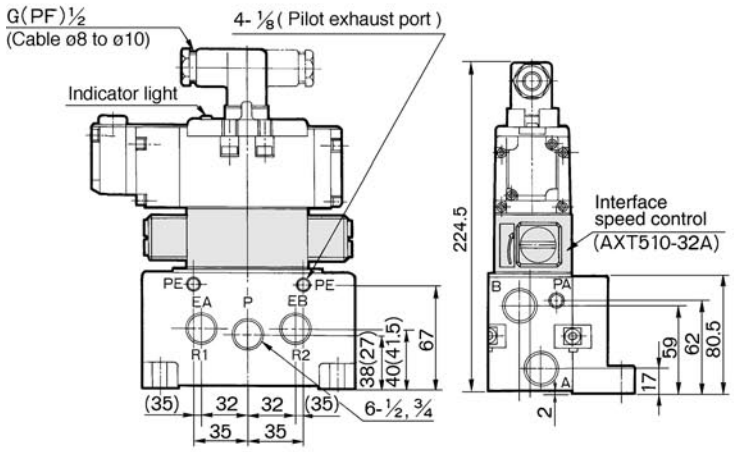
Size	L \ n	1	2	3	4	5	6	7	8	9	10	Equation
½	L1	120	176	232	288	344	400	456	512	568	624	n: stations L1=56n+64
	L2	136	192	248	304	360	416	472	528	584	640	L2=56n+80
¾	L1	146	202	258	314	370	426	482	538	594	650	n: stations L1=56n+90
	L2	162	218	274	330	386	442	498	554	610	666	L2=56n+106

V Type

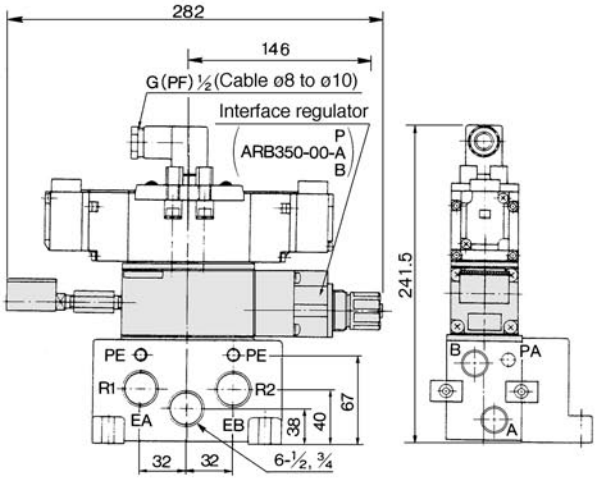


( ): In case of direct manual override style.

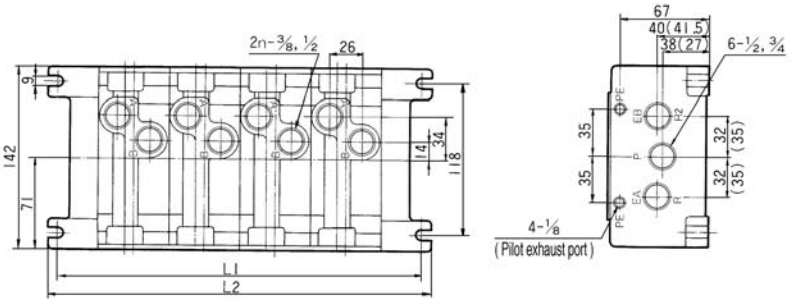
Interface Speed Control



Interface Regulator



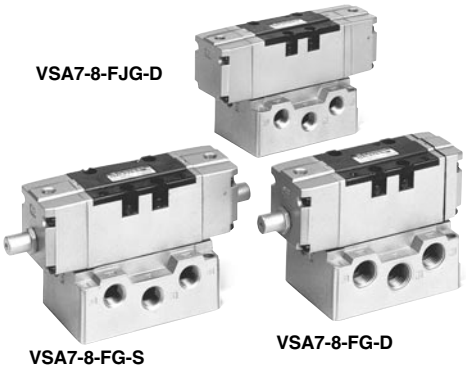
Bottom Piping

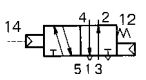
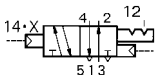
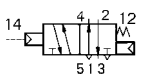


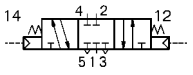
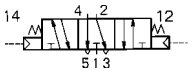
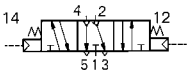
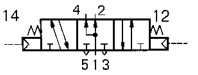
( ): In case of direct manual override style.

Air Operated/SIZE①②

Series VSA7-6/VSA7-8



	Single (FG-S)	Double (FG-D)	Reverse pressure* (YZ-S)
2 position			

	Closed centre (FHG-D)	Exhaust centre (FJG-D)	Double pilot check (FPG-D)	Pressure centre* (FIG-D)
3 position				

* Option

Specifications

Fluid		Air/Inert gas
Max. operating pressure		1.0MPa
Min. operating pressure (3)	YZ-S, FG-S (1)	0.1MPa
	Others	0MPa
Proof pressure		1.5MPa
Ambient and fluid temperature		–10 to –60°C (2)
Lubrication		Not required.
Shock/Vibration resistance (4)		150/50m/s²
Enclosure		Dust proof
Manual override		Non-locking push style (Option)
Pilot air pressure (3)		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 (mm²)(N ℓ/min)
Size ① Series VSA 7-6	2 (Single)	**VSA7-6-FG-S**	27 (1472.25)
	2 (Double)	**VSA7-6-FG-D**	27 (1472.25)
	3 (Closed)	**VSA7-6-FHG-D**	25.5 (1374.10)
	3 (Exhaust)	**VSA7-6-FJG-D**	27 (1472.25)
	3 (Pilot check)	**VSA7-6-FPG-D**	20 (1079.65)
	3 (Pressure)	**VSA7-6-FIG-D**	25.5 (1374.10)
	2 (Reverse pressure)	**VSA7-6-YZ-S**	27 (1472.25)

	No. of positions	Model	Effective area (mm²)(N ℓ/min)
Size ② Series VSA 7-8	2 (Single)	**VSA7-8-FG-S**	58(3140.80)
	2 (Double)	**VSA7-8-FG-D**	58(3140.80)
	3 (Closed)	**VSA7-8-FHG-D**	58(3140.80)
	3 (Exhaust)	**VSA7-8-FJG-D**	58(3140.80)
	3 (Pilot check)	**VSA7-8-FPG-D**	40(2159.30)
	3 (Pressure)	**VSA7-8-FIG-D**	58(3140.80)
	2 (Reverse pressure)	**VSA7-8-YZ-S**	58(3140.80)

How to Order

E VSA7 – 6 – FG – D – 1 ☐ A03 ☐

Thread

–	Rc (PT)
F	G (PF)
N	NPT
T	NPTF

Ordering source area code

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

Body size

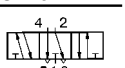
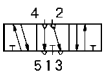
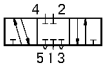
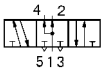
6	SIZE①
8	SIZE②

Port size

Symbol	Size①Series VSA 7-6	Size②Series 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

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)

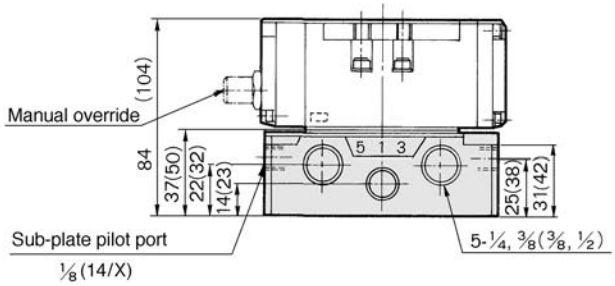
Option (Manual override)

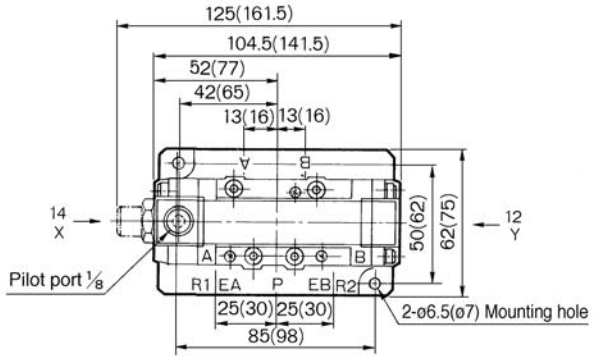
—	Without manual override
M	With manual override

Air Operated/Dimensions

SIZE① VSA7-6-FG/YG-S-□□-□

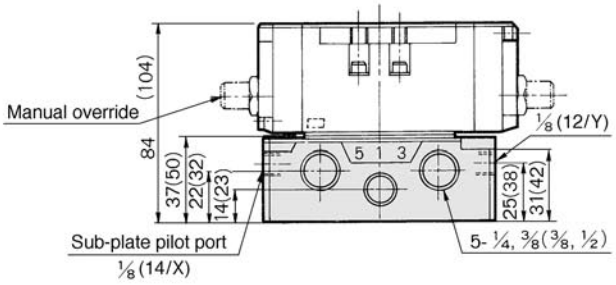
SIZE② VSA7-8-FG/YG-S-□□-□

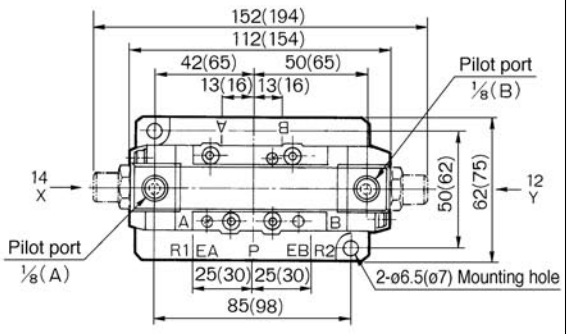




SIZE① VSA7-6-FG-D-□□-□

SIZE② VSA7-8-FG-D-□□-□

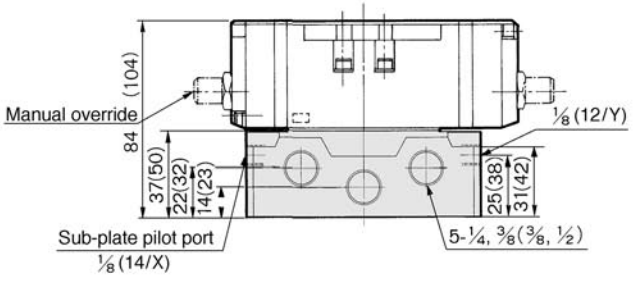


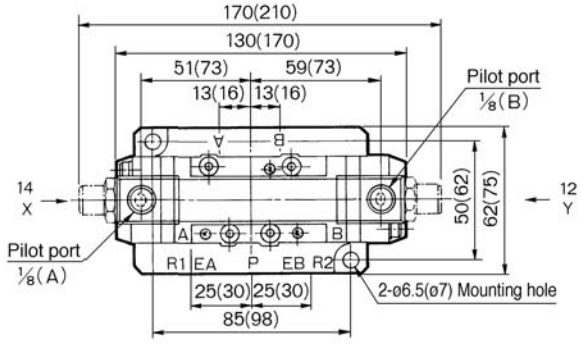


( ): In case of VSA7-8

SIZE① VSA7-6-FHG/FJG/FIG-□□-□

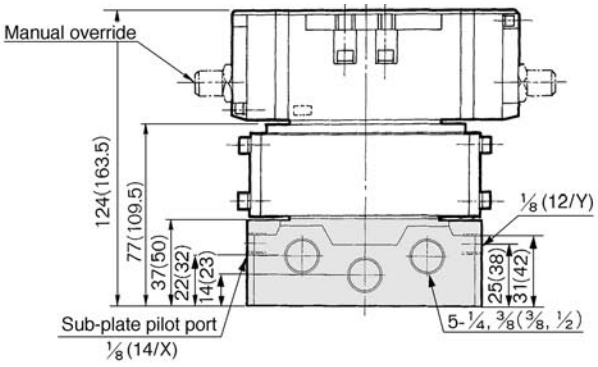
SIZE② VSA7-8-FHG/FJG/FIG-□□-□

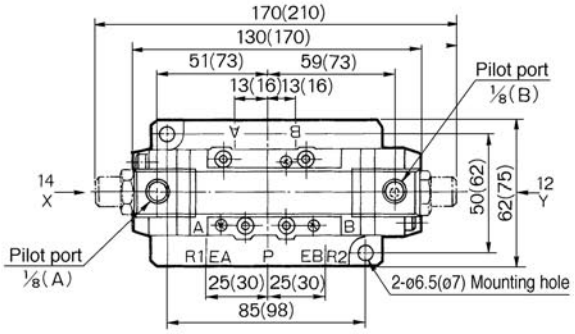




SIZE① VSA7-6-FPG-FPG-□□-□

SIZE② VSA7-8-FPG-FPG-□□-□



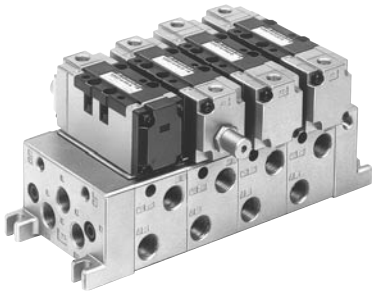


( ): In case of VSA7-8

Manual override

Air Operated: SIZE①
Manifold

Manifold: Series VVA71



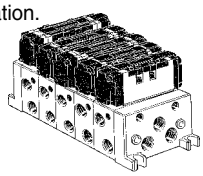
Standard Specifications

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	3/8One-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.

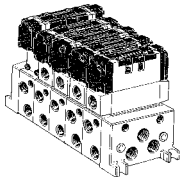


Multiple Pressure SUP Style
Allows supply of 2 or more different levels of pressures to one manifold.
¡Put in a gallery blank disc (AXT502-14) between the stations to operate at different pressures. A dual pressure supply can be applied to both the left and right sides of the manifold. If 3 or more pressures 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)

Pilot supply port

1	Valve body side	Pilot port
2	Manifold block side	Pilot port

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.

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

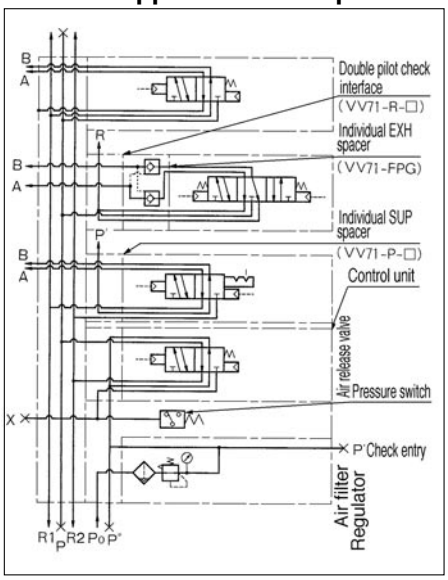
* * Indicate piping specifications.

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



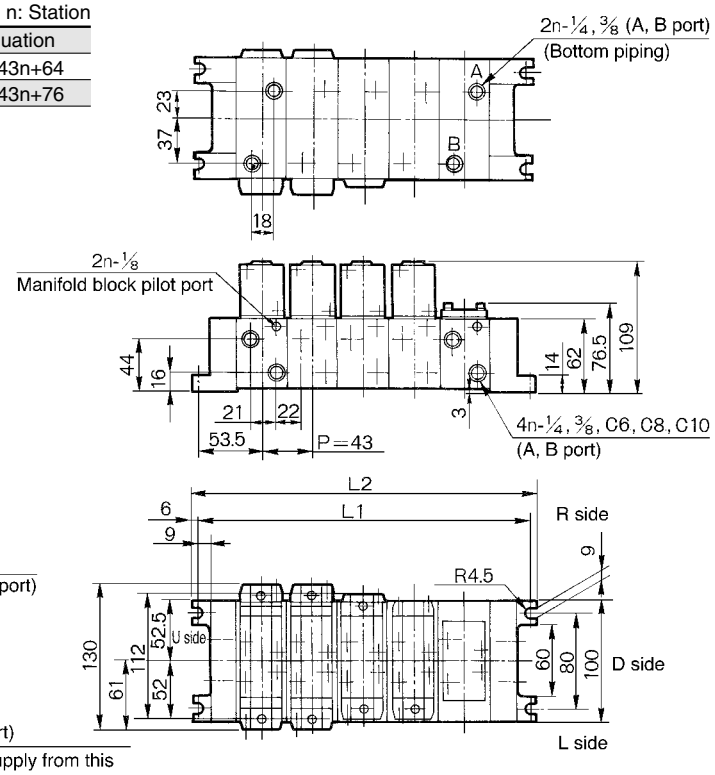
Manifold/Dimensions

L: Dimensions

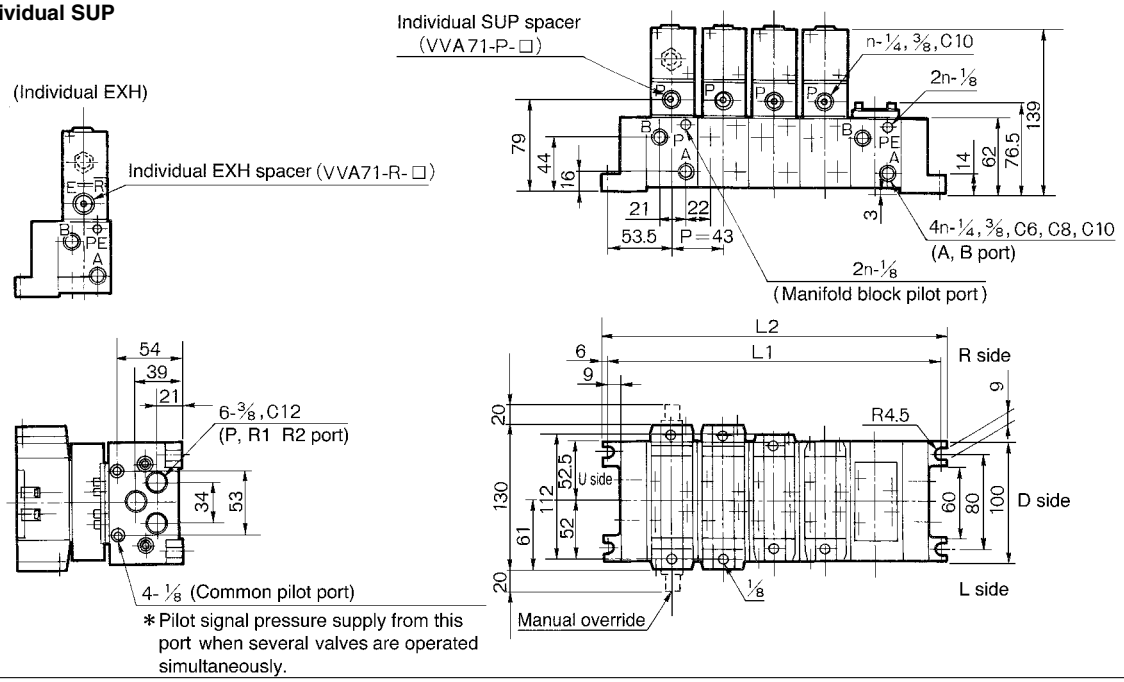
n: Station

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

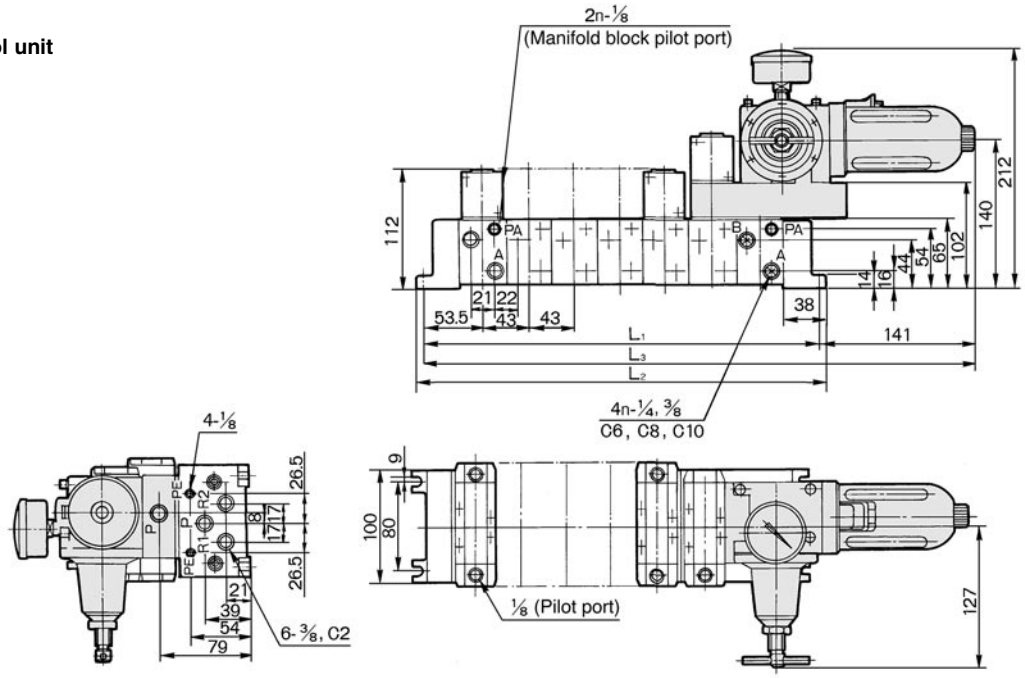


Individual SUP



Manifold/Dimensions

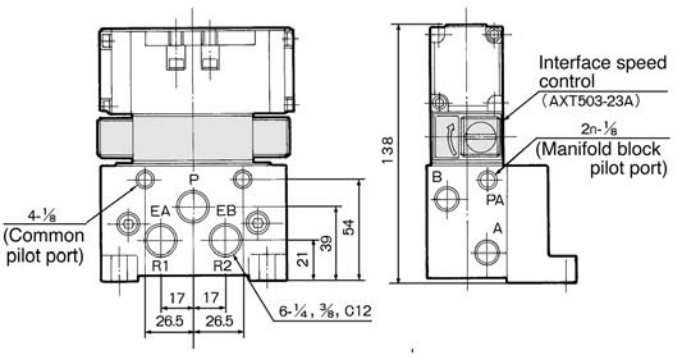
Control unit



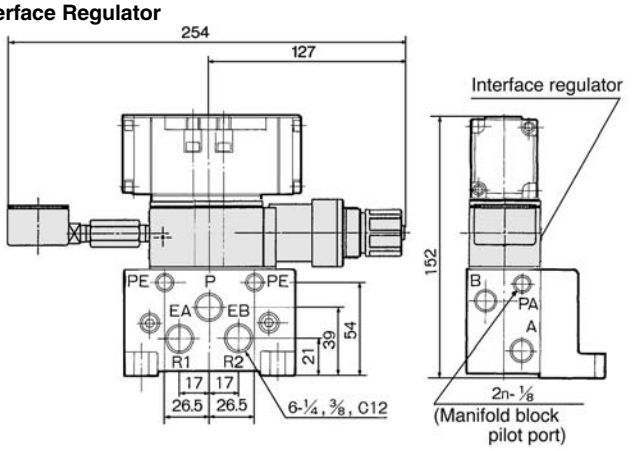
L: Dimensions n: Station

L \ n	2	3	4	5	6	7	8	9	10	Equation
L_1	150	193	236	279	322	365	408	451	494	L_1=43n+64
L_2	162	205	248	291	334	377	420	463	506	L_2=43n+76
L_3	297	340	383	426	469	512	555	598	641	L_3=43n+211

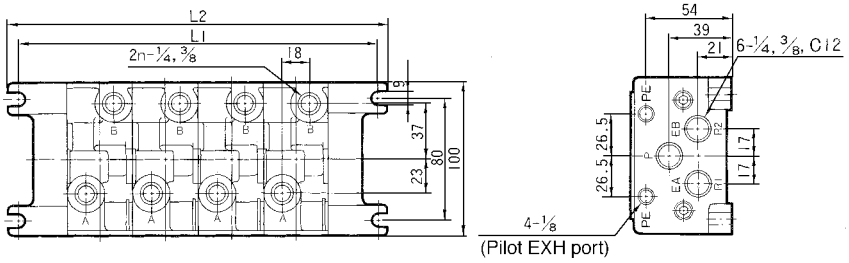
Interface Speed Control



Interface Regulator

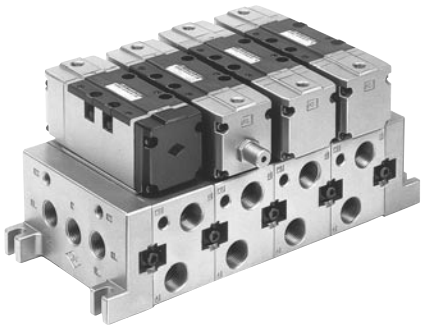


Bottom Piping



Air Operated: SIZE②
Manifold

Manifold: Series VVA72



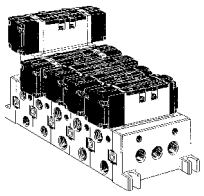
Standard Specifications

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).

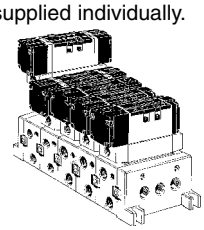
The manifold Series VVA72□ has a wide variety of functions and piping, compatible with virtually any application.

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.

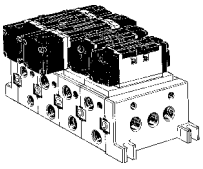


Individual EXH Style
¡An individual EXH spacer (VVA72-R-03/04) mounted on the manifold block allows each valve to exhaust individually.

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.

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*

Pilot supply port

1	Valve body side	Pilot port
2	Manifold block side	Pilot port

* Indicates pilot supply port.
1 VSA7-6-FG-S-1
2 VSA7-6-FG-S-2

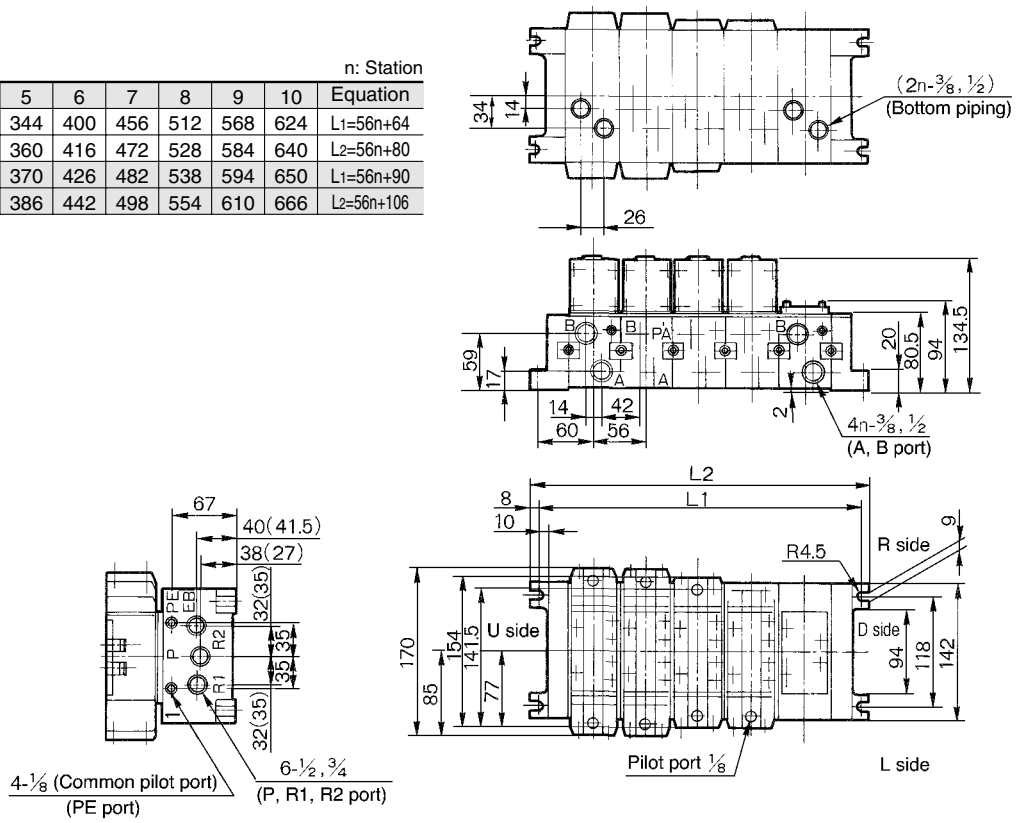
Manifold/Dimensions

L: Dimensions

n: Station

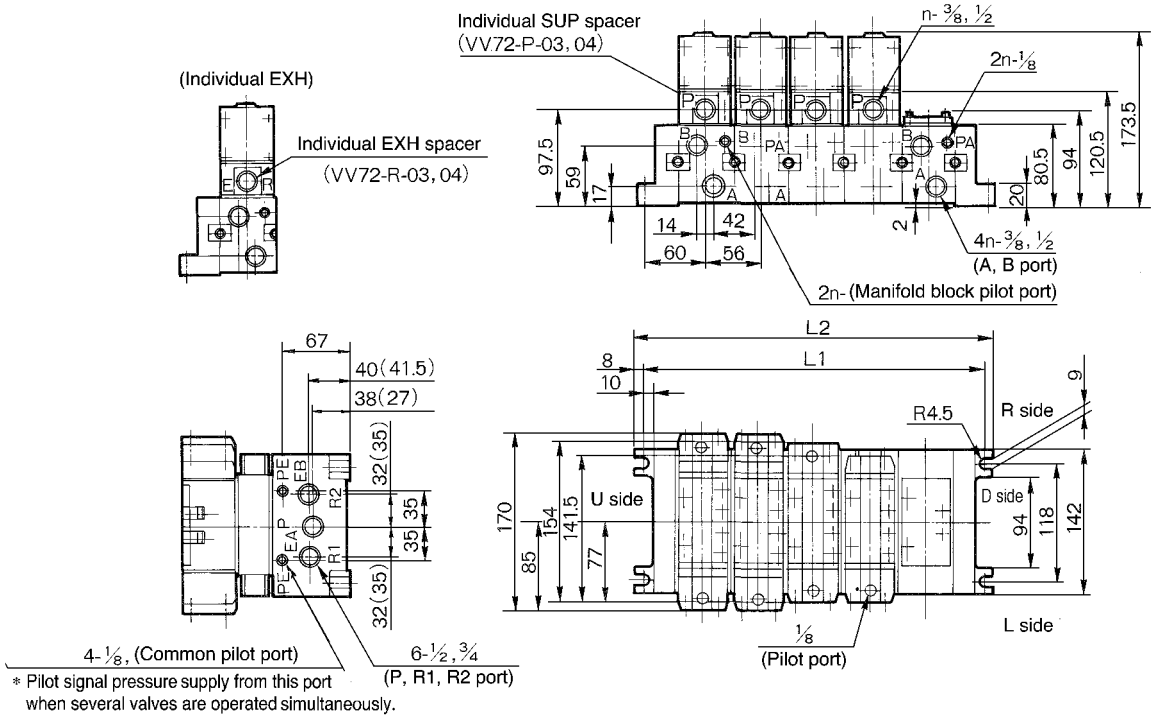
Size	L \ n	2	3	4	5	6	7	8	9	10	Equation
1/2	L1	176	232	288	344	400	456	512	568	624	L1=56n+64
	L2	192	248	304	360	416	472	528	584	640	L2=56n+80
3/4	L1	202	258	314	370	426	482	538	594	650	L1=56n+90
	L2	218	274	330	386	442	498	554	610	666	L2=56n+106

Common EXH



( ): 3/4

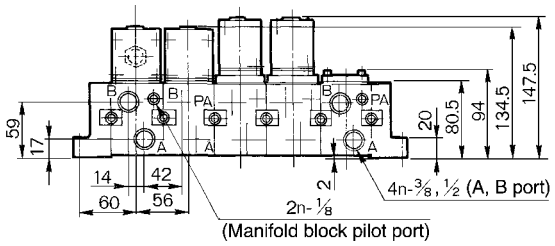
Individual SUP

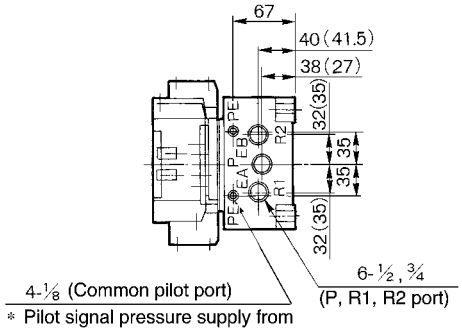


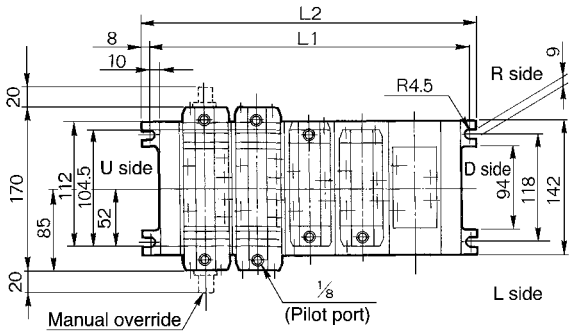
( ): 3/4

Manifold/Dimensions

V Type





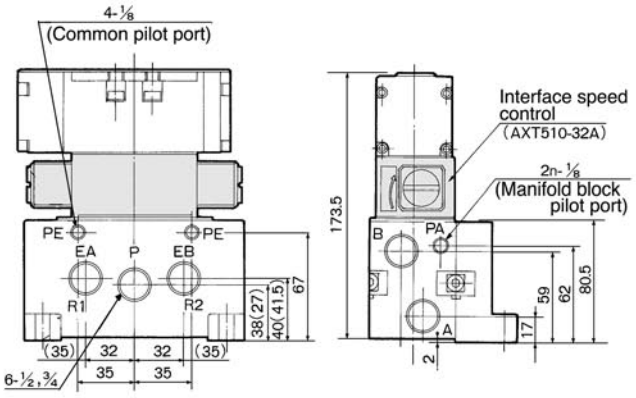


( ): 3/4

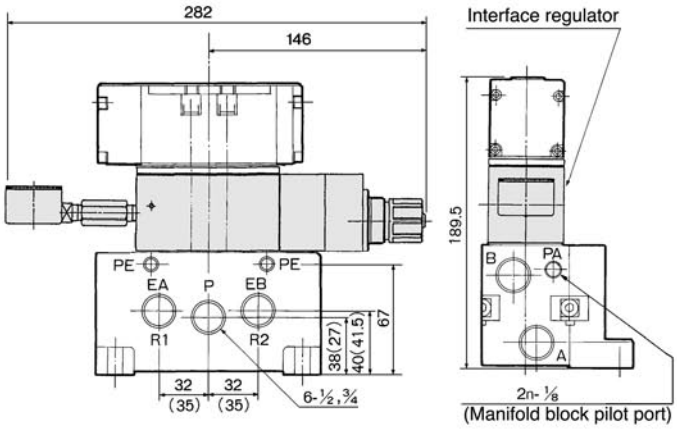
L: Dimensions n: Station

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

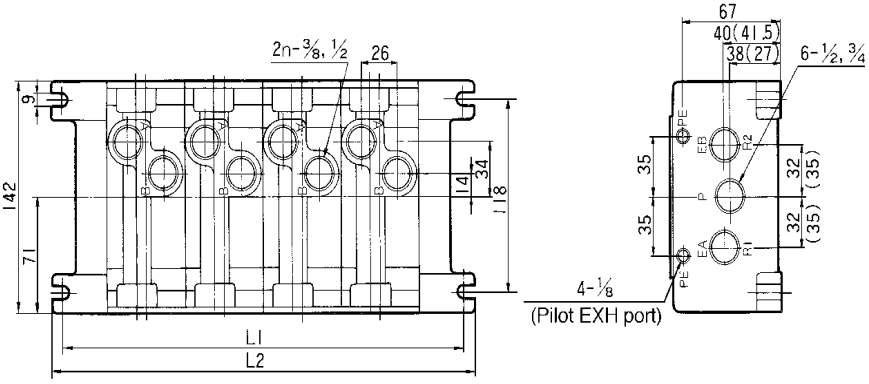
Interface Speed Control



Interface Regulator



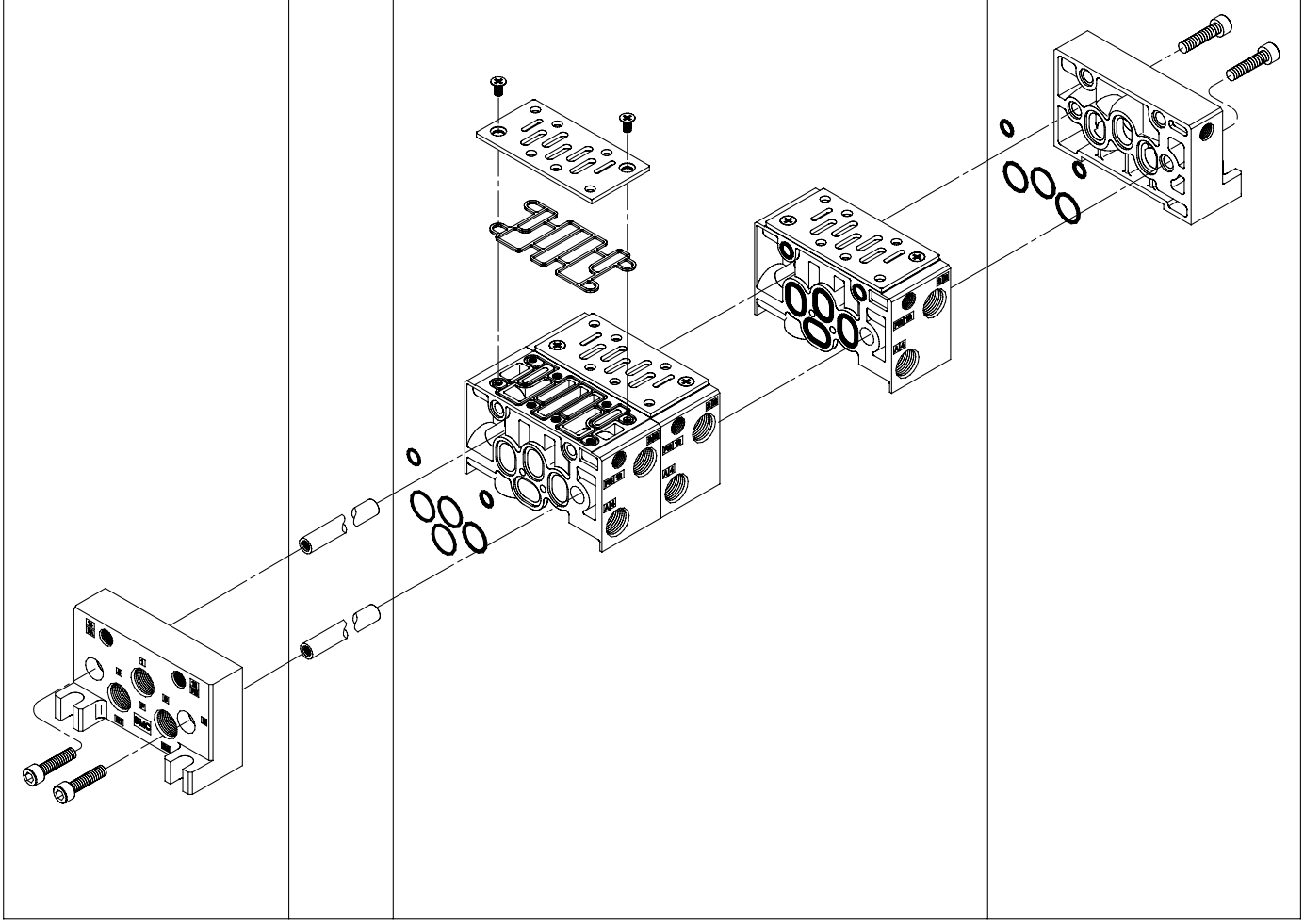
Bottom Piping



( ): 3/4

Manifold Exploded View VS7-6

D side end plate assembly	Tension bolt	Manifold block assembly	U side end plate assembly



< End plate assembly >

E AXT502 – □ A – □

End plate position

L	L side
R	R side

Ordering source area code

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

P, R port size

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

<Tension bolt part number >

AXT502 – 34 – □

Number of stations

2	For 2 stations
3	For 3 stations
⋮	⋮
10	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 – □ □ – □

Wiring 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

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

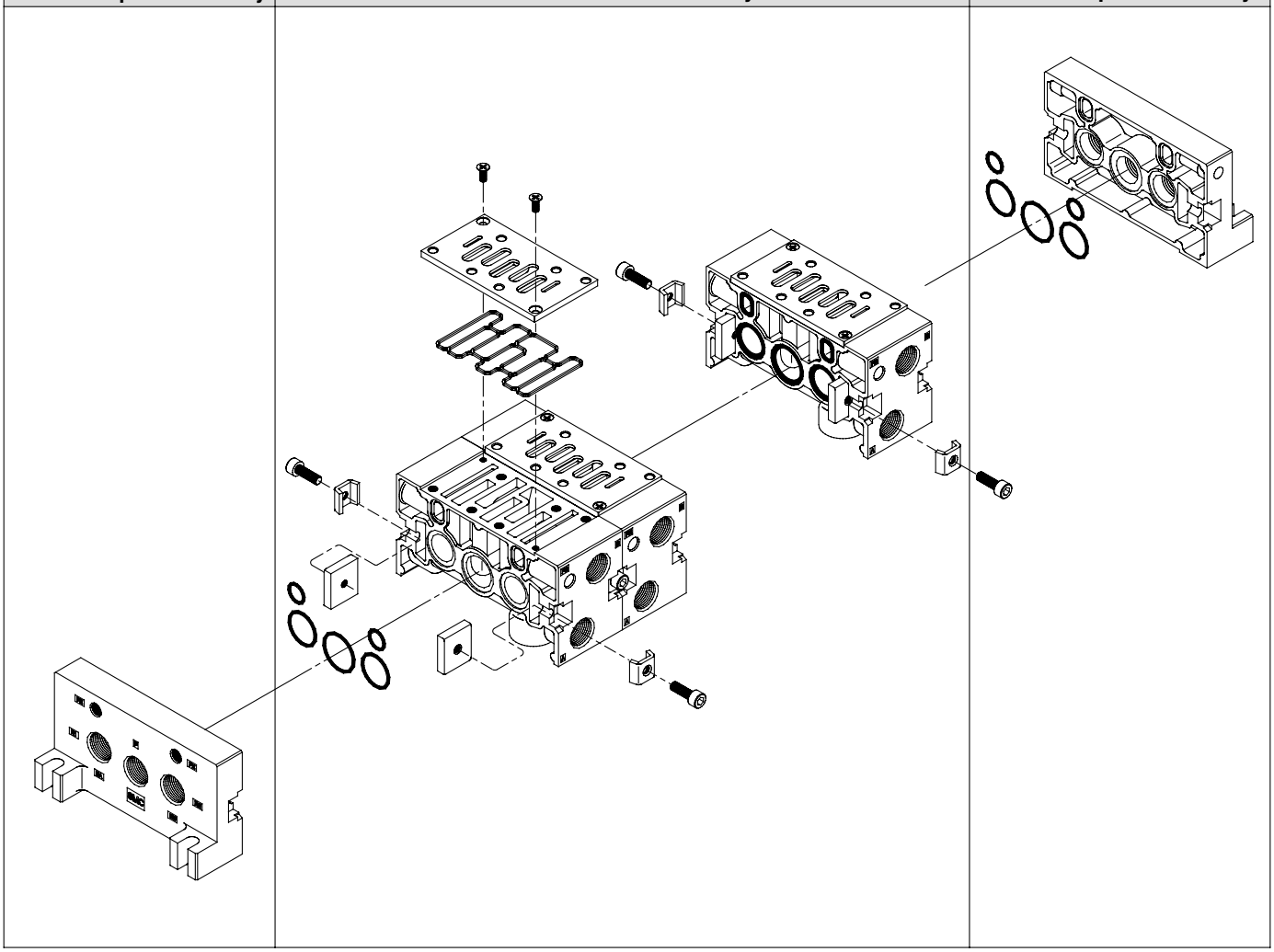
Note 1) Side ported only

< 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

Manifold Exploded View VS7-8

D side end plate assembly	Manifold block assembly	U side end plate assembly



< End plate assembly >

E AXT512 – □ 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 – □ □ – □

Wiring specification

A	Side
B	Bottom

Cylinder port position

L	L side
R	R side

Cylinder port size

03	3/8
04	1/2

Ordering source area code

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

< 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	

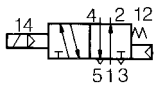
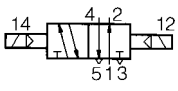
ISO CNOMO Standard Solenoid Valve
Metal Seal - SIZES①②③
Series VS7–6•8•10

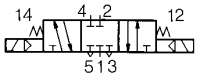
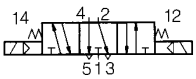
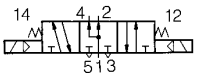
VS7–6–□□□□
Size ①

VS7–8–□□□□
Size ②

VS7–10–□□□□
Size ③

- **Solenoid interface conforms to CNOMO.**
- **Manifold interface to ISO standards.**
- **Low power consuption: 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.**

	Single solenoid (FG-S)	Double solenoids (FG-D)
2 position		

	Closed centre (FHG-D)	Exhaust centre (FJG-D)	Pressure centre (FIG-D)
3 position			

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)
Enviromental protection rating			IP65
Shock/Vibration resistance			300/50m/s^2

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.)

Pilot Valve Specifications

Rated voltage (V)		100V AC 50/60Hz, 200V AC 50/60Hz, 24V DC, 12V DC
Power comsuption	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)
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

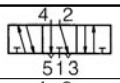
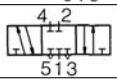
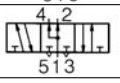
How to Order Valve

EVS7 – 6 – FG – S – 3 CV – Q

Size

6	ISO 1
8	ISO 2
10	ISO 3

Configuration

FG		FJG	
FHG		FIG	

Solenoid

S	Single
D	Double

Voltage

5	110V AC, 50/60Hz
6	220V AC, 50/60Hz
3	24V DC
4	12V DC
9	Others (250V or less)

Order Made Contact SMC for other voltages (9)

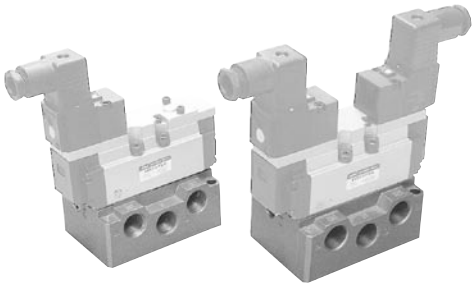
How to Order Sub-plate - Size ①

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



E VS7 – 1 – A02 □

Thread

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

Ordering source area code

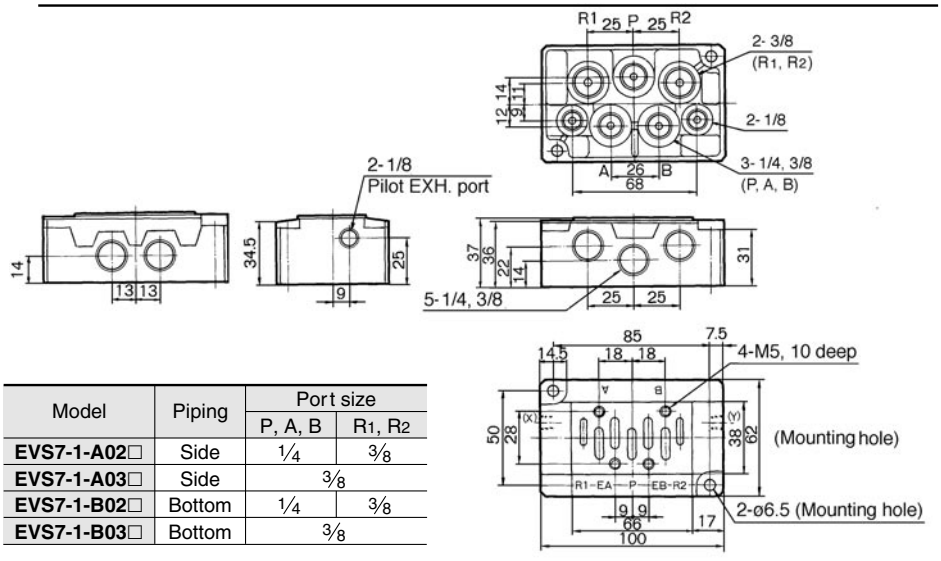
Code	areas
-	Japan, Asia Australia
E	Europe
N	North America

Piping and port size

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

*R port: 3/8

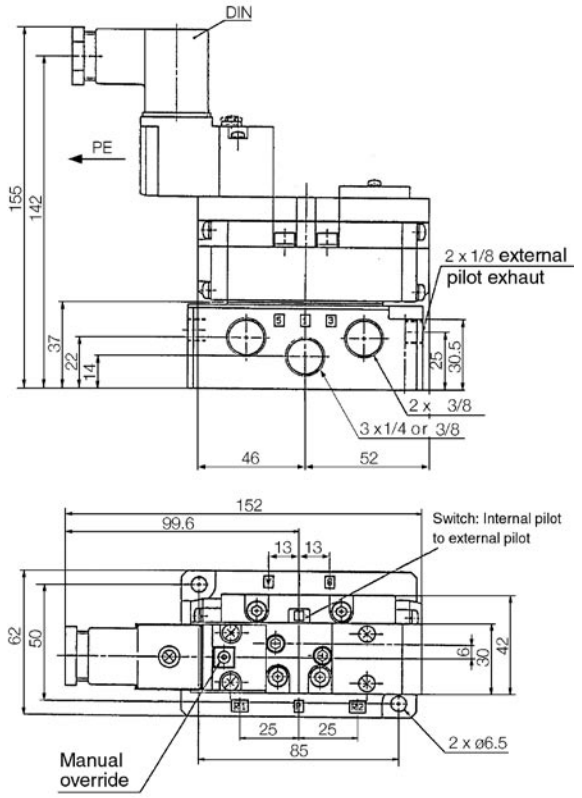
Dimensions



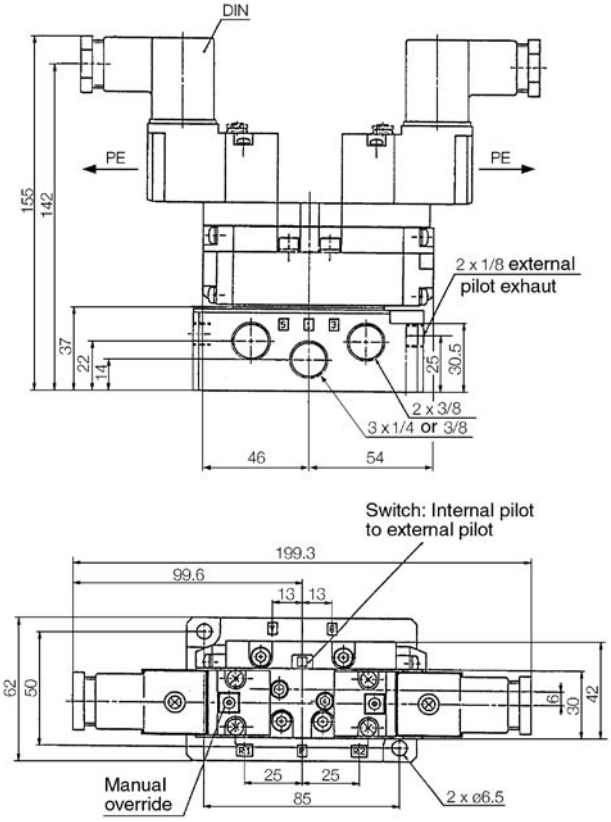
Model	Piping	Port size	
		P, A, B	R1, R2
EVS7-1-A02□	Side	1/4	3/8
EVS7-1-A03□	Side	3/8	
EVS7-1-B02□	Bottom	1/4	3/8
EVS7-1-B03□	Bottom	3/8	

Dimemsions with Sub-plate - Size ①

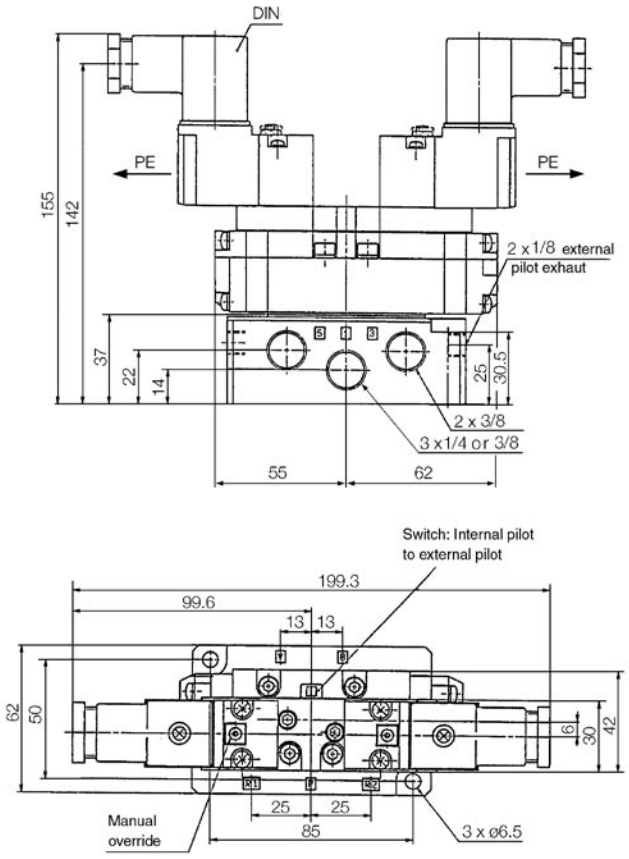
EVS7–6–FG–S–□CV–Q



EVS7–6–FG–D–□CV–Q



EVS7–6–FHG–D–□CV–Q • EVS7–6–FJG–D–□CV–Q • EVS7–6–FIG–D–□CV–Q



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

E VS7−2− A03 □

Thread

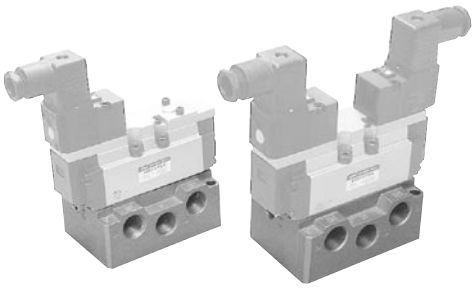
-	Rc(PT)
F	G(PF)
N	NPT
T	NPTF

Ordering source area code

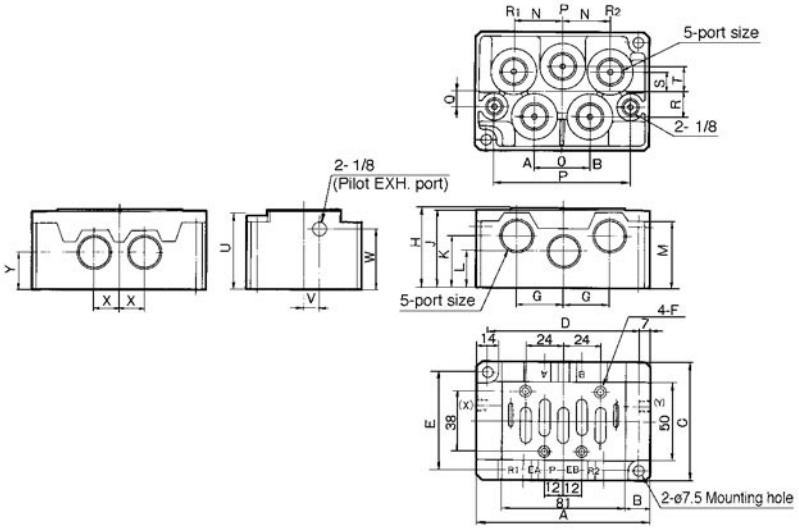
Code	areas
-	Japan, Asia Australia
E	Europe
N	North America

Piping and Port size

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



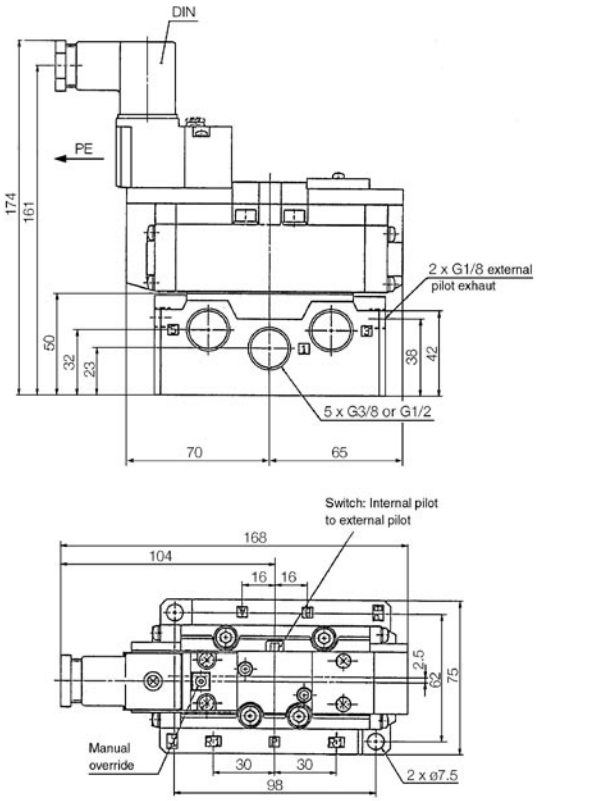
Dimensions



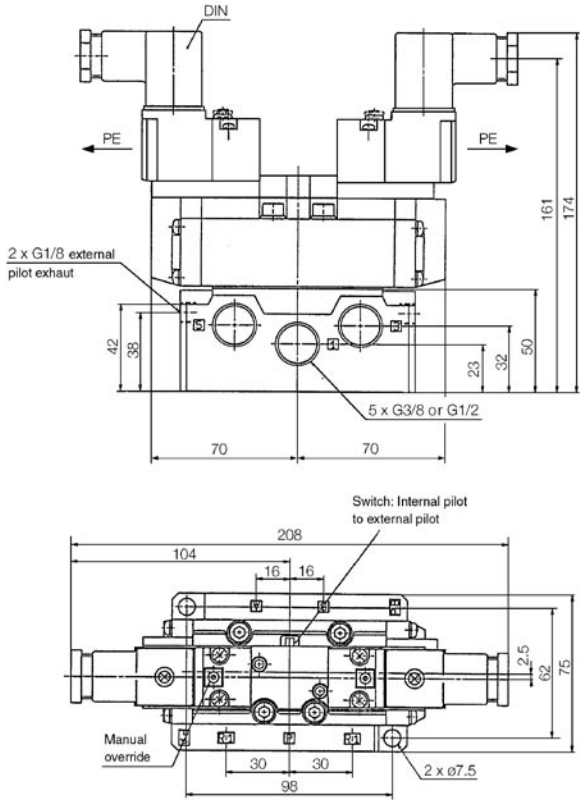
	Piping	Port size	A	B	C	D	E	F	G	H	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y
EVS7-2-A03 A04□	Side	3/8, 1/2	112	15.5	75	98	62	4-M6, 12 Deep	30	50	49	32	23	42	31	36	88	10	16	12	16	47.5	10	38	16	23
EVS7-2-B03 B04□	Bottom																									
EVS7-2-A06□	Side	3/4	142	30.5	86	128	72	4-M6, 12 Deep	42	63	62	42	30	55	42	40	116	11	22	16	23	60	11	53	20	30
EVS7-2-B06□	Bottom																									

Dimemsions with Sub-plate - Size ②

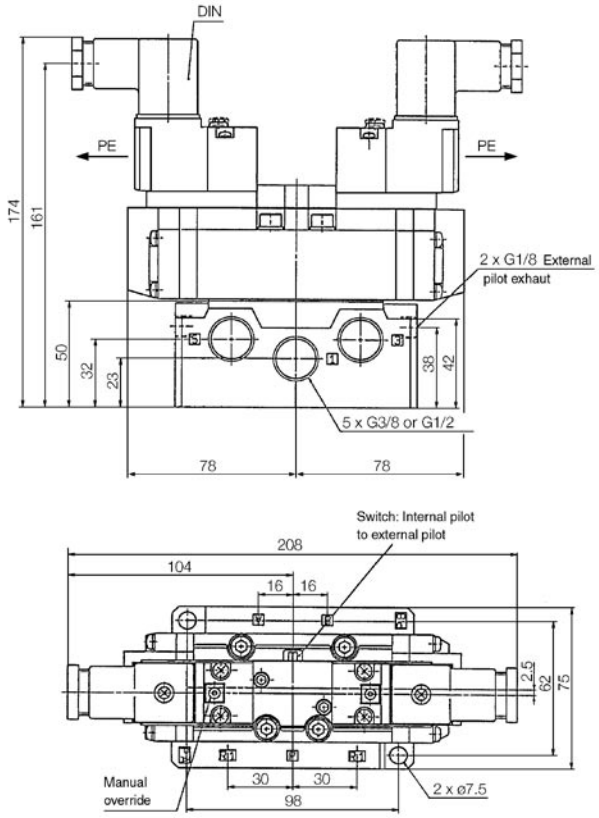
EVS7–8–FG–S–□CV–Q



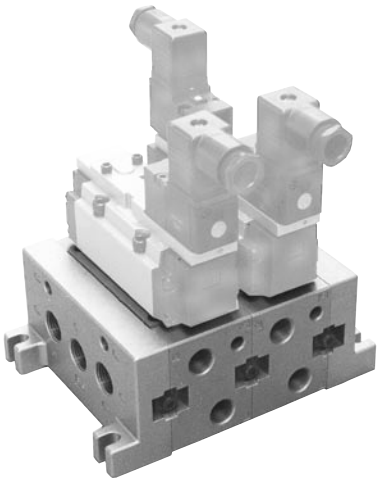
EVS7–8–FG–D–□CV–Q



EVS7–8–FHG–D–□CV–Q • EVS7–8–FJG–D–□CV–Q • EVS7–8–FIG–D–□CV–Q



How to Order Manifold



Specifications

*) 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 Specificatios, options, how to order and dimensions please refer to these series.

How to Order Manifold

*) 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 Specificatios, options, how to order and dimensions please refer to these series.

Options

*) 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 Specificatios, options, how to order and dimensions please refer to these series.

Dimensions

*) 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 Specificatios, options, how to order and dimensions please refer to these series.