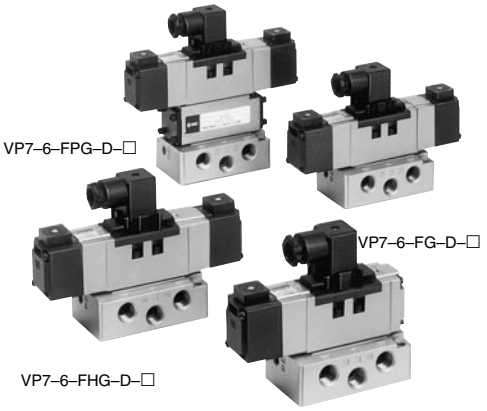
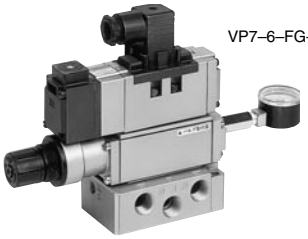
ISO Standard Solenoid Valve/SIZE①
Rubber Seal
Series VP7–6





With interface regulator

2 position	Single solenoid (FG-S)	Double solenoids (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
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			DIN connector
Lubrication			Turbine oil class 1(ISO VG32) Non-lube operation possible.
Shock/Vibration resistance (1)			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

Part No.	AXT511B-1	AXT511B-2	AXT511B-3	AXT511B-4
Rated voltage (V)	100V AC 50/60Hz	200V AC 50/60Hz	24V DC	12V DC
Inrush current (A) (1)	0.049/0.043	0.024/0.021	0.075	0.15
Holding current (A) (1)	0.031/0.020	0.015/0.01		
Allowable voltage (V)	85 to 110% of rated voltage			
Coil insulation	Class B (130°C) or equivalent			

Note 1) At rated voltage

Accessories

Mounting screw (Including washer)	TA-B-5 X 35
Gasket	AXT500-13

Options

Protection circuit	Surge voltage suppressor
Reverse pressure (1)	R_1/R_2 port pressurized, R_1=P_1 pressure, R_2=P_2 pressure

Note1) Operate under the condition of P_1>P_2 when "YZ-S" is used.

Interface Regulator (Options)

Model	Regulation port	Note
ARB250-00-P	P	Refer to p.1.9-3 for specifications.
ARB250-00-A	A	
ARB250-00-B	B	

Model

No. of positions	Model	Effective area (¼ with sub-plate) (mm^2) (Nℓ/min)	Max. operating (1) frequency (c/s)	Response time (2) (S)	Weight (3) (kg)
2 (Single)	**VP7-6-FG-S-□-Q**	30 (1639.11)	5	0.04 or less	0.53
2 (Double)	**VP7-6-FG-D-□-Q**	30 (1639.11)	5	0.04 or less	0.73
3 (Closed centre)	**VP7-6-FHG-D-□-Q**	28.8 (1570.40)	3	0.06 or less	0.73
3 (Exhaust centre)	**VP7-6-FJG-D-□-Q**	28.8 (1570.40)	3	0.06 or less	0.73
3 (Double pilot check)	**VP7-6-FPG-D-□-Q**	20 (1079.65)	3	0.06 or less	1.13
3 (Pressure centre)*	**VP7-6-FIG-D-□-Q**	20 (1079.65) [14.4 (785.2)]	3	0.06 or less	0.73

Note 1) Min. operating frequency: Based on JIS B8375 (once in 30 days).
Note 2) According to JIS B8375–1975 dynamic performance test. (0.5MPa, Coil temperature: 20˚C, At rated voltage, Without surge voltage suppressor)
Note 3) Without sub-plate. (Sub-plate: 0.37kg)
Note 4) [ ]: In normal position. * Option

Permits Long Period Intermediate Stops.

Mounting a double pilot check spacer makes it possible to keep a cylinder in the mid stroke position for a long time without influence of air leakage between spool valves.

VP7–6–FPG–D–□

⚠ Caution

For 3 position double pilot check valve, make sure that there is no leakage from the piping between valve and cylinder or from the fitting parts, checking it with solvent like neutral detergent solution. Leakage from sealant of cylinder should be checked. If any leakage occurs, cylinder piston may not stop at the mid position and be movable when the valve is de–energized.

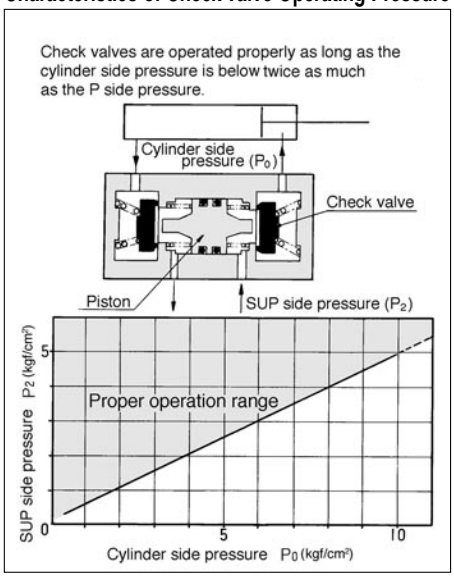
Note:

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

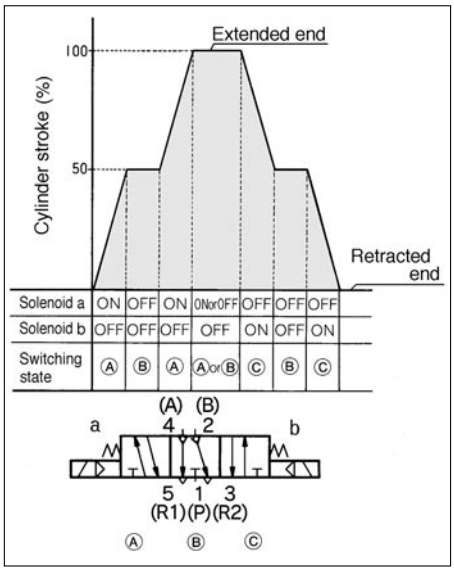
Double Pilot Check Spacer Specifications

Part number		VV71-FPG		
Applicable solenoid valve		VP7-6-FJG-D (Exhaust center)		
Leakage cm³/min(ANR)	Solenoid on one side being energized	P	R1	50 or less
			R2	
	Solenoid on both sides being de-energized	P	R1	50 or less
			R2	
		A	R1	0
		B	R2	

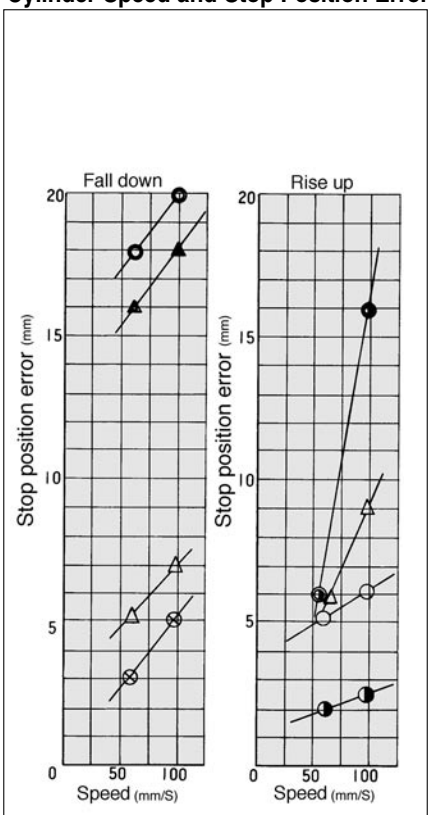
Characteristics of Check Valve Operating Pressure



Mid Stroke Cylinder Position Holding Circuit with Double Pilot Check Valve



Cylinder Speed and Stop Position Error

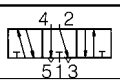
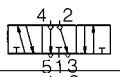
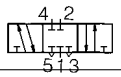
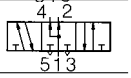


Cylinder ø50-450st	Cylinder ø80-450st	Supply pressure	Cylinder load	Loading ratio ø50	Loading ratio ø80
—◎—	—○—	0.2MPa	25kg	51%	28%
	—⊗—	5	25	25	11
—◑—	—◑—	2	35	72	39
—◬—	—◬—	5	35	36	16

How to Order

E VP7 – 6 – FG – S – 1 □ □ □ □ – Q

Configuration

FG		FJG	
YZ*		FPG	
FHG		FIG*	

* Option

Solenoid

S	Single
D	Double

Voltage

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: ⏚)

Optional

—	None
N	With indicator light
Z	With indicator light and surge suppressor

Sub-plate port size

—	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

—	With connector
0	Without 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

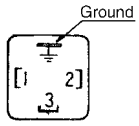
⚠ Precautions

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

⚠ Caution

DIN connector(Wiring)

●Solenoids are connected to the male pin terminal on the DIN connector terminal block as follows. Connect to each terminal block on the connector part.

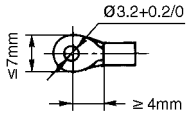


Terminal	
1	A side
2	B side
3	COM
⏚	Ground

Either+COM or –COM is applicable.

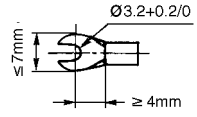
●Applicable cable
Core wire effective sectional area: 0.5 to 1.5mm²
Cable O. D.: ø6.8 to ø10

●Applicable crimp style terminal
As shown below;



Terminal equivalent to R1.025-3, JIS C2805

or

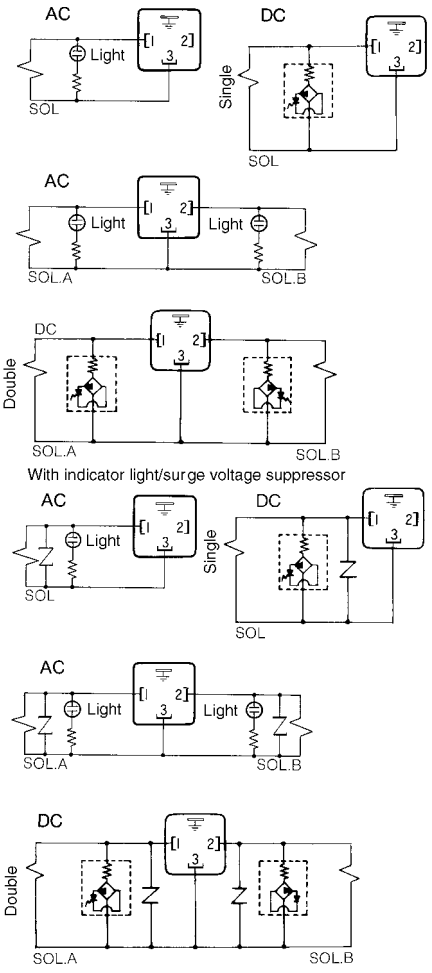


JST Manufacturing Corporation Ltd. "1.25-3X" or the equivalent

●Appropriate tightening torque of the connector part
Connector fixing thread 0.5 to 0.6 Nm
Terminal thread 0.5 to 0.6Nm

Indicator Light/Surge Voltage Suppressor

With indicator light



With indicator light/surge voltage suppressor

Interface Regulator Specifications

Specifications

Model		ARB250		
Applicable solenoid valve		VP7-6		
Regulation port		A	B	P
Max.operating pressure		1.0MPa (1)		
Set pressure range		0.1 to 0.83MPa (2)		
Ambient and fluid temp		5 to 60° (3)		
Gauge port size		1/8		
Weight (kg)		0.55		
Supply eff. area (mm^2)	P–A	15	16	13
S at P1=0.7MPa, P2=0.5MPa	P–B	16	16	11
Exhaust eff. area (mm^2)	A–EA	25		
S at P2=0.5MPa	B–EB	18		

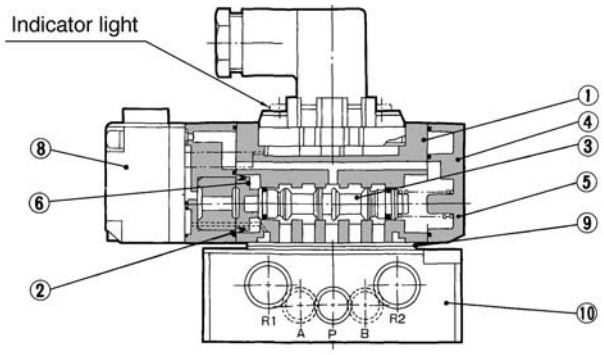
Note 1) Solenoid valve max. operating press. : 0.9MPa
Note 2) Set within the solenoid valve operating pressure range.
Note 3) Solenoid valve: Max. 50°C
Note 4) Effective area shown in the above table is the synthesized value with 2 position (single) type.
Note 5) ●Interface regulator: Pressurize only from P port of the base except when used with reverse pressure valve.
●Use the ARB210 or ARB310 model to combine a pressure center valve and the A and B port pressure reduction of an interface regulator.
●Use the ARB210 or ARB310 model to combine a reverse pressure valve and an interface regulator. The P port pressure reduction cannot be used.
●To use a double pilot check valve and an interface regulator, use a manifold or a sub-plate the standard and stack in the following order: as the double pilot check interface, an interfacer regulator, and the valve.
●When a closed center valve is combined with the A and B port pressure reduction of an interface 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

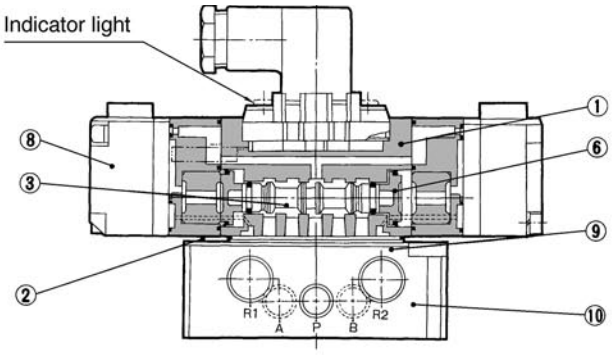
Refer to p.0-36 for flow rate calculation.

Construction

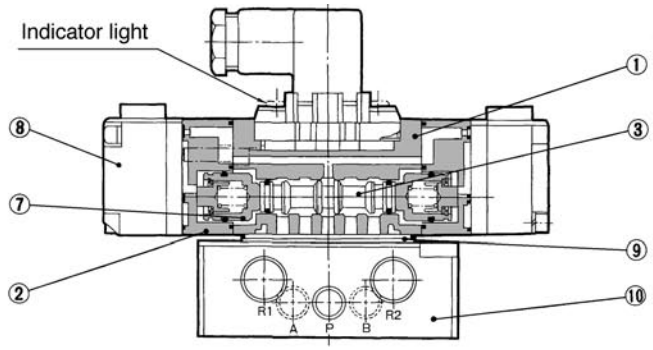
Single: VP7-6-FG-S-□□-Q



Double: VP7-6-FG-D-□□-Q

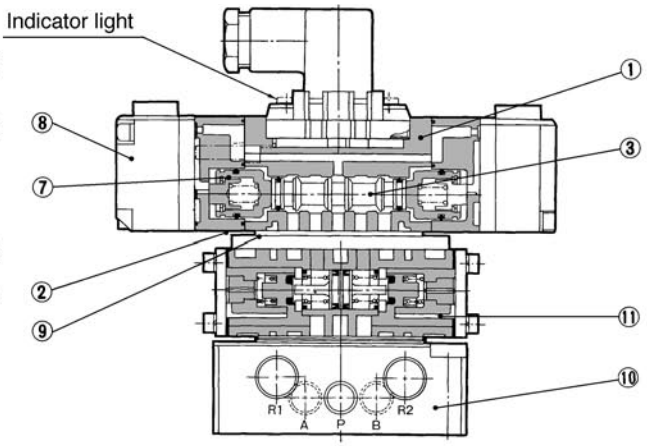


Closed centre: VP7-6-FHG-D-□□-Q
Exhaust centre: VP7-6-FJG-D-□□-Q
Pressure centre: VP7-6-FIG-D-□□-Q



(Closed centre)

Double pilot check: VP7-6-FPG-D-□□-Q



Component Parts

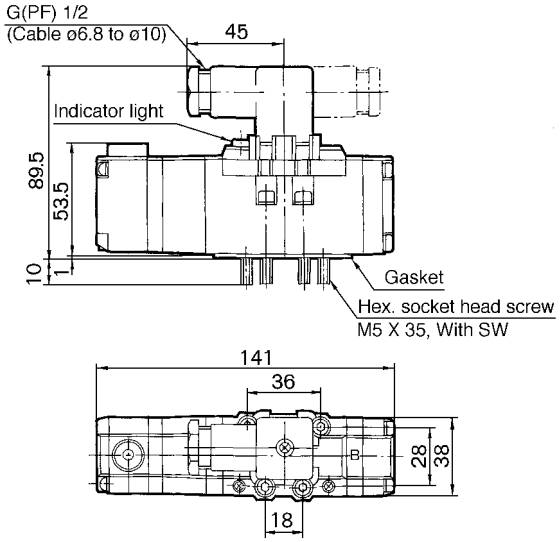
No.	Description	Material
①	Body	Aluminum die cast
②	Adapter plate	Aluminum die cast
③	Spool valve	Aluminum, NBR
④	End cover	Aluminum die cast
⑤	Spool spring	Stainless steel
⑥	Piston	Resin
⑦	Piston ass'y	Aluminum and others

Replacement Parts

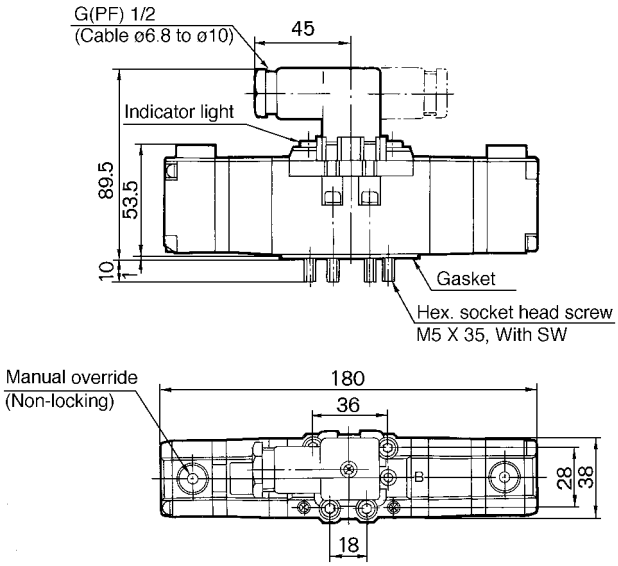
No.	Description	Part No.	Material
⑧	Pilot valve ass'y	AXT511B-□	
⑨	Gasket	AXT500-13	NBR
⑩	Sub-plate	VS7-1-□	Aluminum die cast
⑪	Double pilot check spacer	VV71-FPG	

Without Sub-Plate

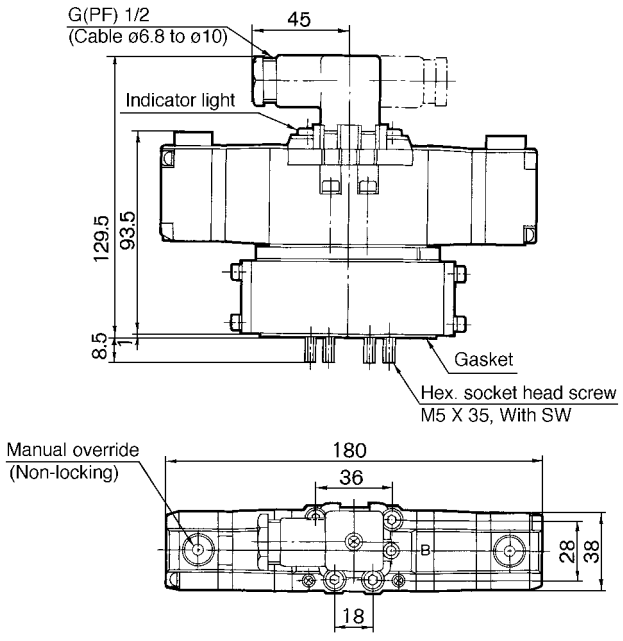
Single: VP7-6-FG-S-Q



Double: VP7-6-FG-D-Q
Closed centre: VP7-6-FHG-D-Q
Exhaust centre: VP7-6-FJG-D-Q
Pressure centre: VP7-6-FIG-D-Q

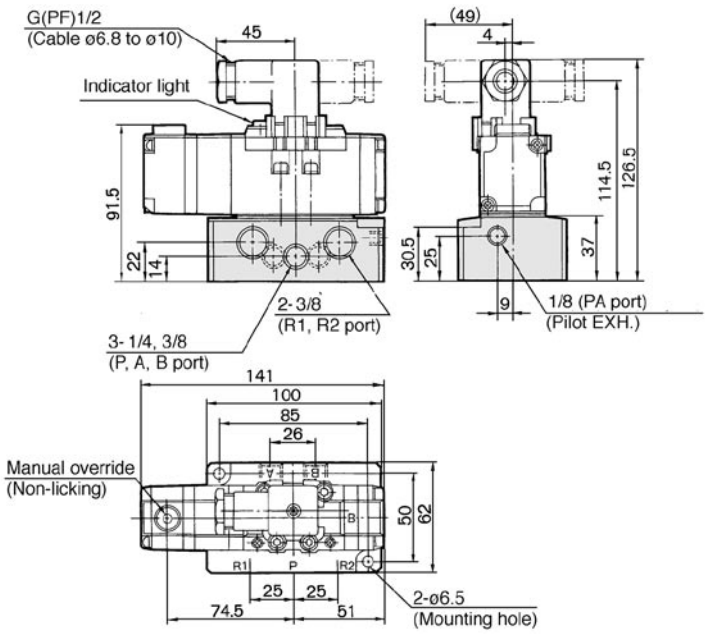


Double pilot check: VP7-6-FPG-D-Q

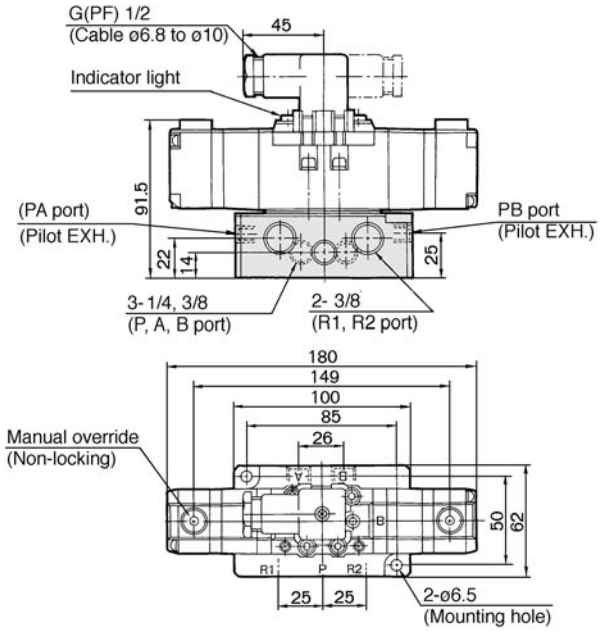


With Sub-plate

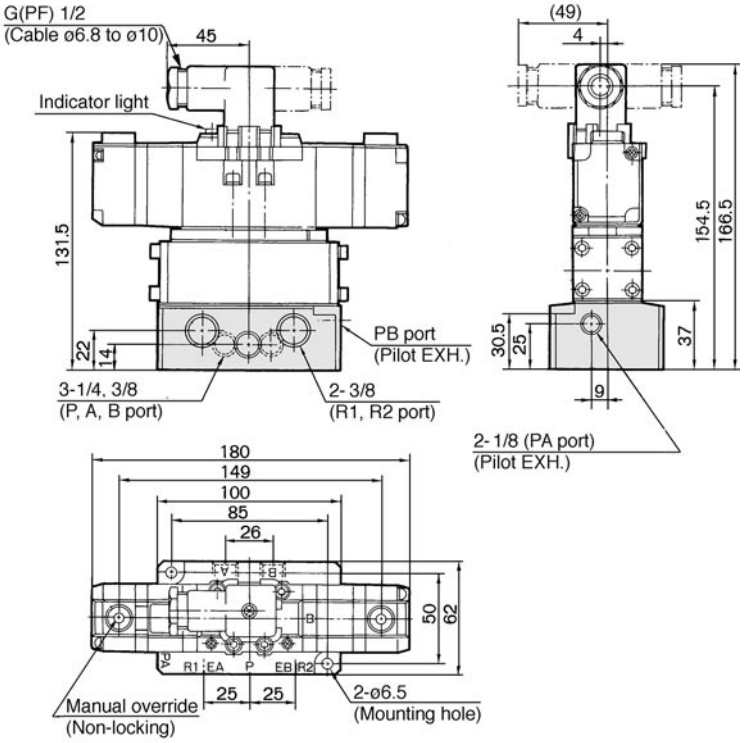
Single: VP7-6-FG-S-Q



Double: VP7-6-FG-D-Q
Closed centre: VP7-6-FHG-D-Q
Exhaust centre: VP7-6-FJG-D-Q
Pressure centre: VP7-6-FIG-D-Q

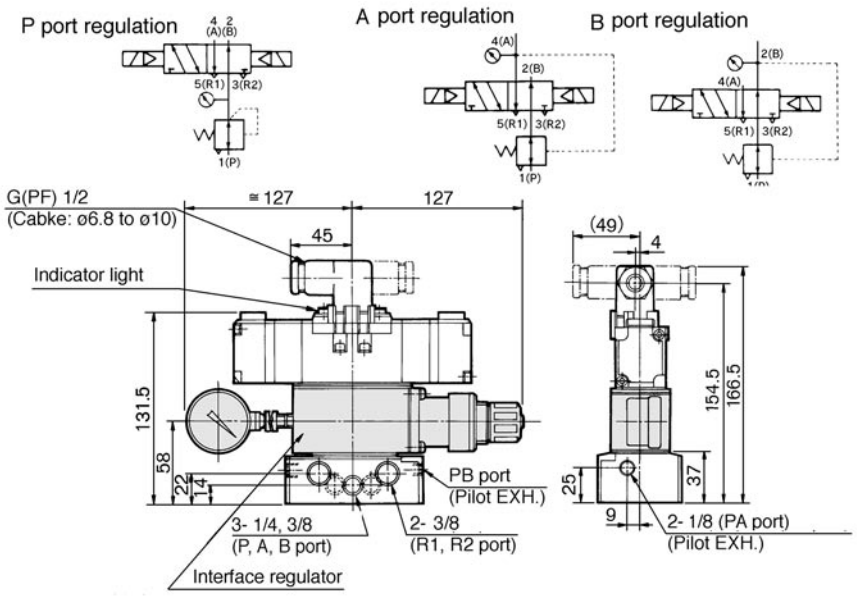


Double pilot check: VP7-6-FPG-D-Q



With Interface Regulator

ARB250-00-□



Sub-plate: Series VS7–1

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

E VS7 − 1 − A02 □

Thread

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

Piping and port size

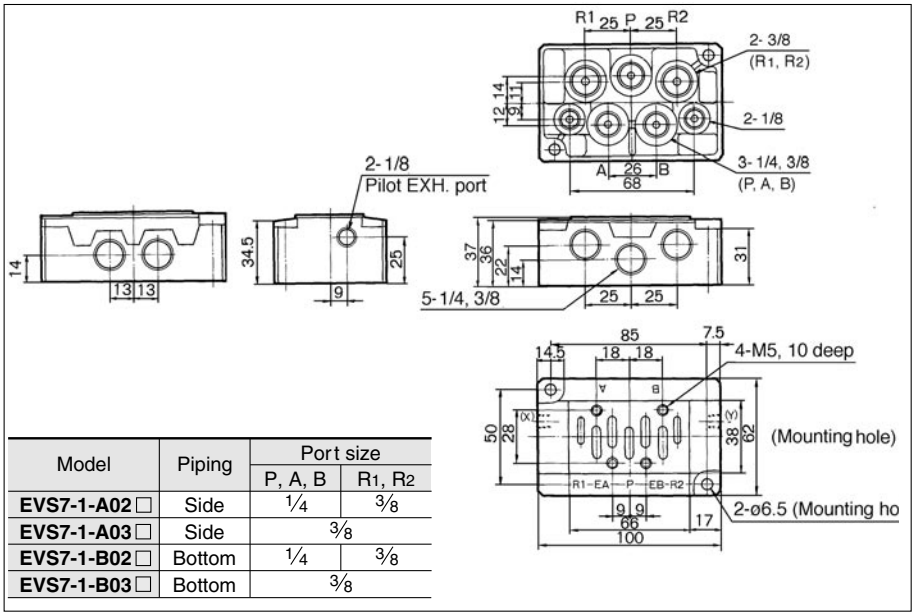
A02	Side* 1/4
A03	Side 3/8
B02	Bottom* 1/4
B03	Bottom 3/8

∗R port: 3/8

Ordering source area code

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

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	

Series VP7–6
Manifold

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

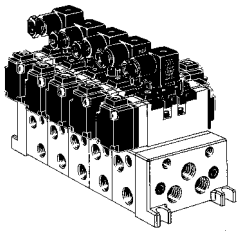
Specifications

Manifold block size		ISO size 1
Applicable solenoid valve		ISO size 1 series
Station		1 to 10 stations*
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
Individual SUP spacer		W71-P-□(02: 1/4, 03: 3/8, C10:ø10)
Individual EXH spacer		VV71-R-□(02: 1/4, 03: 3/8, C12:ø12)
Block plate (For multiple pressure supply)		AXT502-14
Blank plate		AXT502-9A

*Stations including control unit. (Control unit: equivalent to 2 stations.)

Series VV71 manifold provides a wide variety of functions and piping methods. Most suitable type to the operation purpose can be found in the product line-

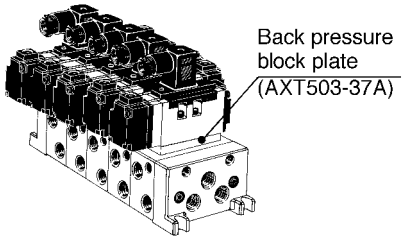
Common Exhaust
Air supply and exhaust to each valve are performed with P and R ports which run through the connected manifold. This is the most popular among users.



Multi Level Pressure Supply
Two or more different levels of pressure are supplied into one manifold.
● Place a block plate(“AXT502–14”)among stations whose pressure levels are different. If supplying two different levels of P pressure, place it from the right/left directions of manifold. If “>2”,useanIndividualSUPspacer (“VV71–P–□”).

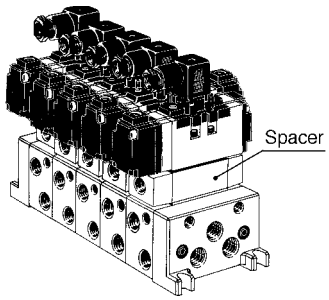
Bottom Piping/1/4, 3/8(A/B port)
In case piping from the side disturbs the sight or in case there is no enough space for side piping, A/B port can be piped from the bottom of manifold.

Main Exhaust Back Pressure Block
● If the number of stations simultaneously operated is large it may cause trouble with back pressure of the main exhaust. Mounting back pressure block plate (“AXT503–37A”) makes it possible to prevent the influence of main exhaust back pressure.



Individual Exhaust
● Releases air individually with an individual exhaust spacer(“VV71–R–□”)on manifold block.

Individual Supply
● Supplies P pressure individually with an individualsupplyspacer(“VV71–P–□”)onmanifold block.



How to Order (Manifold)

E VV71 5 – 02R – □ 02D □ – Q

Stations

1	1 station
⋮	⋮
10	10 stations*

*Stations including a controller eqivalent to two stations.

Piping of 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 ø6 (Right)
C8R	One-touch ø8 (Right)
C10R	One-touch ø10 (Right)
C6L	One-touch ø6 (Left)
C8L	One-touch ø8 (Left)
C10L	One-touch ø10 (Left)
*	Mixed

Note) For the mixed, put "*" mark and indicate piping specifications separately.

Control unit

—	None
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 plate)
G	Filter with manual drain, Regulator (Air releasing valve blank plate)
C	Air release valve (Filter, Regulator blank plate)
E	Air release valve

Piping of 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 ø12 (Bottom)
C12U	One-touch ø12 (Top)
C12B	One-touch ø12 (Both sides)
*	Mixed

Note) For mixed, put an "*" and indicate piping specifications separately.

Rated coil voltage of air releasing valve

—	W/o 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: ⏚)

Ordering source area code

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

Note:
Manifold exploded view see page 1.9-23 for details.

Manifold Control Unit

Piping can be simplified by mounting control equipment like air filters, regulators, air release valve and the like to a manifold as a unit.

Control units

Control equipment \ Symbol for ordering	—	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 (Filter, Regulator)								○	
No. of necessary manifold blocks for mounting		2	2	2	2	2	2	2	1

Control Unit Specifications

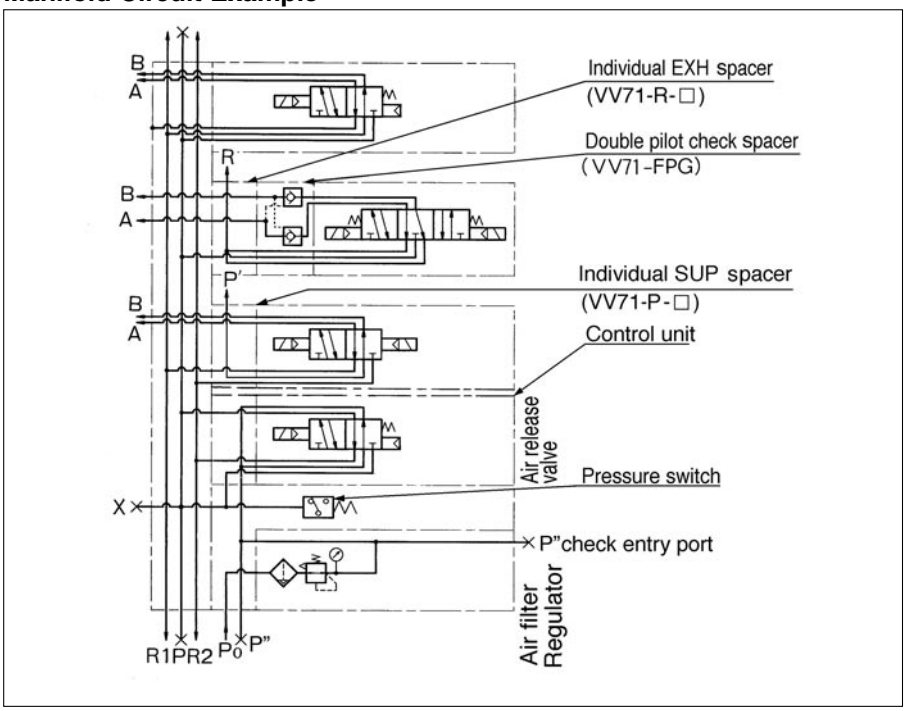
Air filter (With auto drain/With manual drain)	
Filtration	5μm
Regulator	
Set pressure (Secondary pressure)	0.05 to 0.85MPa
Pressure switch	
Pressure setting range	0.1 to 0.7MPa
Contact structure	1ab
Rated current	(induced load) 125V AC 3A, 250V AC 2A
Air release valve (Single only)	
Operating pressure range	0.15 to 0.9MPa

Options

Blank plate	AXT502-9A (For manifold)
	AXT502-18A (For air release valve adapter plate)
	MP2 (For controller/ Filter regulator)
	MP3 (For pressure switch)
Air release valve adapter plate	AXT502-17A
Controller	VAW-A (Adapter plate/Filter with auto drain cock/Regulator)
	VAW-M(Adapter plate/ Filter with manual drain cock/Regulator)
Pressure switch	IS3100-02 (2-M5 X 12)

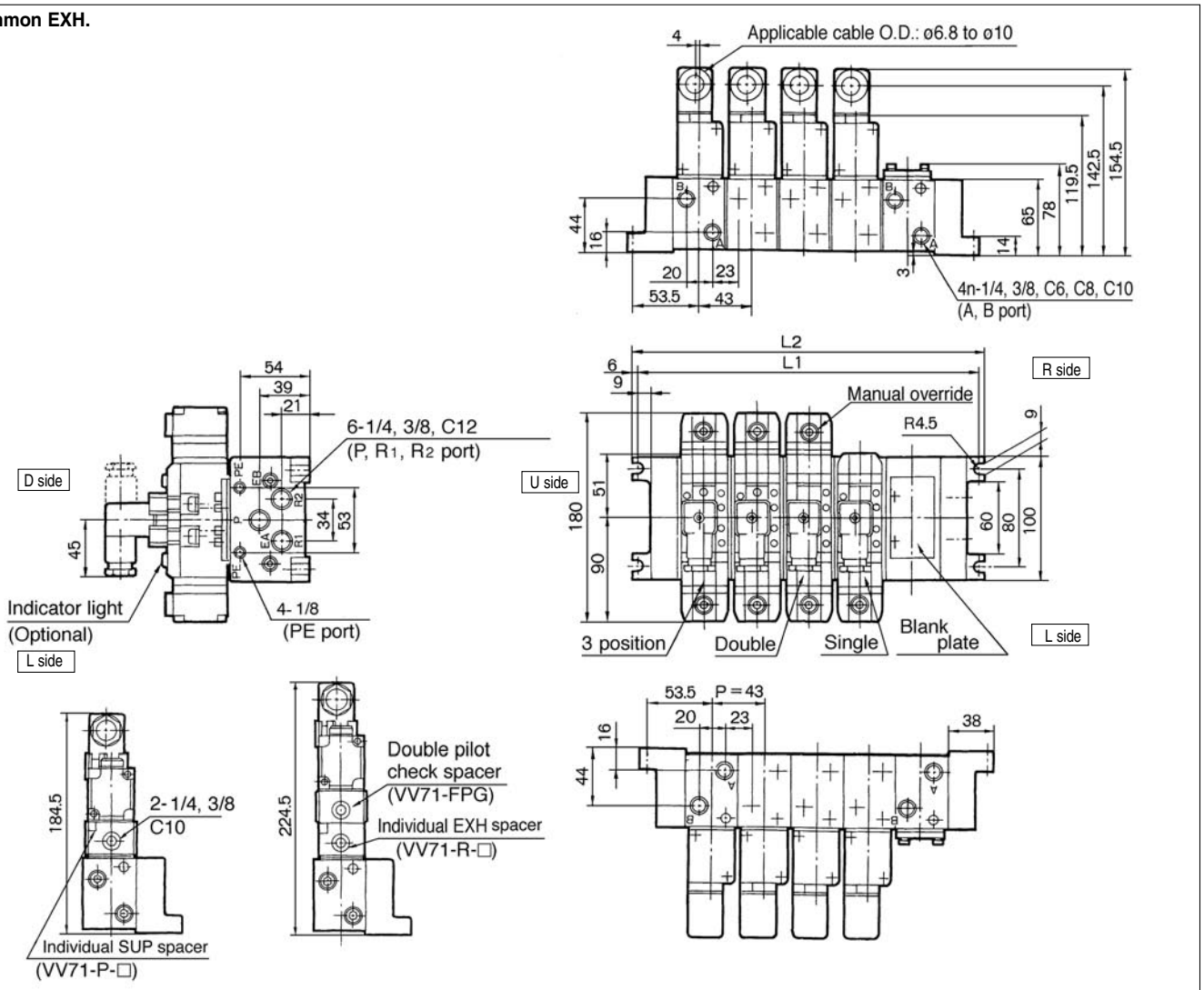
Spacer for reverse pressure		AXT502-21A-1 (3/8)
Spacer for R1/R2/Individual EXH		VV71-R2-03
Interface speed control		AXT503-23A
Adapter plate for lock up cylinder		AXT502-26A
With interface regulator	Relief	ARB250-00- P (P port regulation) A (A port regulation) B (B port regulation)
Main EXH. back press. proof block		AXT503-37A
Silencer for pilot EXH.		AN110-01
Residual press. release valve interface		VV71-R-AB
Individual SUP spacer with residual press. release valve		VV71-PR-□ 02: 1/4 03: 3/8
Double pilot check spacer with residual press. release valve		VV71-FPGR

Manifold Circuit Example



Manifold

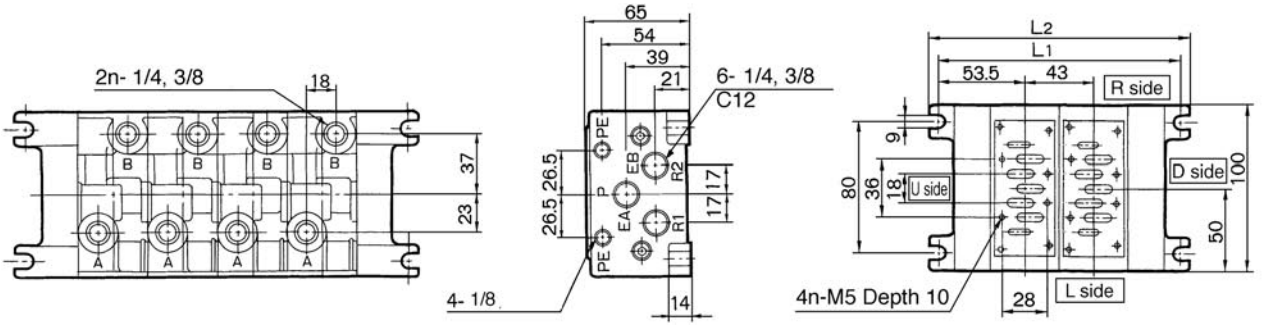
Common EXH.



n: Station Equation L_1=43n+64, L_2=43n+76

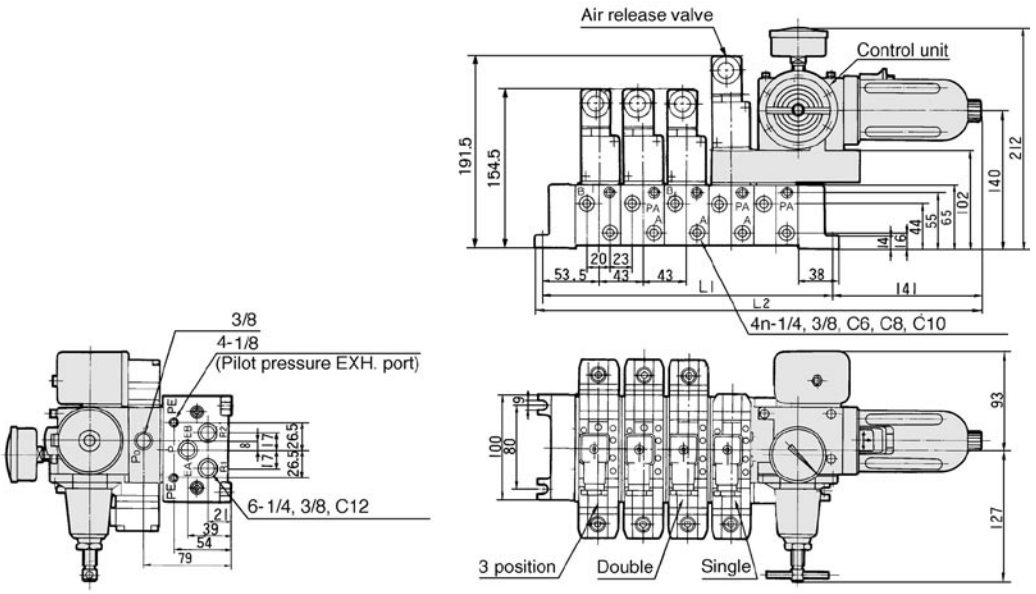
L \ n	1	2	3	4	5	6	7	8	9	10
L_1	107	150	193	236	279	322	365	408	451	494
L_2	119	162	205	248	291	334	377	420	463	506

Bottom Piping



Manifold

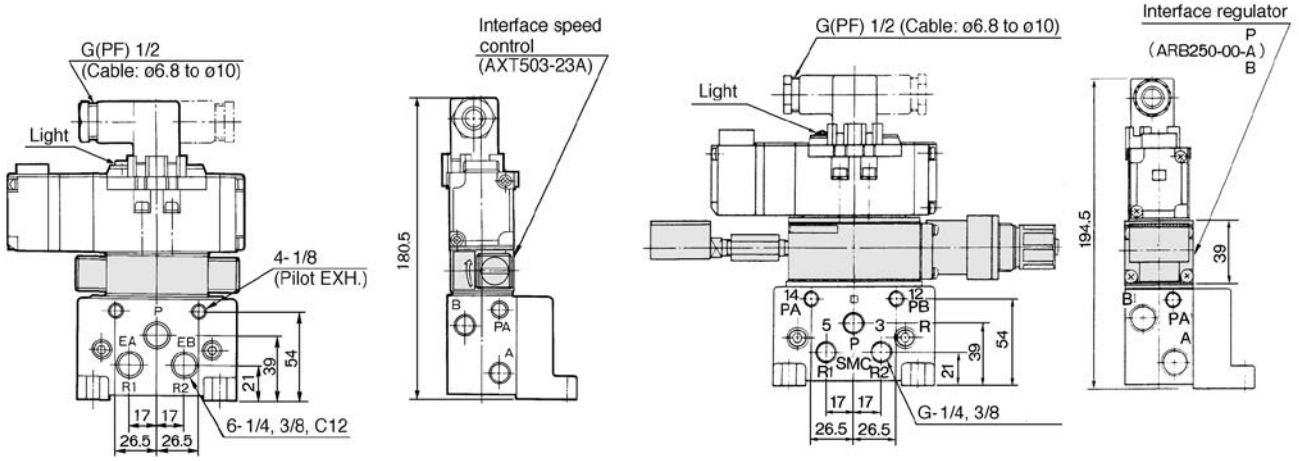
Controller



L: Size 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	297	340	383	426	469	512	555	598	641	L2=43n+211

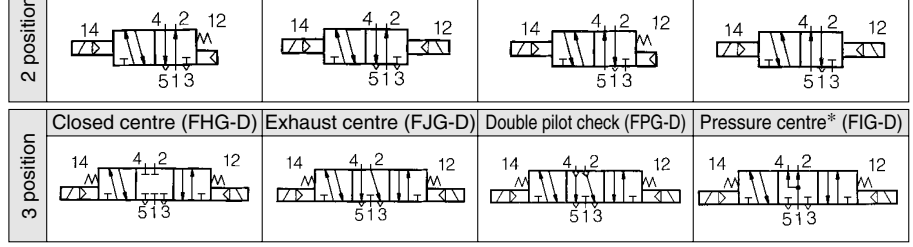
Interface speed control



ISO Standard Solenoid Valve/SIZE②
Rubber Seal
Series VP7–8

With interface regulator

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
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
Electric entry			DIN connector
Lubrication			Turbine oil class 1 (ISOVG32), Non-lube operation possible.
Shock/Vibration resistance (1)			300/50m/s²

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

Part No.	AXT511C-1	AXT511C-2	AXT511C-3	AXT511C-4
Rated voltage (V)	100V AC 50/60Hz	200V AC 50/60Hz	24V DC	12V DC
Inrush current (A) (1)	0.049/0.043	0.024/0.021	0.075	0.15
Holding current (A) (1)	0.031/0.020	0.015/0.01		
Allowable voltage (V)	85 to 110% of rated voltage			
Coil insulation	Class B (130°C) or equivalent			

Note 1) At rated voltage

Accessories

Mounting screw (washer)	TA-B-6 X 45
Gasket	AXT510-13

Option

Protection circuit	Surge voltage suppressor
Reverse pressure (1)	R_1/R_2 port pressurized, R_1=P_1 pressure, R_2=P_2 pressurization

Note 1) Operate under the condition of P_1>P_2 when "YZ-S" is operated.

Interface Regulator (Options)

Model	Regulation port	Note
ARB350-00-P	P	Refer to p.1.9-14 for specifications.
ARB350-00-A	A	
ARB350-00-B	B	

Model

No. of positions	Model	Effective area (3/8With sub-plate) (mm^2)(Nℓ/min)	Max. operating frequency (c/s) (1)	Response time (S) (2)	Weight (kg) (3)
2(Single)	**VP7-8-FG-S-□**	65 (3533.40)	5	0.05 or less	0.92
2(Double)	**VP7-8-FG-D-□**	65 (3533.40)	5	0.05 or less	1.12
3(Closed centre)	**VP7-8-FHG-D-□**	57.6 (3140.80)	3	0.07 or less	1.12
3(Exhaust centre)	**VP7-8-FJG-D-□**	57.6 (3140.80)	3	0.07 or less	1.12
3(Double pilot check)	**VP7-8-FPG-D-□**	40 (2159.30)	3	0.07 or less	1.52
3(Pressure centre)*	**VP7-8-FIG-D-□**	57 (3111.36) [30.6 (1668.,55)]	3	0.07 or less	1.12

Note 1) Min. operating frequency: According to JIS B8375 (once in 30 days).
Note 2) According to JIS B8375-1975 dynamic performance test.(0.5MPa, Coil temperature: 20°C, At rated voltage, Without surge voltage suppressor)
Note 3) Without sub-plate. (Sub-plate: 0.68kg)
Note 4) [ ]: In normal position. ∗Option

Permits Long Period Intermediate Stops.

Mounting a double pilot check spacer makes it possible to keep a cylinder in the mid stroke position for a long time without influence of air leakage between spool valves.

VP7–8–FPG–D–□

⚠ Caution

For 3 position double pilot check valve, make sure that there is no leakage from the piping between valve and cylinder or from the fitting parts or so, checking it with solvent like neutral detergent solution. Leakage from sealant of cylinder should be checked. If any leakage occurs, cylinder piston may not stop at the mid position and be movable when the valve is de-energized.

Note:

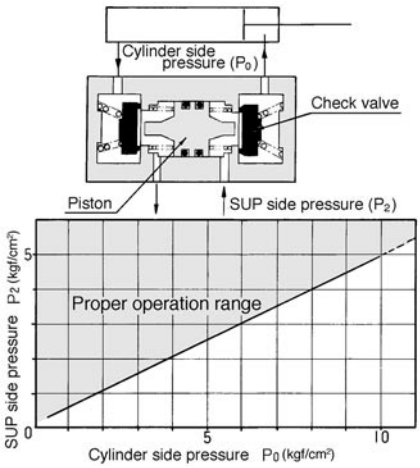
Please note that single subplates and manifolds have changed colour from platinium silver to white as standard. Valves will remain platinium silver.

Double Pilot Check Spacer Specifications

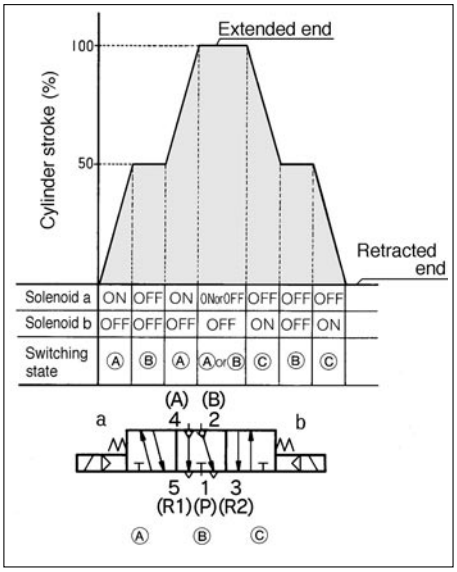
Part number		VV72-FPG		
Applicable solenoid valve		VP7-8-FJG-D (Exhaust center)		
Leakage cm^3/min (ANR)	Solenoid on one side being energized	P	R1	50 or less
			R2	
	Solenoid on both sides being de-energized	P	R1	50 or less
			R2	
		A	R1	0
		B	R2	

Characteristics of Check Valve Operating Pressure

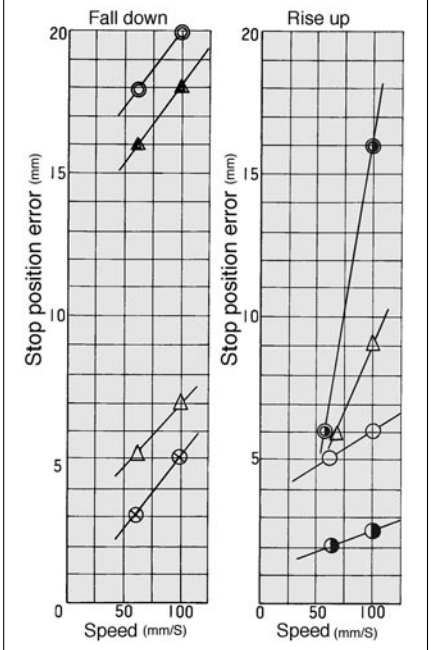
Check valves are operated properly as long as the cylinder side pressure is below twice as much as the P side pressure.



Mid Stroke Cylinder Position Holding Circuit with Double Pilot Check Valve



Cylinder Speed and Stop Position Error



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

VP7–8

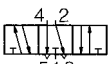
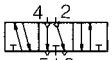
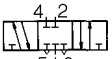
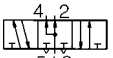
How to Order

E VP7 – 8 – FG – S – 1 □ □ □ □ – Q

Thread

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

Configuration

FG		FJG	
YZ*		FPG	
FHG		FIG*	

* Option

Solenoid

S	Single
D	Double

Voltage

1	100V AC, 50/60Hz
2	200V AC, 50/60Hz
3	24V DC
4	12V DC
9	Others (250 or less)

Optional

—	None
N	Indicator light
Z	Indicator light and surge suppressor

Sub-plate port size

—	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

—	With connector
0	Without connector

Order Made Contact SMC for other voltages (9)

Protective class class I (Mark: ⏚)

Ordering source area code

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

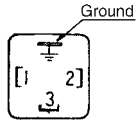
⚠ Precautions

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

⚠ Caution

DIN connector (Wiring)

- Solenoids are connected to the male pin terminal on the DIN connector terminal block as follows. Connect to each terminal block on the connector part.

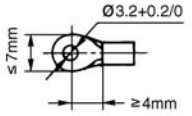


Terminal	
1	A side
2	B side
3	COM
⏚	Ground

Either +COM or –COM is applicable.

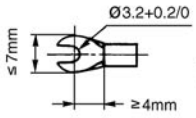
- Applicable cable
  Core wire effective sectional area: 0.5 to 1.5mm2
  Cable O.D.: ø6.8 to ø10
- Applicable crimp style terminal

As shown below



Terminal equivalent to R1.25-3, JIS C2805

or



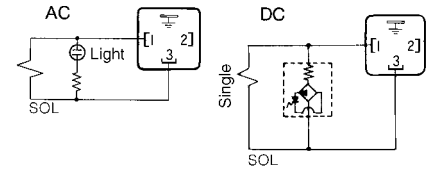
JST Manufacturing Corporation Ltd. "1.25-3X" or the equivalent

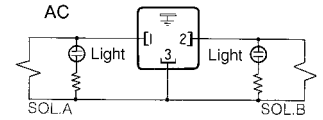
- Appropriate tightening torque of the connector part

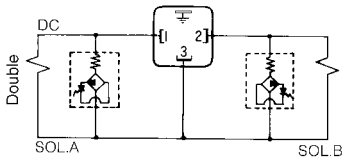
Connector fixing thread: 0.5 to 0.6Nm
Terminal thread: 0.5 to 0.6Nm

Indicator Light/Surge Suppressor

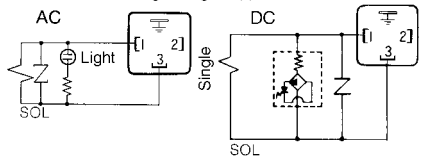
With indicator light

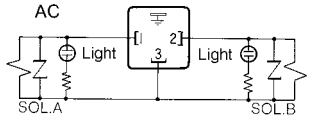


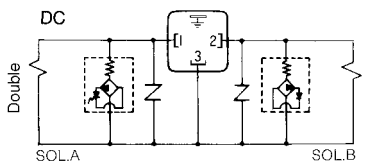




With indicator light/surge suppressor







Interface Regulator Specifications

Specifications

Model		ARB350		
Applicable solenoid valve		VP7-8		
Regulation port		A	B	P
Max. operating pressure		1.0MPa (1)		
Set pressure range		0.1 to 0.83MPa (2)		
Ambient and fluid temp.		5 to 60° (3)		
Gauge port size		1/8		
Weight (kg)		0.83		
Supply eff. area (mm^2) S at P1=0.7MPa, P2=0.5MPa	P→A	40	31	27
	P→B	31	34	27
Exhaust eff. area (mm^2) S at P2=0.5MPa	A→EA	60		
	B→EB	53		

Note 1) Solenoid valve max. operating pressure: 0.9MPa

Note 2) Set within the solenoid valve operating pressure range.

Note 3) Solenoid valve: Max. 50˚C

Note 4) Effective area shown in the above table is the synthesized value with 2 position (single) type.

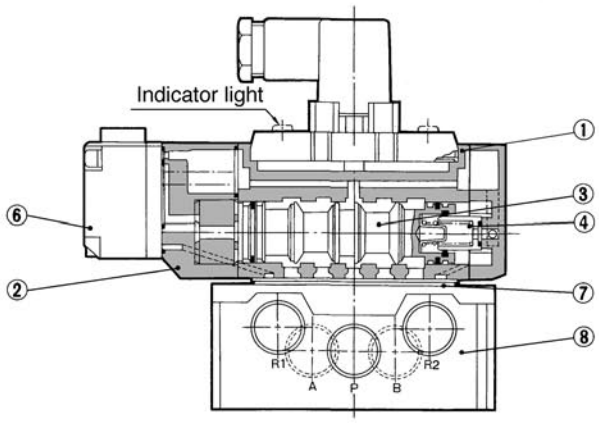
Note 5) ●Interface regulator: Pressurize only from P port of the base except when used with reverse pressure valve.
●Use the ARB210 or ARB310 model to combine a pressure center valve and the A and B port pressure reduction of an interface regulator.
●Use the ARB210 or ARB310 model to combine a reverse pressure valve and an interface regulator. The P port pressure reduction cannot be used.
●To use a double pilot check valve and an interface regulator, use a manifold or a subplate the standard and stack in the following order: as the double pilot check interface, an interfacer regulator, and the valve.
●When a closed center valve is combined with the A and B port pressure reduction of an interface 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

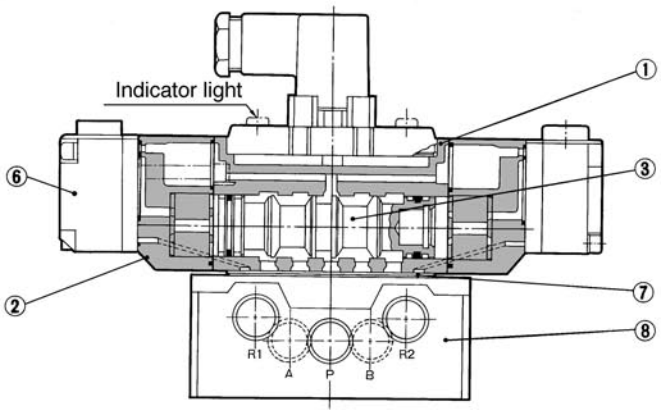
Refer to p.0-36 for flow rate calculation.

Construction

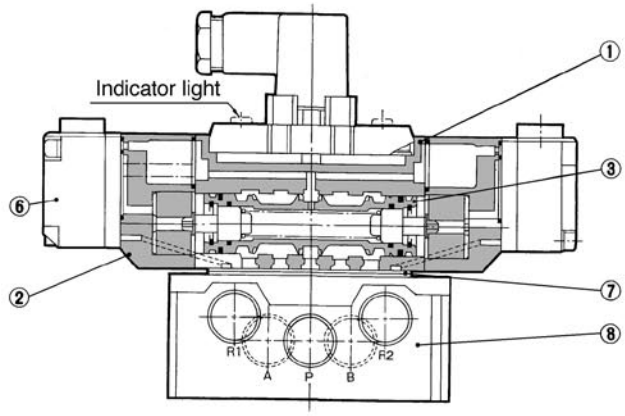
Single: VP7-8-FG-S-□-Q



Double: VP7-8-FG-D-□□-Q

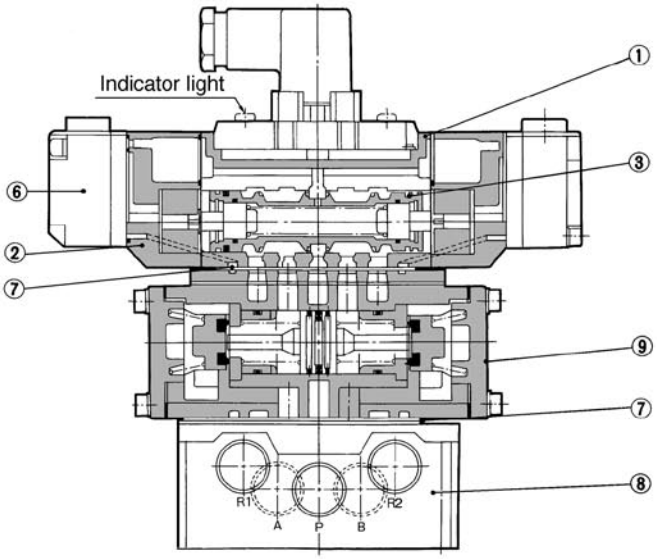


Closed centre: VP7-8-FHG-D-D-□□-Q
Exhaust centre: VP7-8-FJG-D-□□-Q
Pressure centre: VP7-8-FIG-D-□□-Q



(Closed centre)

Double pilot check: VP7-8-FPG-D-□□-Q



Component Parts

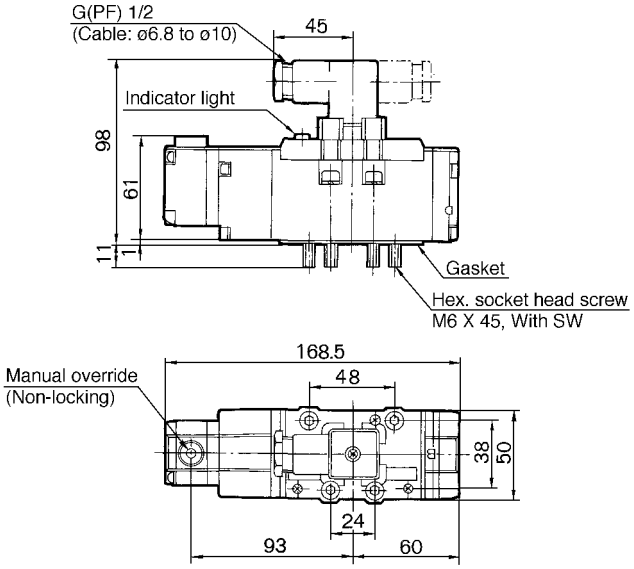
No.	Description	Material
①	Body	Aluminum die cast
②	Adapter plate	Aluminum die cast
③	Spool ass'y	Aluminum, NBR, etc.
④	End cover	Aluminum die cast
⑤	Spool spring	Stainless steel

Replacement Parts

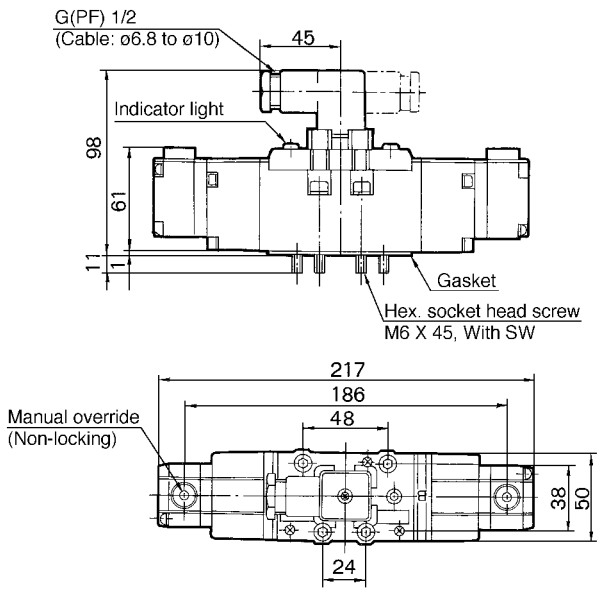
No.	Description	Part No.	Material
⑥	Pilot valve ass'y	AXT511C-□	
⑦	Gasket	AXT510-13	NBR
⑧	Sub-plate	VS7-2-□	Aluminum
⑨	Double pilot check spacer	VV71-FPG	

Without Sub-plate

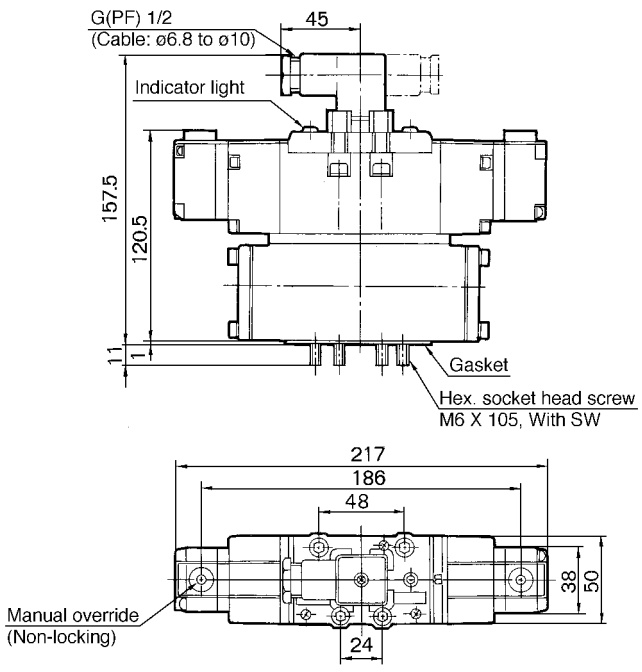
Single: VP7-8-FG-S-Q



Double: VP7-8-FG-D-Q
Closed centre: VP7-8-FHG-D-Q
Exhaust centre: VP7-8-FJG-D-Q
Pressure centre: VP7-8-FIG-D-Q

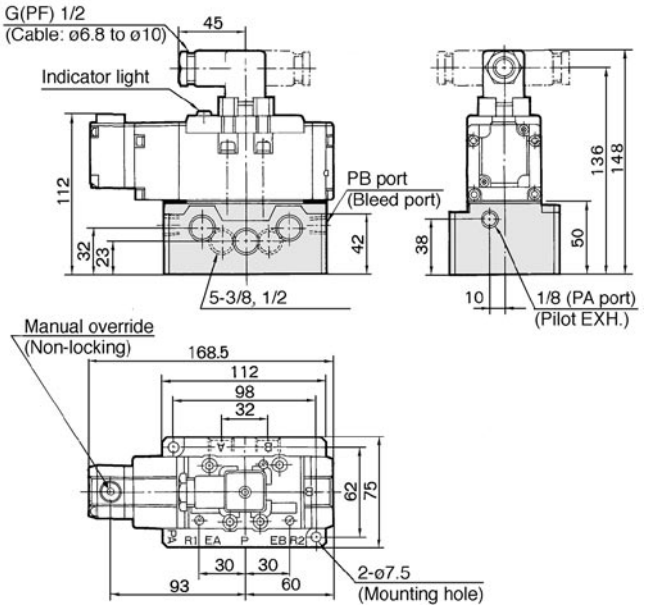


Double pilot check: VP7-8-FPG-D-Q

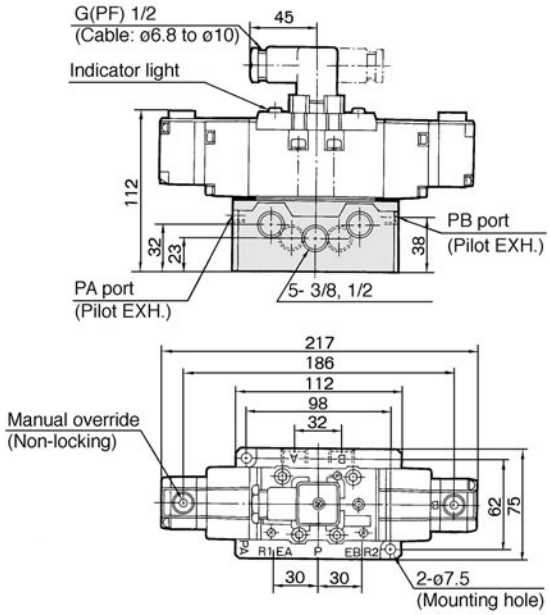


With Sub-plate

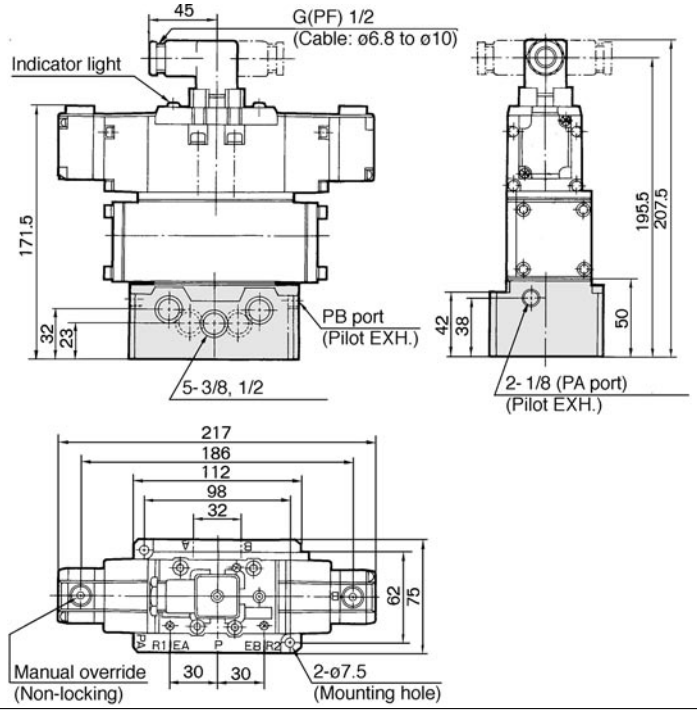
Single: VP7-8-FG-S-Q



Double: VP7-8-FG-D-Q
Closed centre: VP7-8-FHG-D-Q
Exhaust centre: VP7-8-FJG-D-Q
Pressure centre: VP7-8-FIG-D-Q

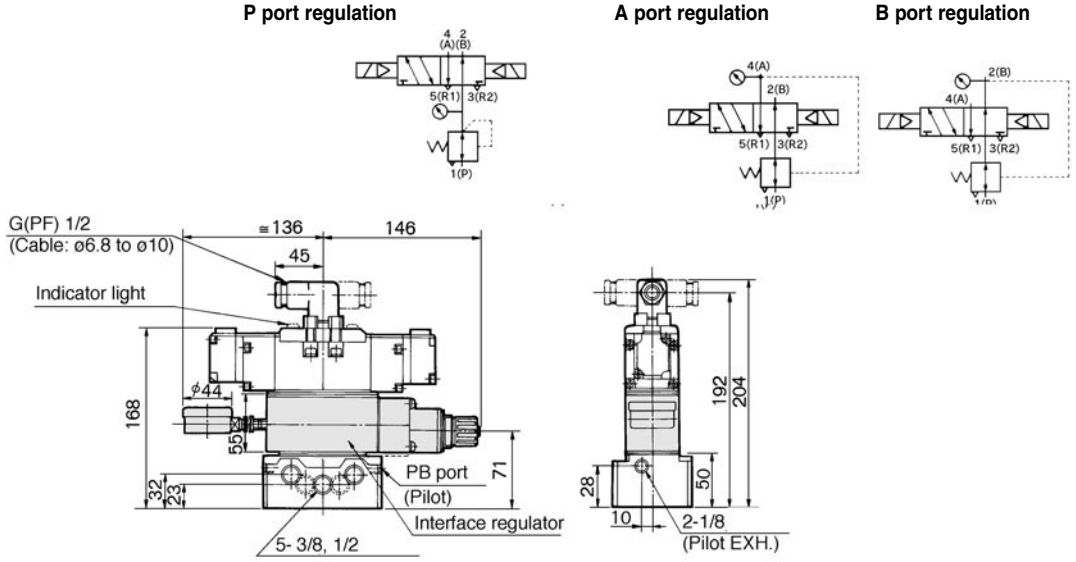


Double pilot check: VP7-8-FPG-D-Q



With Interface Regulator

ARB350-00-□



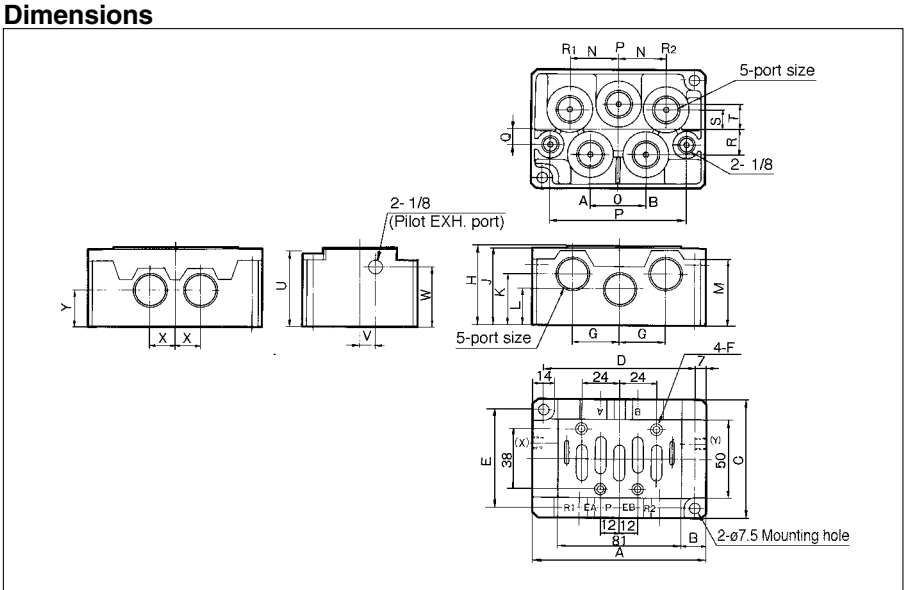
Sub–plate: Series VS7–2

Specifications

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

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
VS7-2-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
VS7-2-B03 B04	Bottom																									
VS7-2-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
VS7-2-B06	Bottom																									

Note:

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

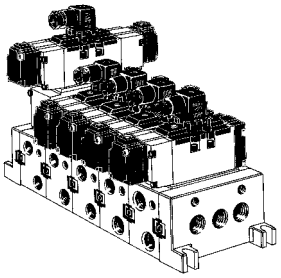
Series VP7–8
Manifold

Specifications

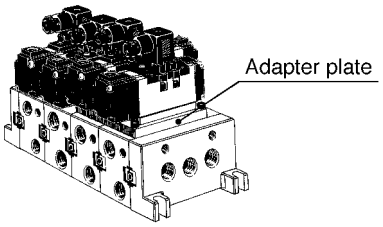
Manifold block size		ISO size 2
Applicable Solenoid valve		ISO size 2 series
Stations		1 to 10 stations
Piping	A/B port	3/8 1/2
	P/R1/R2 port	1/2 3/4
Individual SUP Spacer		VV72-P-□ (03: 3/8 , 04: 1/2)
Individual EXH Spacer		VV72-R-□ (03: 3/8 , 04: 1/2)
Block plate (For multiple pressure supply)		AXT512-14-1A(For P port)
		AXT512-14-2A(For R1/R2 port)
Blank plate		AXT512-9A

VV72 □ manifold gives a wide variety of functions and piping methods. Most suitable type for the operation can be found in the product line–up.

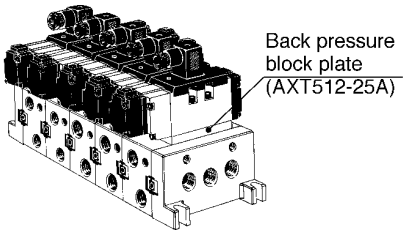
Common Exhaust
Air supply and exhaust to each valve are performed with P and R ports which runs through the connected manifold.



V Type
Type that valves of different body sizes can be combined.
(Adapter plate: VV72–V–1)

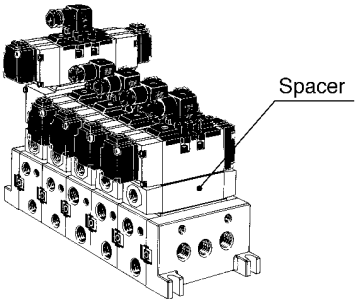


Main Exhaust Back Pressure Block
If the number of stations simultaneously operated is large it may cause a trouble with back pressure of the main exhaust. Mounting back pressure block plate (“AXT512–25A”)makes it possible to prevent the influence of main exhaust back pressure.



Individual Exhaust
R ports are independent for each valves.
● Releases air individually with an individual exhaust spacer (“VV72-R–□”) on manifold block.

Individual Supply
● Supplies P pressure individually with an individual supply spacer(“VV72-P–□”)on manifold block.



Multi Level Pressure Supply
Two or more different levels of pressure are supplied into one manifold.
● Place a block plate(“AXT512–14–1A”) among stations whose pressure levels are different . If supplying two different levels of P pressure, place it from the right/left directions of manifold. If more than two, use an Individual SUP spacer(“VV72–P–□”).

Bottom Piping (3/8, 1/2)
In case piping from the side obstructs view the sight or in case there is not enough space for side piping A/B port can be piped from the bottom of manifold.

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

E VV72 5 – 03R – □ 04D □ – Q

Stations

1	1 station
⋮	⋮
10	10 stations

A/B port piping

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

If mixed piping is desired, write "" and indicate piping specifications separately.

Air release valve

—	None
E	With air release valve

P/R1/R2 port piping

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)

Rated voltage of coil of air release valve

—	W/o air releasing 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: ⏚)

Ordering source area code

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

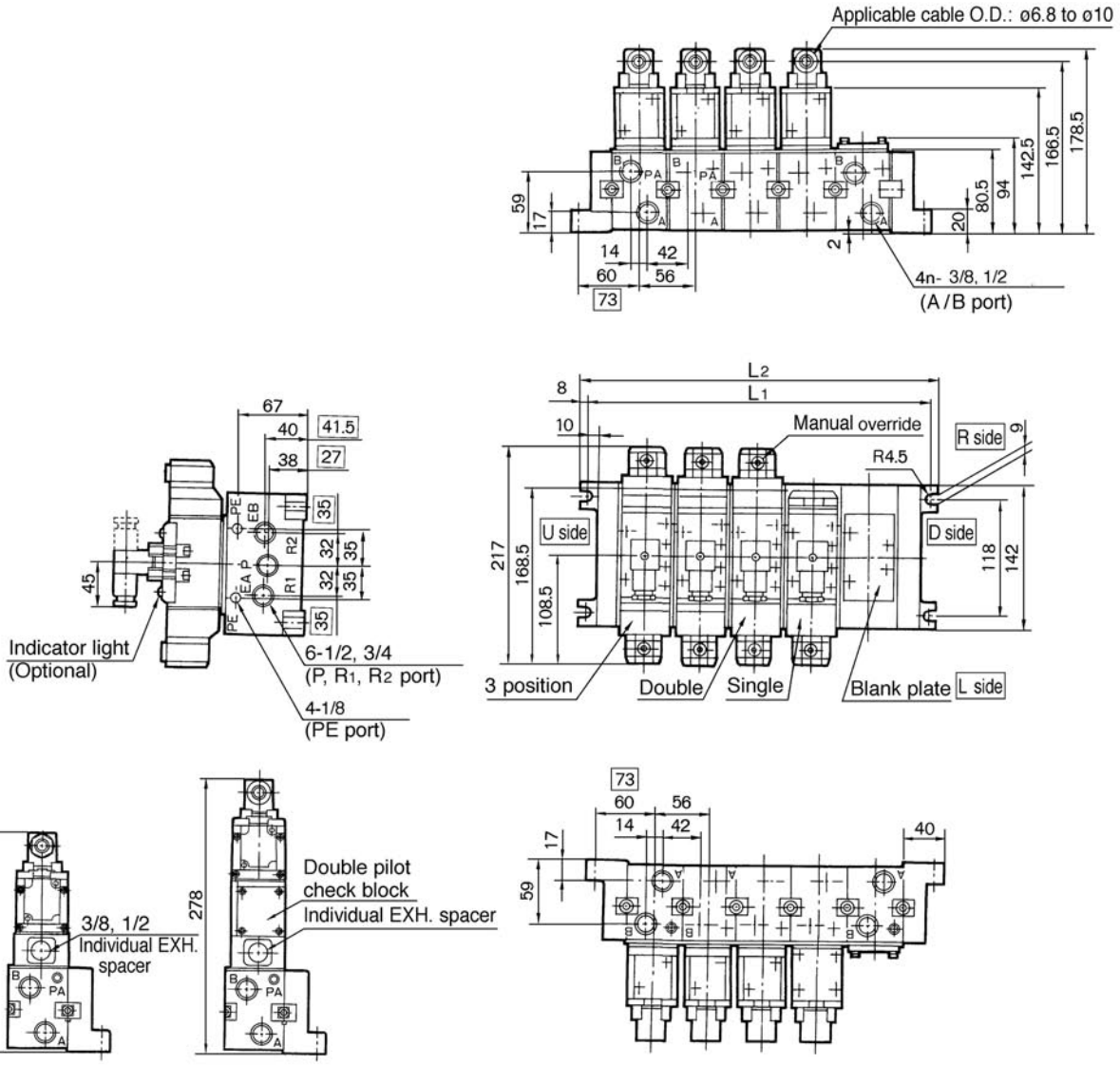
Note:
Manifold exploded view see page 1.9-24 for details.

Options

Blank plate		AXT512-9A
		AXT512-18A (For air releasing valve adapter plate)
Air release valve adapter plate		AXT512-17A
With interface regulator	Relief	ARB350-00- P(P regulation) A(A regulation) B(B regulation)
Spacer for reverse pressure		AXT512-19A-1(3/8) AXT512-19A-2(1/2)
Spacer for R1/R2 individual EXH.		VV72-R2-04
Interface speed control		AXT510-32A
Main EXH. back pressure block plate		AXT512-25A
Silencer for pilot EXH.		AN110-01

Manifold

Common EXH

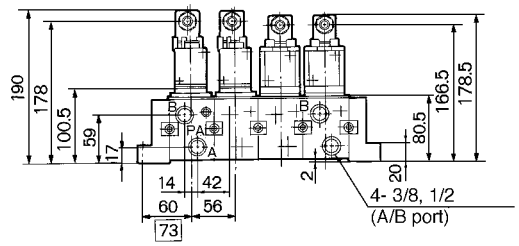


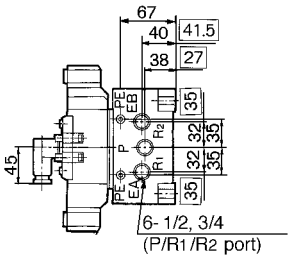
Size	L \ n	1	2	3	4	5	6	7	8	9	10	Equation
1/2	L1	120	176	232	288	344	400	456	512	568	624	n: Station L1=56n+64
	L2	136	192	248	304	360	416	472	528	584	640	L2=56n+80
3/4	L1	146	202	258	314	370	426	482	538	594	650	n: Station L1=56n+90
	L2	162	218	274	330	386	442	498	554	610	666	L2=56n+106

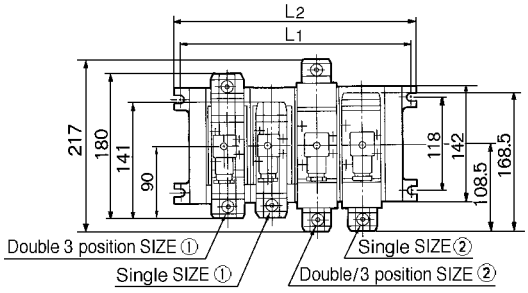
Size in □: 3/4

Manifold

V Type



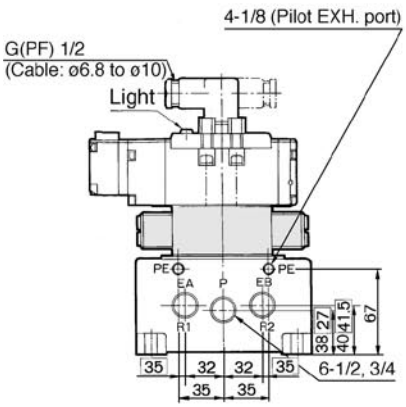


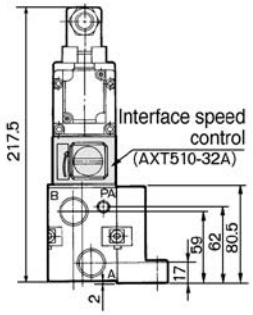


Size	L \ n	1	2	3	4	5	6	7	8	9	10	Equation
1/2	L1	120	176	232	288	344	400	456	512	568	624	n: Station L1=56n+64
	L2	136	192	248	304	360	416	472	528	584	640	L2=56n+80
3/4	L1	146	202	258	314	370	426	482	538	594	650	n: Station L1=56n+90
	L2	162	218	274	330	386	442	498	554	610	666	L2=56n+106

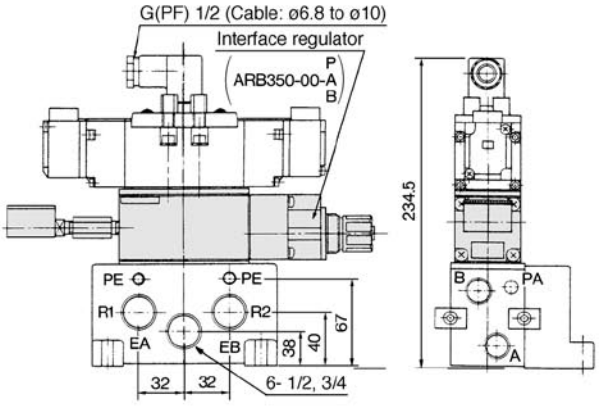
Size in □: 3/4

Interface speed control

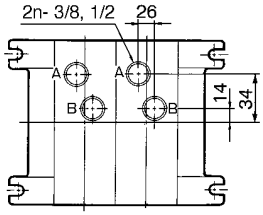


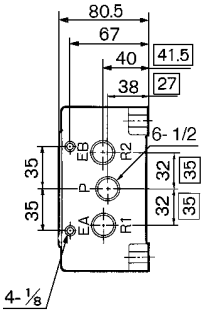


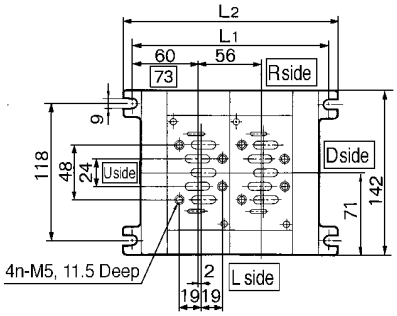
Interface Regulator



Bottom piping



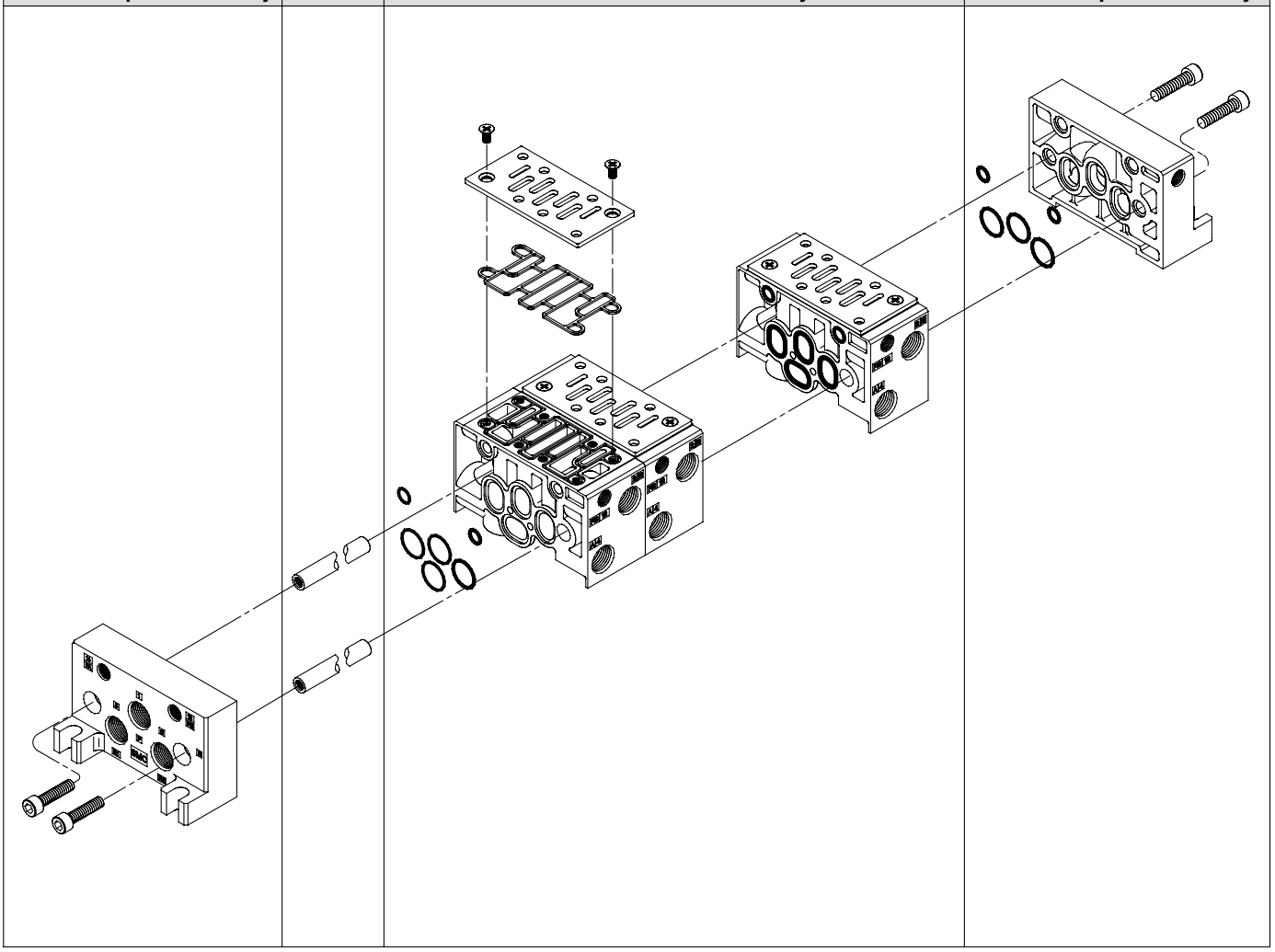




Size in □: 3/4

Manifold Exploded View VP7-6

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

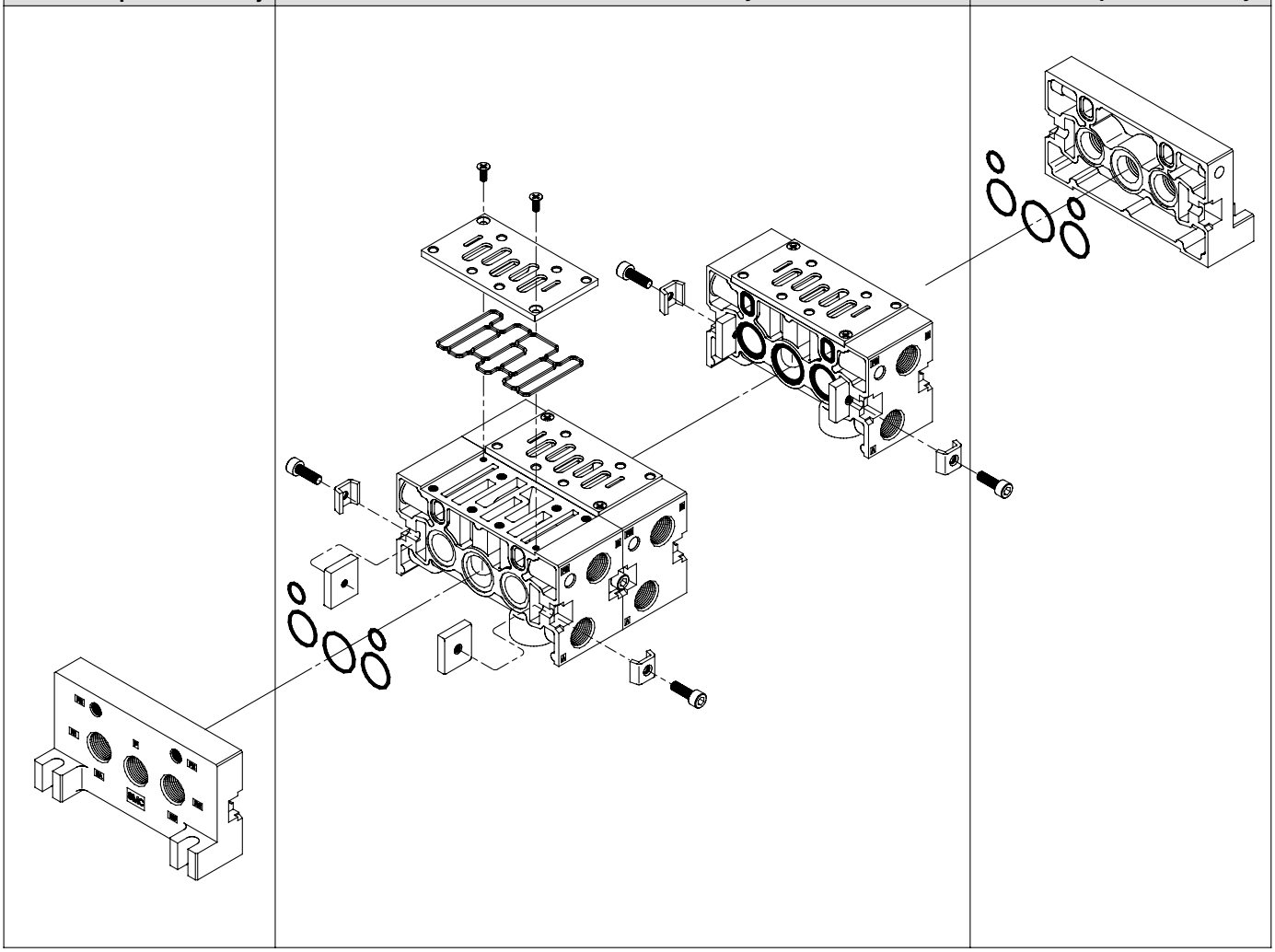
Note 1) Side ported only

< 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 VP7-8

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

Ordering source area code

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

P, R port size

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

<Manifold block assembly>

E AXT512 – 1A – □ □ – □

Wiring specification

A	Side
B	Bottom

Ordering source area code

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

Cylinder port size

03	3/8
04	1/2

Cylinder port position

L	L side
R	R side

< 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	