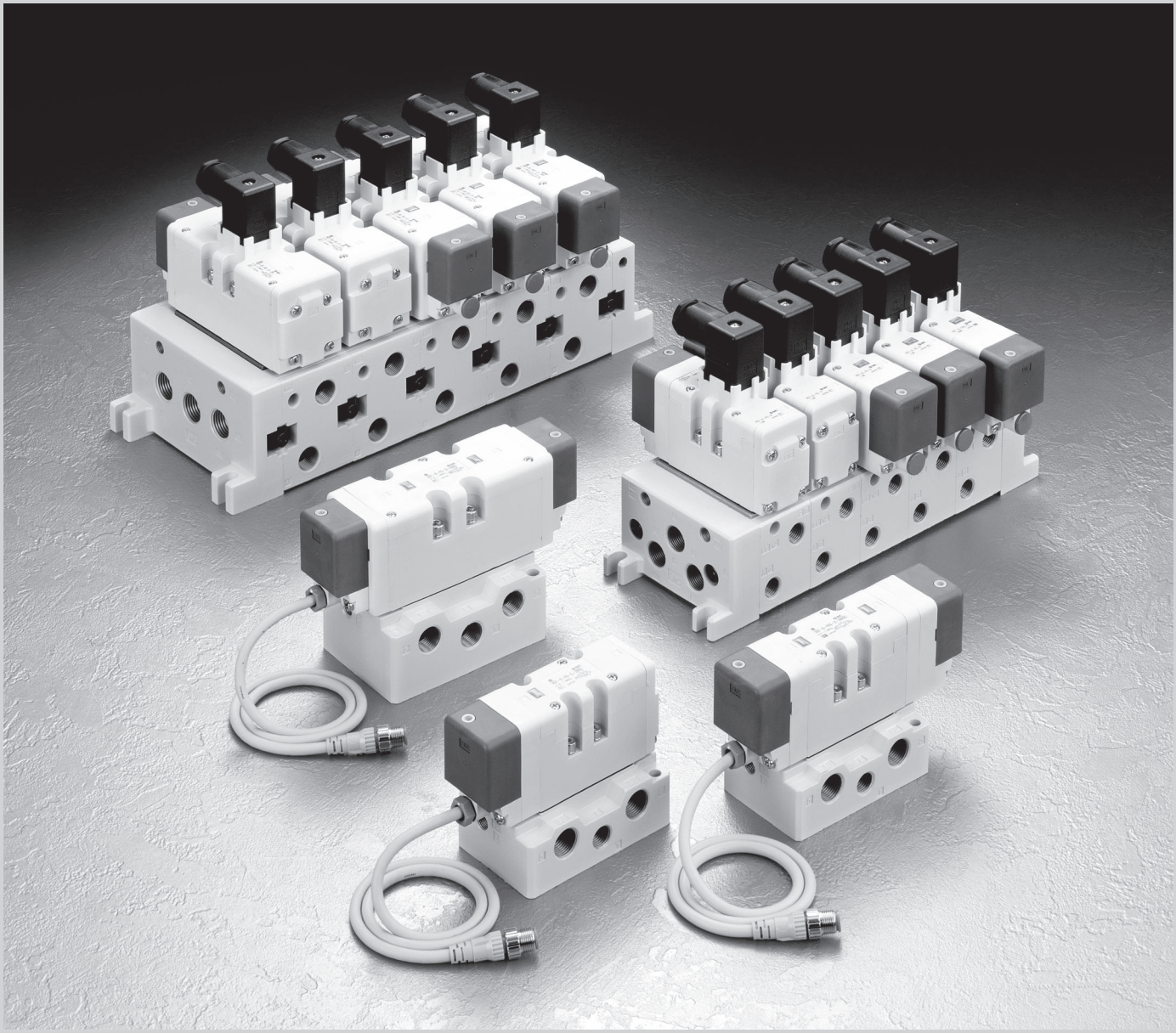
ISO Standard Solenoid Valve

Series VQ7-6/7-8

(Size 1) (Size 2)



Conforms to ISO Standard 5599-1

Serie VQ7-6/7-8

SMC

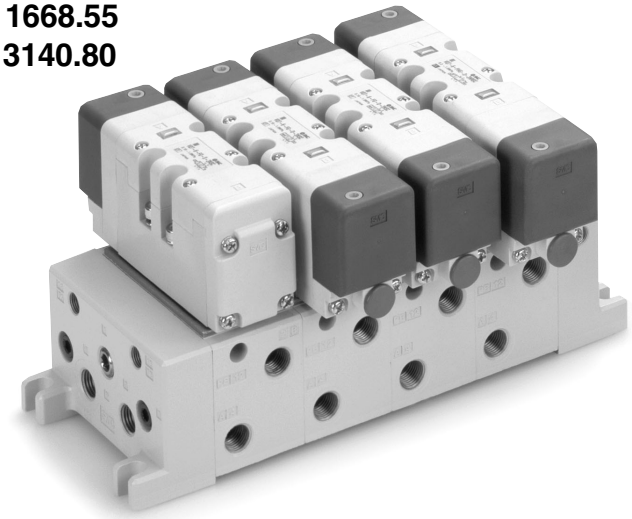
EMC-VQ7-6/7-8-01A-UK

Series VQ7-6, (Size 1)

Large flow capacity

Ideal for driving cylinders up to

ø100 (VQ7-6, Size 1)
ø160 (VQ7-8, Size 2)
Nℓ/min VQ7-6: 1668.55
VQ7-8: 3140.80

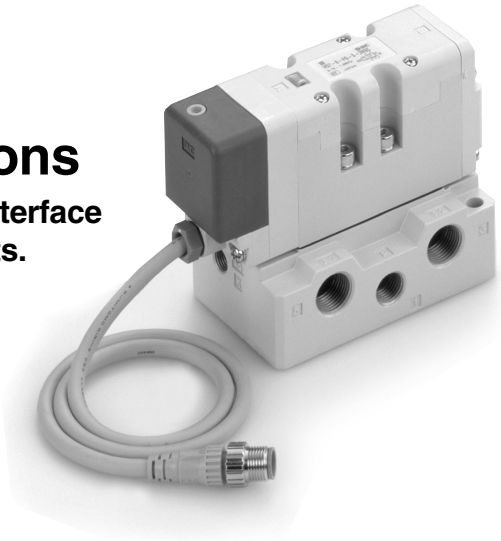


Conforms to ISO standard 5599/I

Interfaces conform to ISO standard Size 1 (VQ7-6) and Size 2 (VQ7-8).

High speed response and long life

IP65 enclosure is dust tight and splash proof



A wide variety of manifold options

Manifolds can be configured with a wide range of interface options to meet a variety of application requirements.

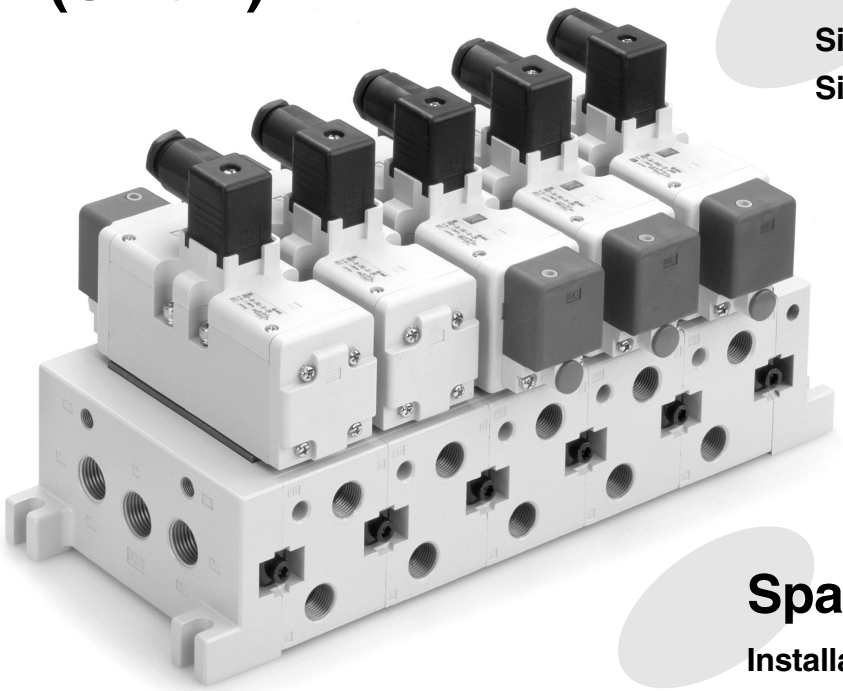
Interface regulator
Double check spacer
Double check spacer with residual pressure release valve
Individual supply spacer
Supply spacer with residual pressure release valve
Individual exhaust spacer

Blocking plate
Adapter plate with release valve
Reverse pressure spacer
R1, R2 individual exhaust spacer
Throttle valve spacer
Locking cylinder adapter plate
Main exhaust back pressure check plate

Control unit
Silencer box

Adopted colour tone contributes to brighter factory environments

VQ7-8
(Size 2)



Lighter weight

Size 1 (3 position) 0.48kg .... 24% less

Size 2 (3 position) 0.75kg .... 15% less

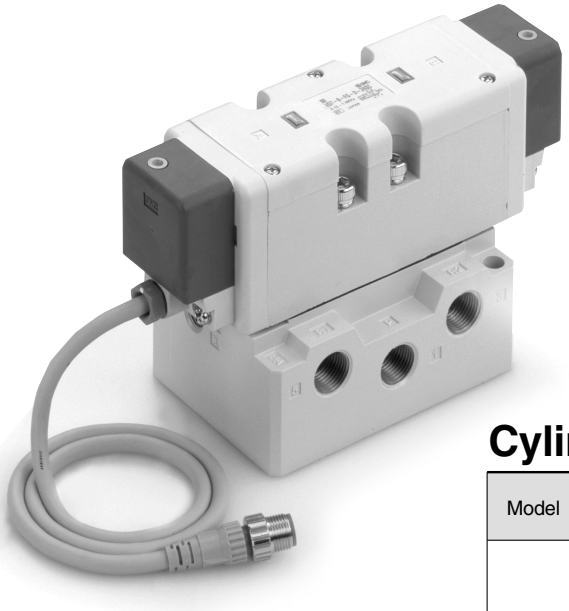
(Compared to previous series)

Space saving profile

Installation space ..... 13% reduction

Installation volume ... 10% reduction

(Compared to previous series)



Choice of metal or rubber seal increases compatibility with various operating and environmental conditions.

Cylinder Speed Chart

Model	Nℓ/min Metal seal (Rubber seal)	Cylinder speed mm/s	Cylinder bore size mm							
			40	50	63	80	100	125	140	160
VQ7-6	1472.25 (1668.55)	150								
		300								
		450								
		600								
		750								
VQ7-8	3140.80 (3140.80)	150								
		300								
		450								
		600								
		750								

Pressure 0.5MPa, Load factor 50%

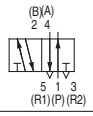
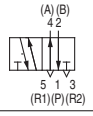
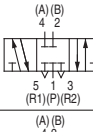
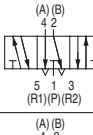
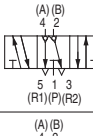
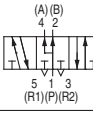
Note) Use as a guide for selection, as cylinder speeds will vary depending on the piping equipment.

Series *VQ7-6*
ISO Standard Solenoid Valve Size 1/Single Unit

How to Order Valves

VQ7 — 6 — FG — S — 3 □ □ □ □ □ □ — Q

Passage symbol

FG	
* YZ	
FHG	
FJG	
FPG	
FIG	

* Optional

Number of solenoids

S	Single
D	Double

Coil rating

1	100VAC
2	200VAC
3	24VDC
4	12VDC
9 *	Other voltage (less than 240V)

Order Made * Contact SMC for other voltages (9)

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

Options

Nil	None
N	Indicator light
Z	Indicator light with surge voltage suppressor

Seal type

Nil	Metal seal
R	Rubber seal

Sub plate port size

Nil	Without sub plate
A02	Side port 1/4 *
A03	Side port 3/8
B02	Bottom port 1/4 *
B03	Bottom port 3/8

* Port R is 3/8

Pilot exhaust

Nil	Common exhaust
V	Individual exhaust

Thread

—	Rc (PT)
F	G (PF)
N	NPT
T	NPTF

Connector

Nil	DIN terminal block (with connector)
O	DIN terminal block (without connector)
SC	Prewired connector

How to Order Sub Plates

E VS7 — 1 — A02 □

Port size

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

* Ports 3 (R2) and 5 (R1) are 3/8

Ordering source area code

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

Thread

—	Rc (PT)
F	G (PF)
N	NPT
T	NPTF

Specifications

Type	Piping specifications			Weight kg
	Piping location	1 (P), 2 (B), 4 (A) port size	3 (R2), 5 (R1) port size	
VS7-1-A02	Side	1/4	3/8	0.37
VS7-1-A03		3/8		
VS7-1-B02	Bottom	1/4	3/8	
VS7-1-B03		3/8		

Models

Series	Positions		Model		Note 1) Effective area mm² (Nℓ/min)	Note 2) Response time ms	Note 3) Weight kg
VQ7-6	2 position	Single	Metal seal	**VQ7-6-FG-S-□**	27.0 (1472.25)	20 or less	0.40
			Rubber seal	**VQ7-6-FG-S-□R**	31.0 (1668.55)	25 or less	
		Double	Metal seal	**VQ7-6-FG-D-□**	27.0 (1472.25)	12 or less	0.45
			Rubber seal	**VQ7-6-FG-D-□R**	31.0 (1668.55)	15 or less	
	3 position	Closed centre	Metal seal	**VQ7-6-FHG-D-□**	25.5 (1374.10)	40 or less	0.48
			Rubber seal	**VQ7-6-FHG-D-□R**	27.0 (1472.25)	45 or less	
		Exhaust centre	Metal seal	**VQ7-6-FJG-D-□**	27.0 (1472.25)	40 or less	0.48
			Rubber seal	**VQ7-6-FJG-D-□R**	31.0 (1668.55)	45 or less	
		Double check	Metal seal	**VQ7-6-FPG-D-□**	20.0 (1079.65)	50 or less	0.84
			Rubber seal	**VQ7-6-FPG-D-□R**	20.0 (1079.65)	50 or less	
		Pressure centre	Metal seal	**VQ7-6-FIG-D-□**	27.0 (1472.25)	40 or less	0.48
			Rubber seal	**VQ7-6-FIG-D-□R**	31.0 (1668.55)	45 or less	

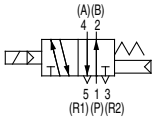
Note 1) Port size 1/4: Value when mounted on sub plate.

Note 2) Based on JIS B 8375-1981 (Value for supply pressure of 0.5MPa, with light/surge voltage suppressor, when using clean air.) Response time values will change depending on pressure and air quality. The value when ON for the double type.

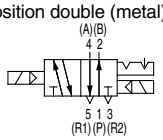
Note 3) The weight without sub plate. (Sub plate: 0.37kg)

Symbols

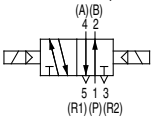
2 position single



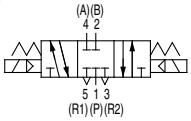
2 position double (metal)



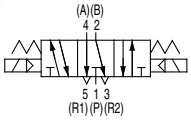
2 position double (rubber)



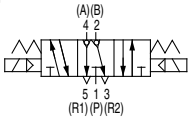
3 position closed centre



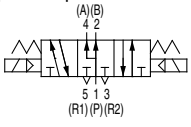
3 position exhaust centre



3 position double check



3 position pressure centre



Standard Specifications

			Metal seal	Rubber seal
Valve specifications	**Valve construction**		**Metal seal**	**Rubber seal**
	Fluid		Air/Inert gas	
	Maximum operating pressure		1.0MPa	
	Minimum operating pressure	**Single**	0.15MPa	0.20MPa
		Double	0.15MPa	0.15MPa
		3 position	0.15MPa	0.20MPa
	Ambient and fluid temperature		–10 to 60°C Note 1)	–5 to 60°C Note 1)
	Lubrication		Not required	
	Manual operation		Push type (tool required)	
	Impact/Vibration resistance		150/30 m/s² Note 2)	
	Enclosure		IP65 (splash proof/jet proof)	
Electrical specifications	**Rated coil voltage**		12VDC, 24VDC, 100VAC,110VAC, 200VAC, 220VAC (50/60Hz)	
	Allowable voltage fluctuation		±10% of rated voltage	
	Coil insulation type		Class B equivalent	
	Power consumption (current)	**24VDC**	DC1W (42mA)	
		12VDC	DC1W (83mA)	
		100VAC	Inrush 1.2VA (12mA), Holding 1.2VA (12mA)	
		110VAC	Inrush 1.3VA (11.7mA), Holding 1.3VA (11.7mA)	
		200VAC	Inrush 2.4VA (12mA), Holding 2.4VA (12mA)	
		220VAC	inrush 2.6VA (11.7mA), Holding 2.6VA (11.7mA)	

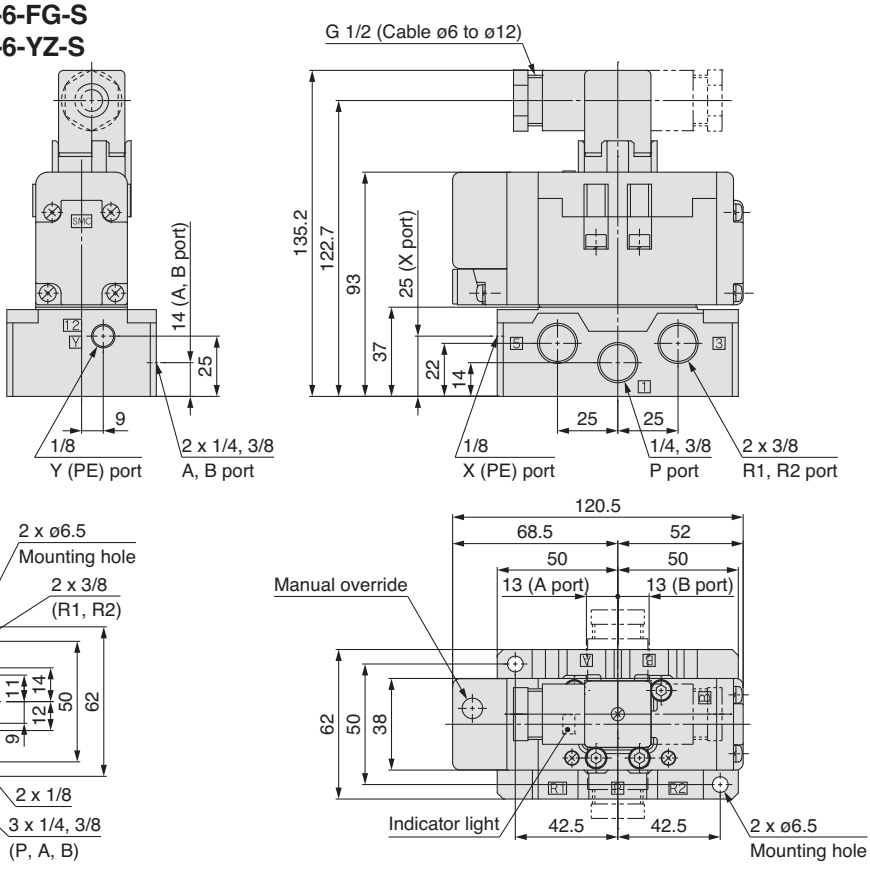
Note 1) For low temperature, use dry air with no condensation.

Note 2) Impact resistance: No malfunction when tested with a drop tester in the axial direction and at a right angle to the main valve and armature, one time each in both energized and deenergized states. (initial value)

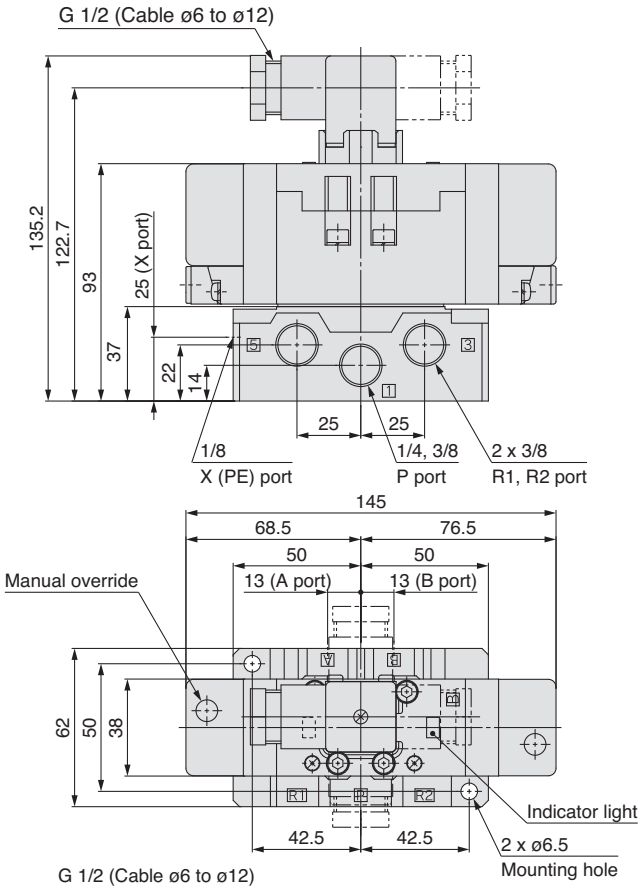
Vibration resistance: No malfunction when tested with one sweep of 8.3 to 2000Hz in the axial direction and at a right angle to the main valve and armature, one time each in both energized and deenergized states. (initial value)

DIN Connector Type

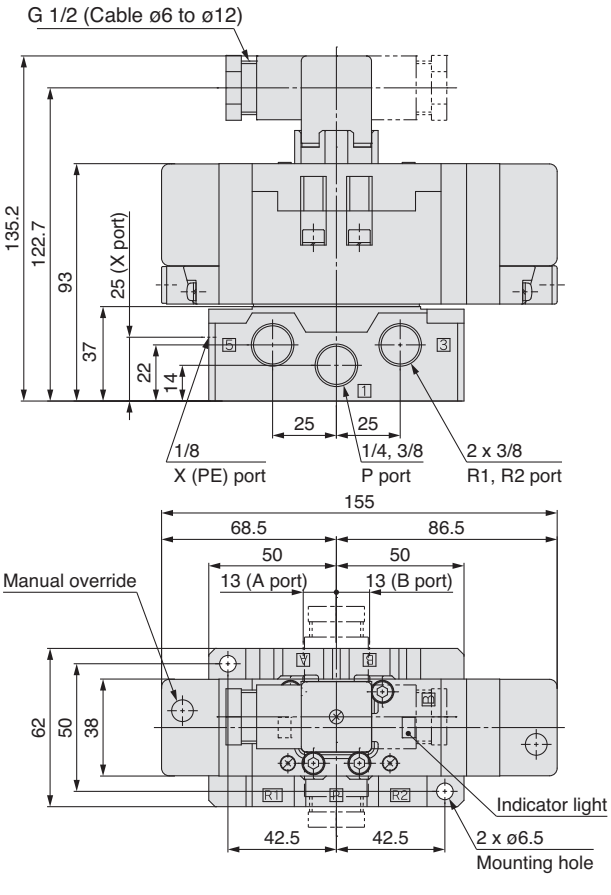
2 position/Single : VQ7-6-FG-S
Single (reverse pressure): VQ7-6-YZ-S



2 position/Double : VQ7-6-FG-D
Double (reverse pressure): VQ7-6-YZ-D

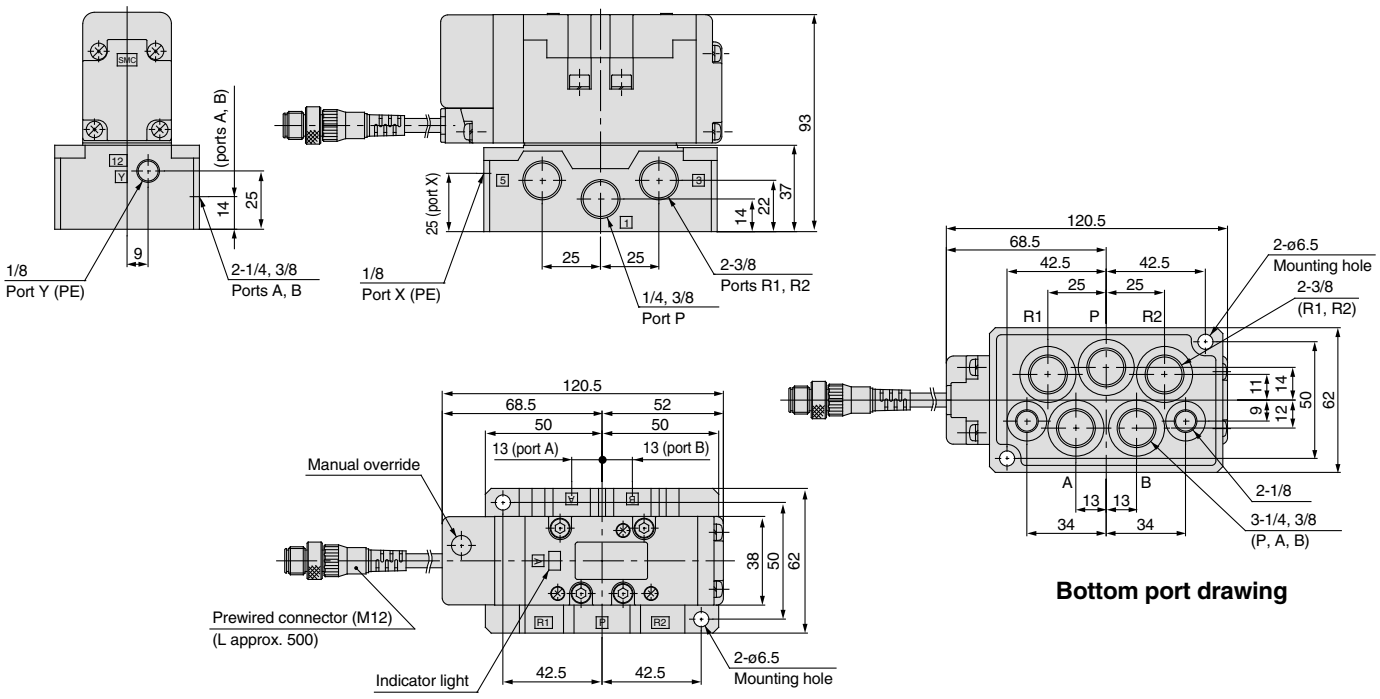


3 position/Closed centre : VQ7-6-FHG-D
Exhaust centre : VQ7-6-FJG-D
Pressure centre : VQ7-6-FIG-D



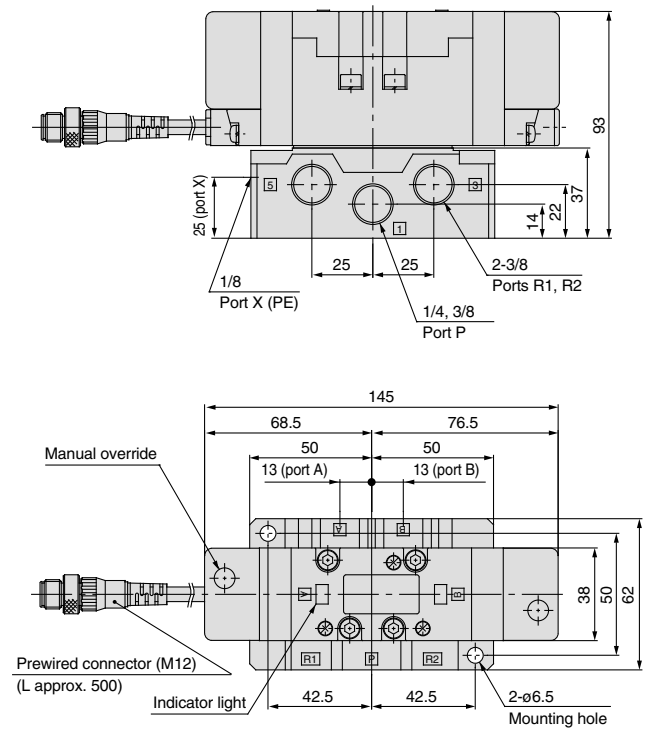
Prewired Connector Type

2 position/Single : VQ7-6-FG-S□□□□SC
Single (reverse pressure): VQ7-6-YZ-S□□□□SC

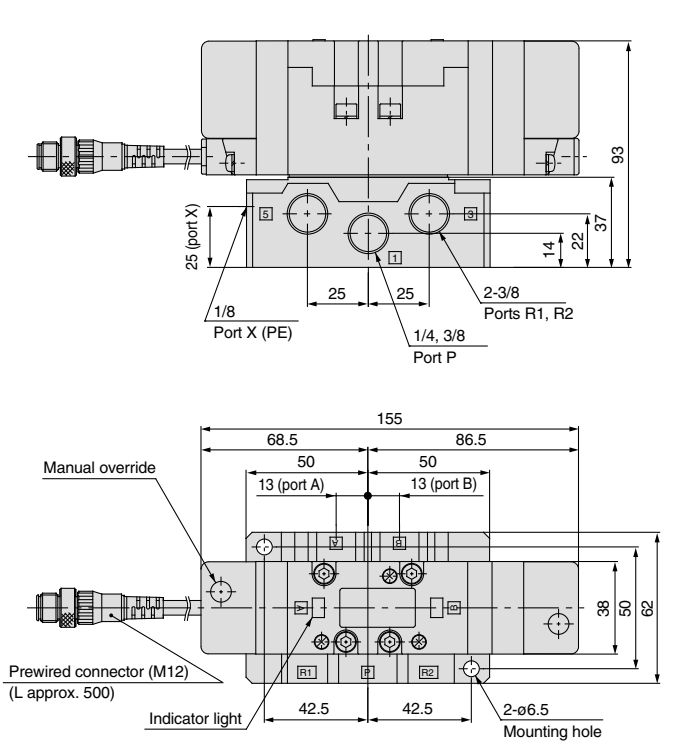


Bottom port drawing

2 position/Double : VQ7-6-FG-D-□□□□SC
Double (reverse pressure): VQ7-6-YZ-D-□□□□SC



3 position/Closed centre : VQ7-6-FHG-D-□□□□SC
Exhaust centre : VQ7-6-FJG-D-□□□□SC
Pressure centre : VQ7-6-FIG-D-□□□□SC

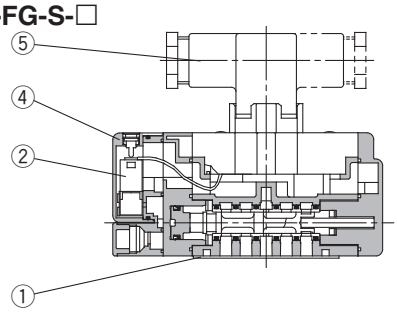


Construction

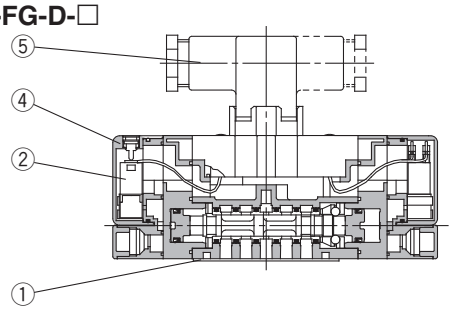
DIN Connector Type

Metal seal type

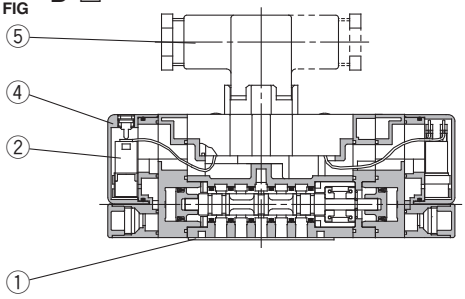
VQ7-6-FG-S-□



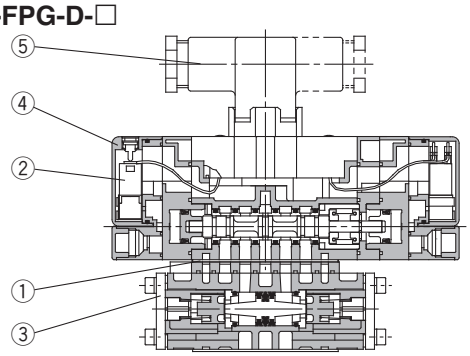
VQ7-6-FG-D-□



VQ7-6-FHG/FJG/FIG-D-□

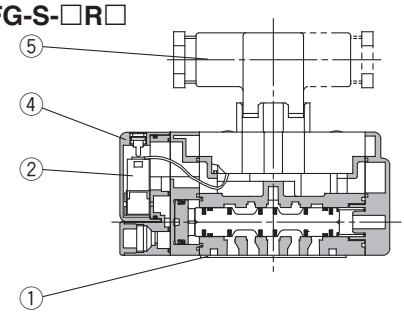


VQ7-6-FPG-D-□

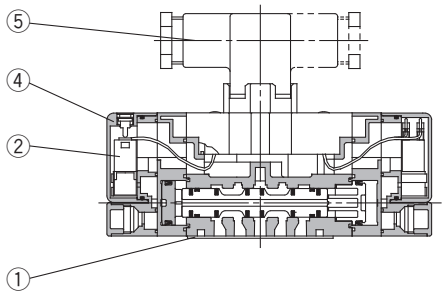


Rubber seal type

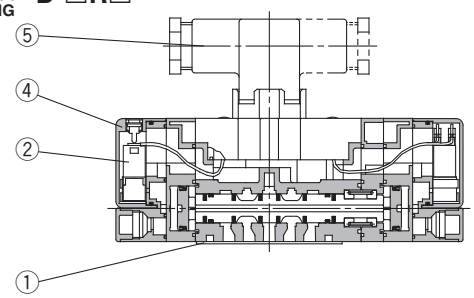
VQ7-6-FG-S-□R□



VQ7-6-FG-D-□R□



VQ7-6-FHG/FJG/FIG-D-□R□



Replacement Parts (For valve)

No.	Description	VQ7-6-FG-S-□	VQ7-6-FG-D-□	VQ7-6-FHG/FJG/FIG-D-□	VQ7-6-FPG-D-□	VQ7-6-FG-S-□R□	VQ7-6-FG-D-□R□	VQ7-6-FHG/FJG/FIG-D-□R□
1	**Gasket**	VQ7060-13-4-1						
2	**Pilot valve assembly** (1) (2)	VQZ110Q-□ (5: 24 VDC, 6: 12 VDC, 1: For AC (3))						
3	**Double check spacer**	—			VV71-FPG		—	
4	**Pilot valve cover**	VQ7060-9A-1						
5	**DIN terminal**	GDM3D						

Note 1) When the voltage is the same, the replacement of pilot valve assembly is possible.
Note 2) Since the substrate circuit in the valve is different, voltage cannot be changed with the pilot valve assembly.
Note 3) The pilot valve for 100 to 240 VAC is common.

Series VQ7-6
Manifold Series VV71

How to order Manifolds

E VV71 6 – 02R – □ 02D □ □ – Q

Stations

1	1 station
⋮	⋮
10	10 stations

Note) When equipped with control unit, 1 or 2 stations are used for mounting.

Ordering source area code

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

2(B), 4(A) port piping connection

02R	1/4 (right side)
03R	3/8 (right side)
02L	1/4 (left side)
03L	3/8 (left side)
02Y	1/4 (bottom)
03Y	3/8 (bottom)
C6R	One-touch fitting ø6 (right side)
C8R	One-touch fitting ø8 (right side)
C10R	One-touch fitting ø10 (right side)
C6L	One-touch fitting ø6 (left side)
C8L	One-touch fitting ø8 (left side)
C10L	One-touch fitting ø10 (left side)
□	Mixed

Note) When ports are mixed, indicate piping specifications using the instructions and manifold specification sheet.

Note) Manifold sploded view, see page 1.20-34 for details.

Order Made Contact SMC for other voltages (9)

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

Silencer box

Nil	Without
SB	With

Note) The silencer box mounting position corresponds to piping connection at ports 3 (R2) and 5 (R1).

Air release valve coil rating

Nil	None
1	100VAC 50Hz/60Hz
2	200VAC 50Hz/60Hz
3	24VDC
4	12VDC
9	Other (less than 240V)

1 (P), 3 (R2), 5 (R1) port piping connection

02D	Rc1/4 (bottom)
02U	Rc1/4 (top)
02B	Rc1/4 (both sides)
03D	Rc3/8 (bottom)
03U	Rc3/8 (top)
03B	Rc3/8 (both sides)
C12D	One-touch fitting ø12 (bottom)
C12U	One-touch fitting ø12 (top)
C12B	One-touch fitting ø12 (both sides)
□	Mixed

Note) When ports are mixed, indicate piping specifications using the instructions and manifold specification sheet.

Control unit type (see pages 1.20-16 and 1.20-17 for details)

Control equipment \ Symbol	Nil	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)								○	
Number of manifold blocks required for mounting (stations)		2	2	2	2	2	2	2	1

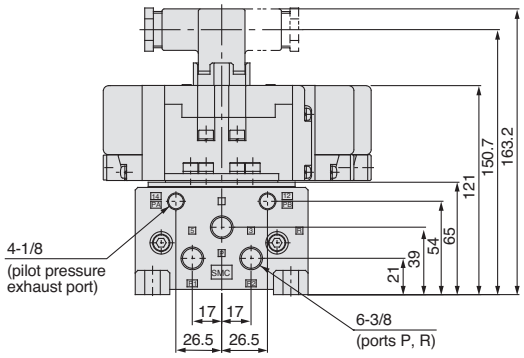
Manifold Specifications

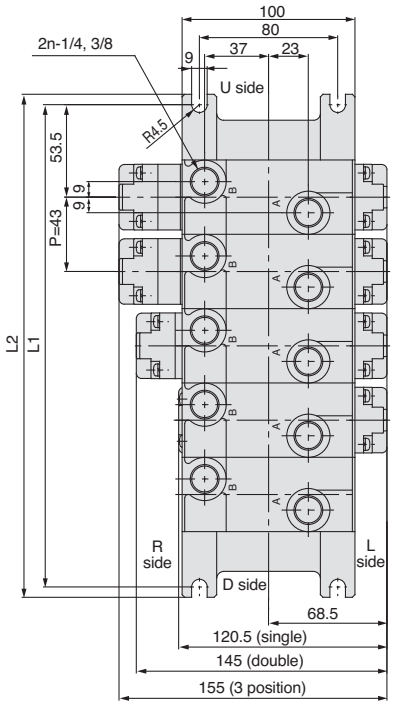
Manifold block size	Applicable solenoid valve	Piping specifications			Stations	Weight kg
		Ports 2 (B), 4 (A)		1 (P), 3 (R2) 5 (R1) port size		
		Piping direction	Size			
ISO size 1	VQ7-6 ISO size 1 series	Right, Left	1/4 3/8 C6 (for ø6) C8 (for ø8) C10 (for ø10)	1/4 3/8 C12 (for ø12)	Note) 10 stations max.	0.43n + 0.49 (n: Stations)
		Bottom	1/4 3/8			

Note) When equipped with control unit, 1 or 2 stations are used for mounting.

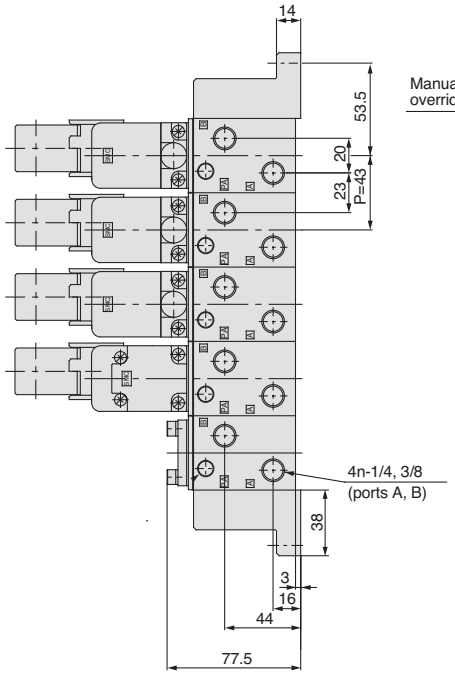
DIN Connector Type

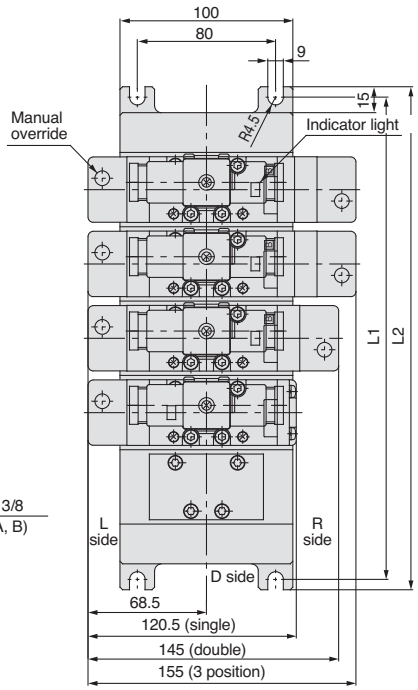
VV71□-□-□□□





Bottom port drawing



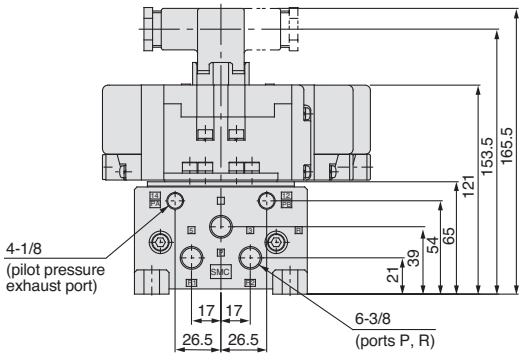


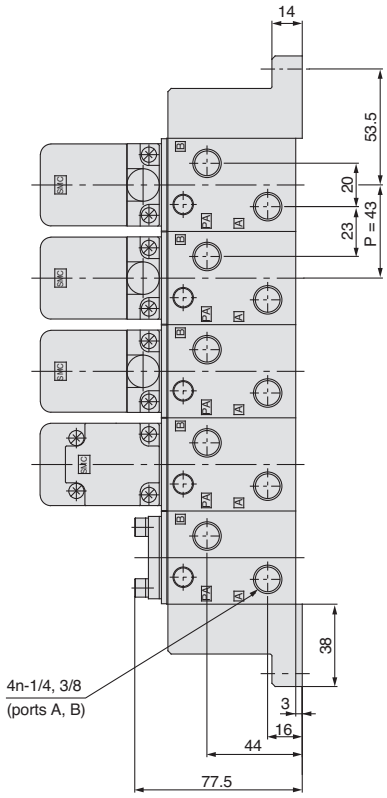
L: Dimensions n: Stations

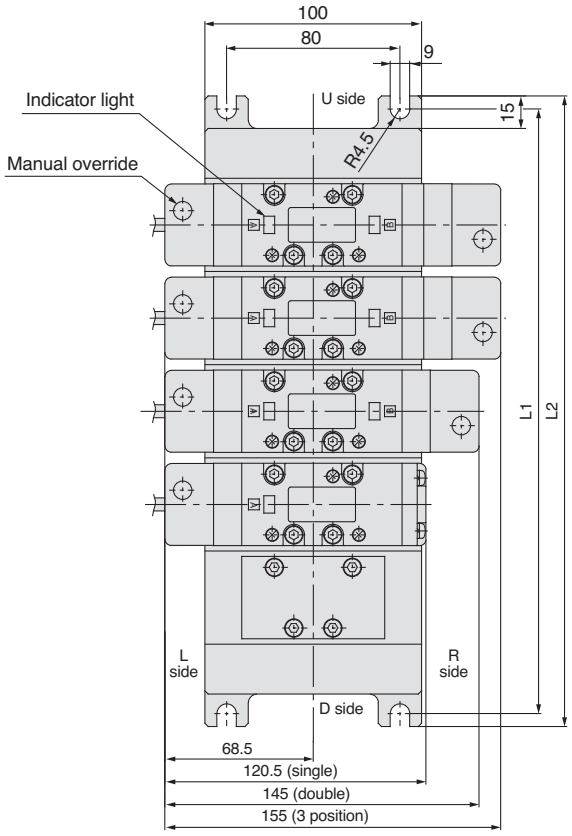
	1	2	3	4	5	6	7	8	9	10	Formula
L1	107	150	193	236	279	322	365	408	451	494	L1 = 43n + 64
L2	119	162	205	248	291	334	377	420	463	506	L2 = 43n + 76

Prewired Connector Type

VV71□-□-□□□







L: Dimensions n: Stations

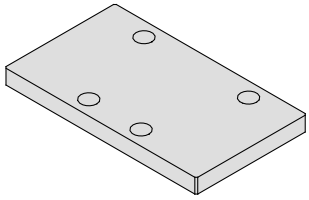
	1	2	3	4	5	6	7	8	9	10	Formula
L1	107	150	193	236	279	322	365	408	451	494	L1 = 43n + 64
L2	119	162	205	248	291	334	377	420	463	506	L2 = 43n + 76

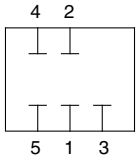
Optional Manifold Parts

Blank plate assembly

AXT502-9A

This is used by mounting it on a manifold block when a valve is removed for maintenance or when it is planned to install an additional valve in the future, etc.

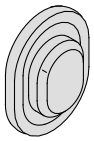


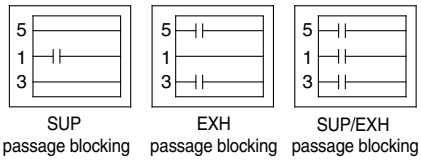


Blocking plate (for SUP/EXH passages)

AXT502-14

When two or more different high pressures are supplied to one manifold, blocking plates are installed between stations having different pressures.
Also, in cases such as when valve exhaust effects other stations in a circuit, blocking plates are used for exhaust at stations where the exhaust is to be separated.

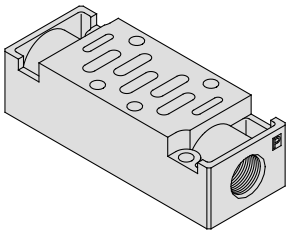


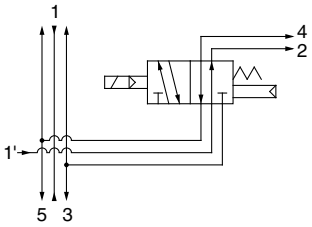


Individual SUP spacer

VV71-P- 02 / 03 / C10

By mounting individual supply spacers on a manifold block, supply ports can be provided individually for each valve.

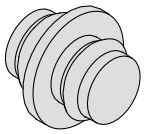


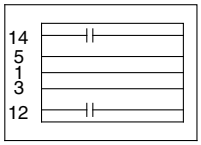


Blocking plate (for pilot EXH passage)

AZ503-53A

When a valve's pilot valve exhaust effects other valves in a circuit, blocking plates are used between stations where the pilot exhaust passages are to be separated.

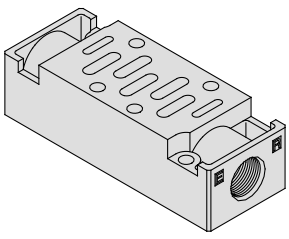


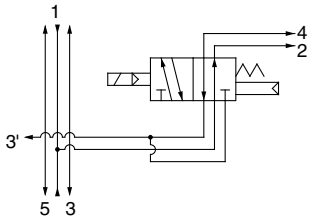


Individual EXH spacer

VV71-R- 02 / 03 / C12

By mounting individual exhaust spacers on a manifold block, exhaust ports can be provided individually for each valve. (3, 5 common exhaust type)

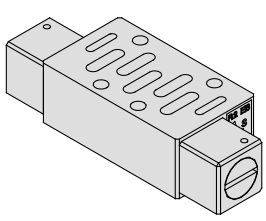


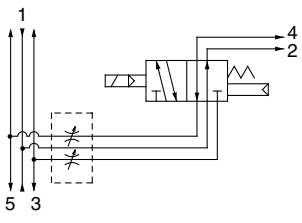


Throttle valve spacer

AXT503-23A

By mounting a throttle valve spacer on a manifold block, a cylinder's speed can be controlled by throttling the exhaust.

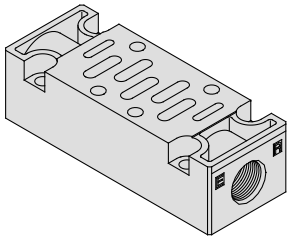


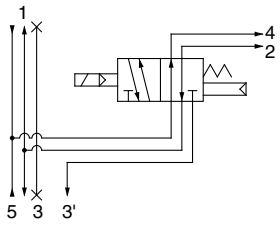


Reverse pressure spacer

AXT502-21A-1

With reverse pressure control manifold specifications, when pressure is changed individually on one side (ex. high speed cylinder return), pressure can be supplied individually to the R2 side by mounting a reverse pressure spacer.
{port 3 (R2) is individual and 5 (R1) is common}

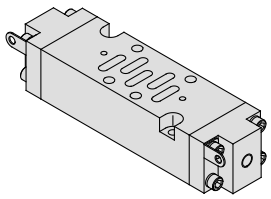


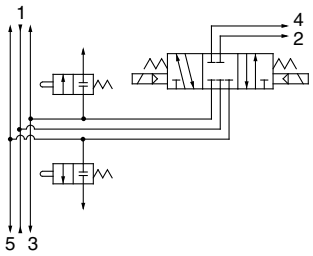


Residual pressure release valve spacer

VV71-R-AB

This is used by mounting on a manifold block in order to exhaust the residual pressure trapped inside of a cylinder, etc., during an intermediate stop with a 3 position closed centre or perfect type valve. Residual pressure at ports A and B is exhausted individually to the outside by manual operation.

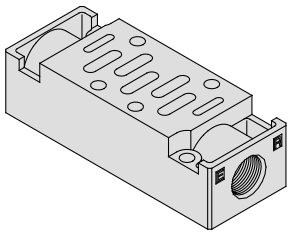


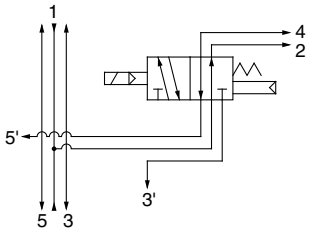


R1, R2 individual EXH spacer

VV71-R2-03

By mounting an individual exhaust spacer on a manifold block individual exhaust is possible from both R1 and R2 .
{3 (R2) and 5 (R1) are individual ports}

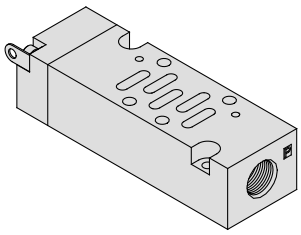


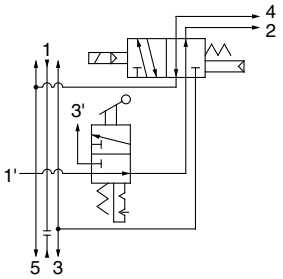


Individual SUP spacer with residual pressure release valve

VV71-PR-$^{02}_{03}$

This is used by mounting on a manifold block in order to stop the primary side supply pressure in an individual supply spacer, while at the same time exhausting the residual pressure on the secondary side. Stopping the supply and exhausting the residual pressure are performed by pressing the manual override, which can be locked by turning it.

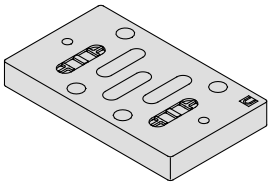


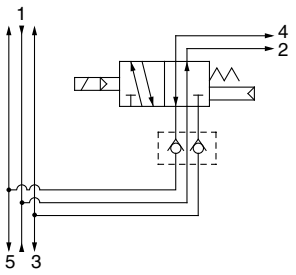


Main EXH back pressure check plate

AXT503-37A

In cases where back pressure effects actuator operation due to simultaneous operation of manifold valves, etc., this effect can be eliminated by installing a plate between the manifold block and the valve from which back pressure is to be prevented.

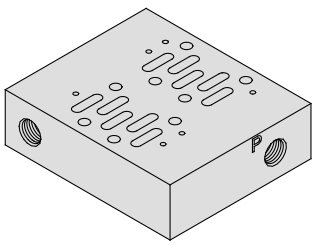


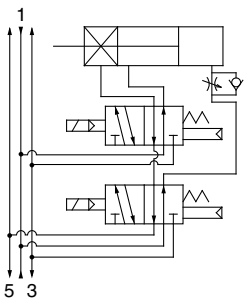


Adapter plate for locking cylinder

AXT502-26A

When using a locking cylinder with 2 valves for control, this spacer can be used by mounting on a manifold block. It consists of a circuit equipped with a function to prevent lurching during release.



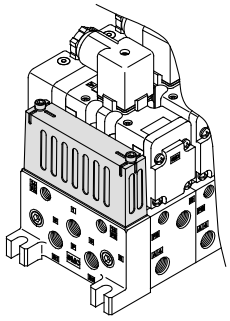


Optional Manifold Parts

Silencer box

VV71-□□□-□□-SB

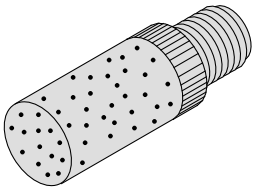
This can be provided as a unit on the end plate to reduce manifold exhaust noise and piping labour.



Pilot EXH silencer

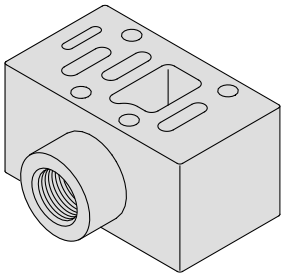
AN110-01

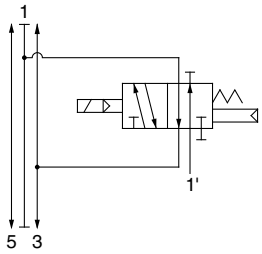
This is used by mounting on the pilot exhaust port in order to reduce manifold and single type pilot exhaust noise, and to prevent the entry of dust.



Release valve spacer

AXT502-17A

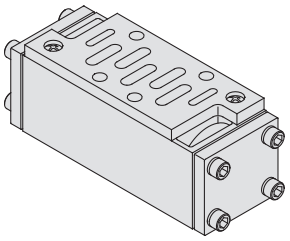


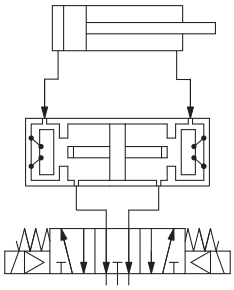


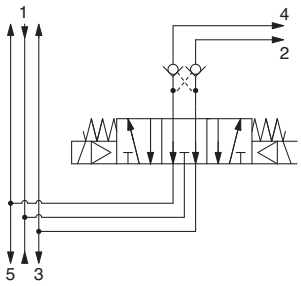
Double check spacer

VV71-FPG

By combining a 3 position exhaust centre valve with a double check spacer, an intermediate stopping position of a cylinder can be held for an extended period. It can also be used for drop prevention at the cylinder stroke end when releasing residual supply pressure, by combination with a 2 position single or double valve.







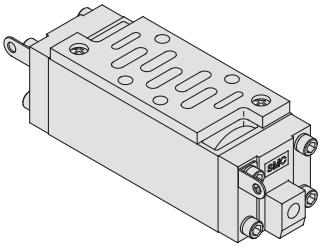
Accessory

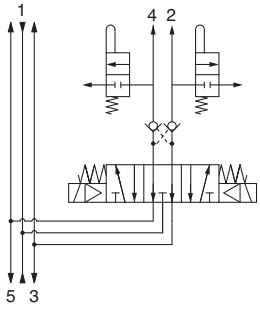
Description	Part no.	Qty.
Gasket	AXT500-13	1
Bolt	AXT632-45-8	4

Double check spacer with residual pressure release valve

VV71-FPGR

This is a double check spacer equipped with a residual pressure release function, to release residual pressure inside a cylinder during maintenance or adjustment, etc.





Accessory

Description	Part no.	Qty.
Gasket	AXT500-13	1
Bolt	AXT632-45-8	4

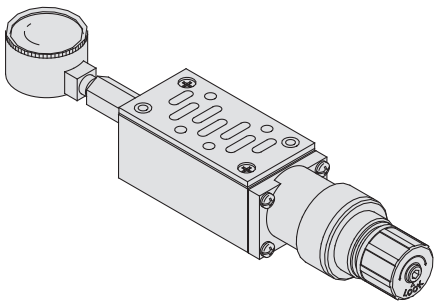
⚠Caution

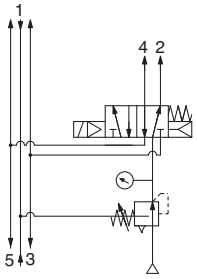
- Since extended cylinder stops are not possible if there are leaks from piping between the valve and cylinder or from fittings, etc., check for leakage using a neutral liquid detergent.
- Since One-touch fittings allow slight air leakage, screw piping is recommended when stopping the cylinder in the middle for a long time.
- Combination of 3 position, closed center and pressure center valves is not possible.
- Set the load weight so that the cylinder side pressure is less than two times the supply side pressure.
- When using the residual pressure release function, confirm the action of actuators, etc., and operate after providing for safety measures.
- Be aware that if the exhaust side of perfect spacer is restricted excessively, the intermediate stopping accuracy will decrease and will lead to improper intermediate stops.
- To combat the effects of back pressure, when required, we recommend installing an individual EXH spacer between the double check spacer and the manifold.

Interface regulator

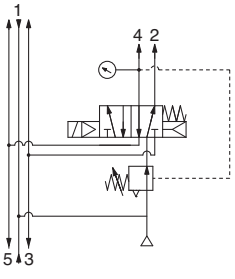
ARB250-00-P/A/B

By mounting an interface regulator on a manifold block, it is possible to regulate each valve.

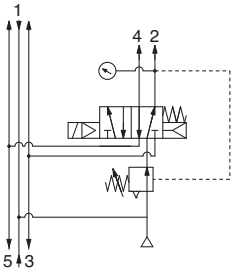




Regulating port P



Regulating port A



Regulating port B

Part No.

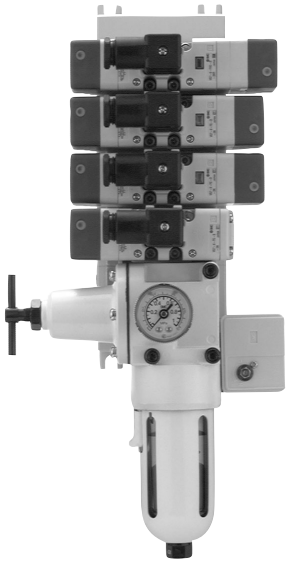
P reduced pressure	ARB250-00-P
A reduced pressure	ARB250-00-A
B reduced pressure	ARB250-00-B

⚠ Handling precautions

- When combining a pressure centre valve and interface regulator with reduced pressure at ports A and B, use model ARB210-A/B.
- When combining a reverse pressure valve and interface regulator, use model ARB210-A/B. Further, it cannot be used with reduced pressure at port P.
- When combining a double check valve and interface regulator, use a manifold or sub plate as a base, and assemble by stacking in the order of double check spacer, interface regulator and valve.
- When combining a closed centre valve and interface regulator with reduced pressure at ports A and B, it cannot be used for intermediate cylinder stops because of air leakage from the regulator's relief port.

Control Units

Control equipment (filters, regulators, pressure switches, air release valves) has been made into standardized units which can be mounted on manifolds without any modifications.



Control unit specifications

Air filter (with auto drain/with manual drain)	
Filtration degree	5μm
Regulator	
Set pressure (downstream pressure)	0.05 to 0.85MPa
Pressure switch	
Pressure adjustment range	0.1 to 0.7MPa
Contact	1ab
Rated current	(induction load) 125VAC 15A, 250VAC 15A
Air release valve (single only)	
Operating pressure range	0.15 to 1.0MPa

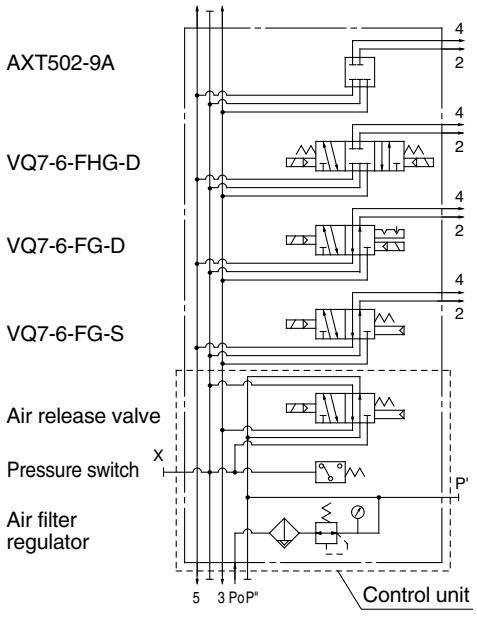
Options

Blank plate	AXT502-9A (for manifold)
	AXT502-18A (for release valve adapter plate)
	MP2 (for control equipment/filter regulator)
	MP3 (for pressure switch)
Release valve adapter plate	AXT502-17A
Control equipment	VAW-A (adapter plate, filter with auto drain cock, regulator)
	VAW-M (adapter plate, filter with manual drain cock, regulator)
Pressure switch	IS3100-X230

Control unit types

Ordering symbol / Control equipment	Nil	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)								○	
Number of manifold blocks required for mounting (stations)		2	2	2	2	2	2	2	1

Manifold specification example



Use of control units

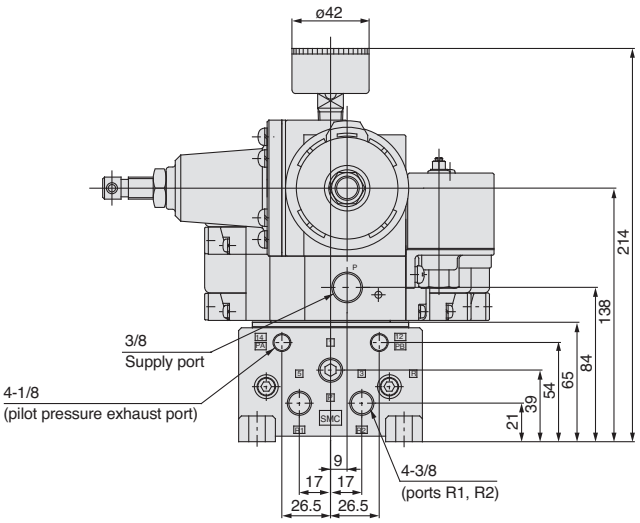
<Construction and piping >

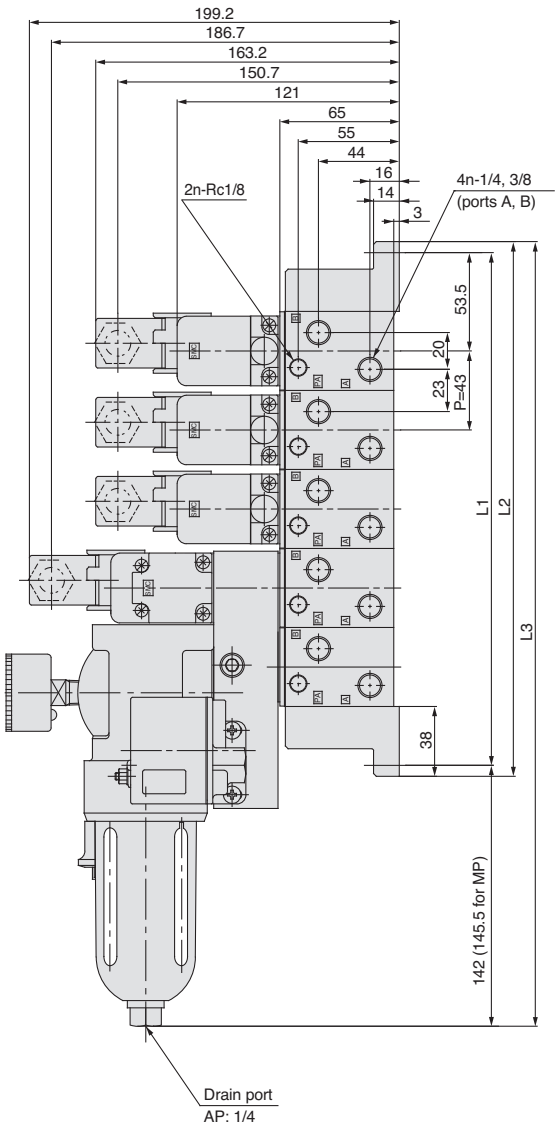
1) The supply pressure (Po) passes through the regulator with filter ①and is adjusted to the prescribed pressure. Next, it goes through the release valve ②(downstream residual pressure switching function used as normally ON) and is supplied to the manifold base side (P).
2) When the release valve ② is OFF, the supply pressure from port Po is blocked, and the air which was being supplied to the manifold side port P passes through the release valve ② and is discharged from port R1.
3) The pressure switch is piped into the downstream side of the release valve ②. (It operates when the release valve ② is energized.) Also, since there is an internal voltage drop of 4V, it may not be possible to confirm the OFF and ON states with a tester, etc.

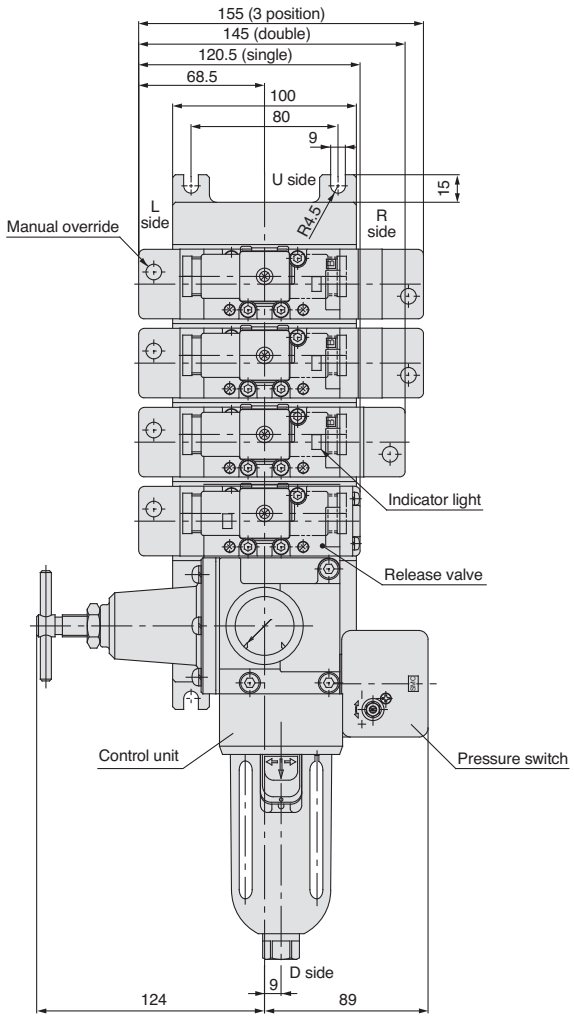
⚠Caution

• In the case of air filters with auto drain or manual drain, mount so that the air filter is at the bottom.

Manifold with control unit







L: Dimensions n: Stations

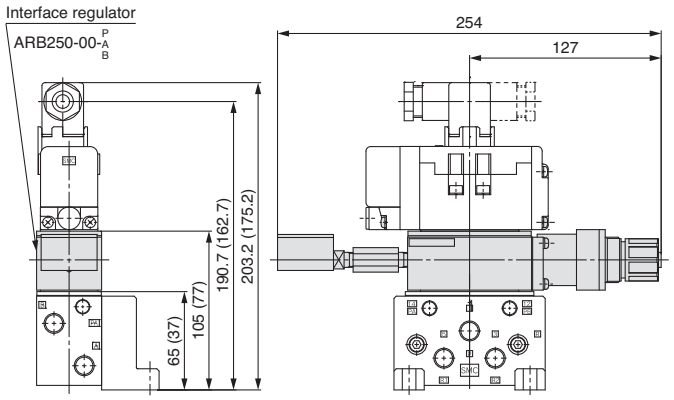
	1	2	3	4	5	6	7	8	9	10	Formula
L1	107	150	193	236	279	322	365	408	451	494	L1 = 43n + 64
L2	119	162	205	248	291	334	377	420	463	506	L2 = 43n + 76
L3	255	298	341	384	427	470	513	556	599	642	L3 = 43n + 212 (215.5)
	(258.5)	(301.5)	(344.5)	(387.5)	(430.5)	(473.5)	(516.5)	(559.5)	(602.5)	(645.5)	

L3 dimensions inside ( ) are for MP

Manifold Options

Interface regulator

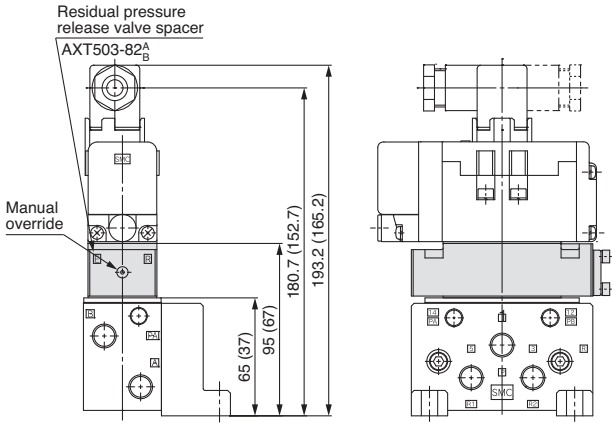
ARB250-00-$^{P}_{A}$$_{B}$



Dimensions inside ( ) are for sub plate

Residual pressure release valve spacer

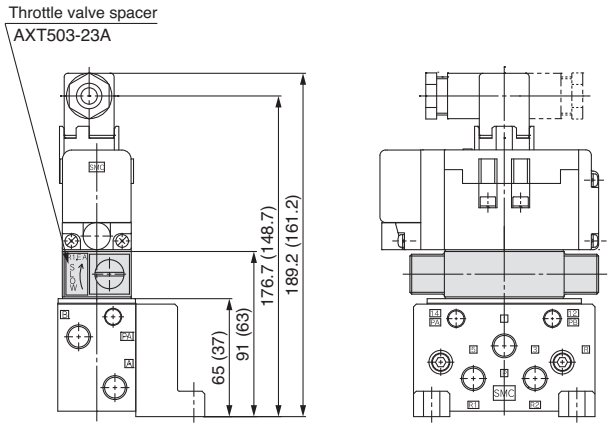
AZ503-82 $^{A}_{B}$



Dimensions inside ( ) are for sub plate

Throttle valve spacer

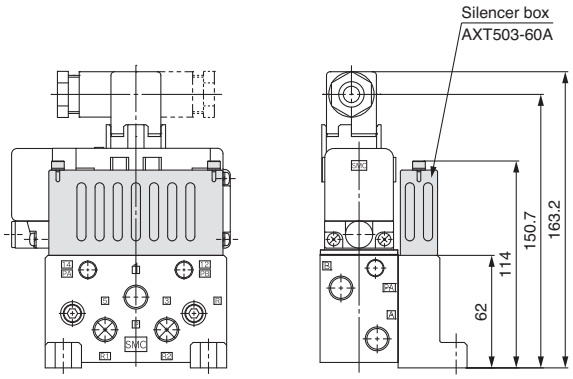
AXT503-23A



Dimensions inside ( ) are for sub plate

Silencer box

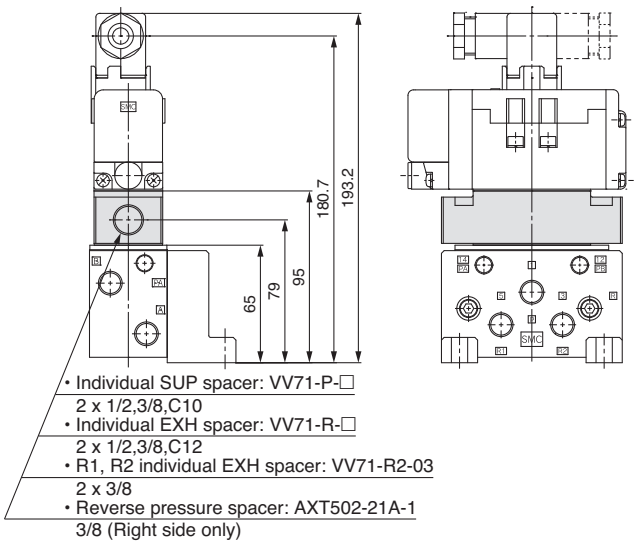
AXT503-60A



Spare parts

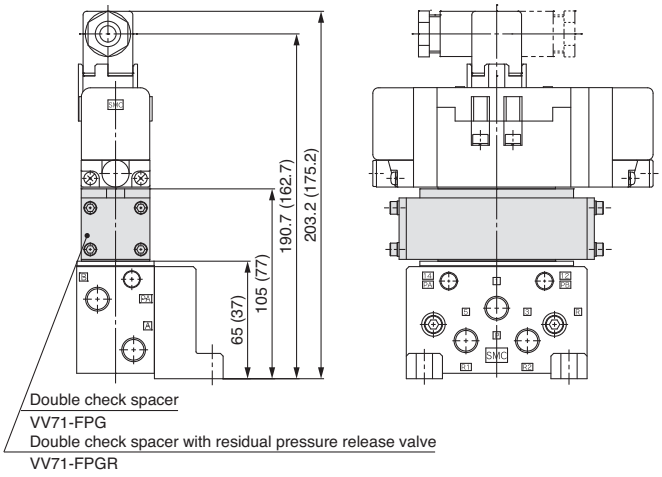
Description	Part no.
Element	AXT503-60-2-4

Individual SUP spacer **VV71-P-□**
Individual EXH spacer **VV71-R-□**
R1, R2 individual EXH spacer **VV71-R2-03**
Reverse pressure spacer **AXT502-21A-1**



Double check spacer **VV71-FPG**

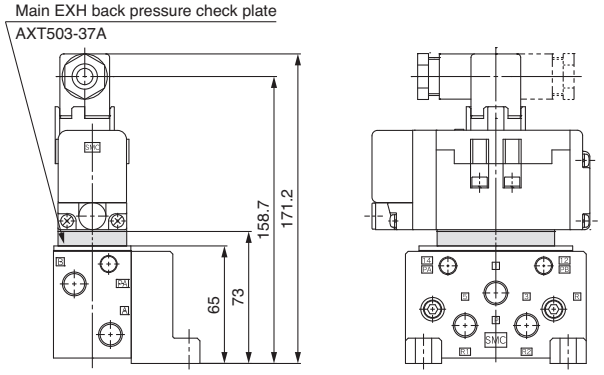
Double check spacer with residual pressure release valve **VV71-FPGR**



∗ Dimensions inside ( ) are for sub-plate.

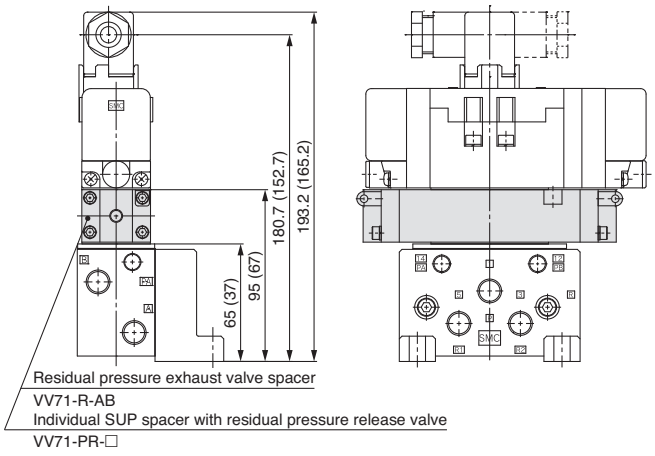
Main EXH back pressure check plate

AXT503-37A



Residual pressure release valve spacer **VV71-R-AB**

Individual SUP spacer with residual pressure release valve **VV71-PR-□**



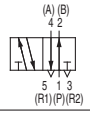
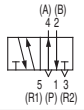
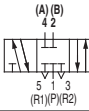
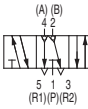
Dimensions inside ( ) are for sub plate

Series VQ7-8
ISO Standard Solenoid Valve Size 2/Single Unit

How to Order Valves

VQ7 — 8 — FG — S — 3 □ □ □ □ □ □ — Q

Passage symbol

FG	
* YZ	
FHG	
FJG	
FPG	
FIG	

* Optional

Number of solenoids

S	Single
D	Double

Coil rating

1	100VAC
2	200VAC
3	24VDC
4	12VDC
9 *	Other voltage (less than 240V)

Order Made * Contact SMC for other voltages (9)

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

Options

Nil	None
N	Indicator light
Z	Indicator light with surge voltage suppressor

Pilot exhaust

Nil	Common exhaust
V	Individual exhaust

Seal type

Nil	Metal seal
R	Rubber seal

Sub plate port size

Nil	Without sub plate
A03	Side port 3/8
A04	Side port 1/2
A06	Side port 3/4
B03	Bottom port 3/8
B04	Bottom port 1/2
B06	Bottom port 3/4

Thread

—	Rc (PT)
F	G (PF)
N	NPT
T	NPTF

Connector

Nil	DIN terminal block (with connector)
O	DIN terminal block (without connector)
SC	Prewired connector

How to Order Sub Plates

E VS7 — 2 — A03 □

Ordering source area code

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

Port size

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

Thread

—	Rc (PT)
F	G (PF)
N	NPT
T	NPTF

Specifications

Model	Piping specifications		Weight kg
	Piping direction	Port size	
VS7-2-A03	Side	3/8	0.68
VS7-2-A04		1/2	
VS7-2-A06		3/4	1.29
VS7-2-B03	Bottom	3/8	0.68
VS7-2-B04		1/2	
VS7-2-B06		3/4	1.29

Models

Series	Number of positions			Models	Note 1) Effective area mm² (Nℓ/min)	Note 2) Response time ms	Note 3) Weight kg
VQ7-8	2 position	Single	Metal seal	**VQ7-8-FG-S-□**	58.0 (3140.80)	40 or less	0.64
			Rubber seal	**VQ7-8-FG-S-□R**	58.0 (3140.80)	45 or less	
		Double	Metal seal	**VQ7-8-FG-D-□**	58.0 (3140.80)	15 or less	0.70
			Rubber seal	**VQ7-8-FG-D-□R**	58.0 (3140.80)	20 or less	
	3 position	Closed centre	Metal seal	**VQ7-8-FHG-D-□**	50.4 (2748.20)	45 or less	0.75
			Rubber seal	**VQ7-8-FHG-D-□R**	50.4 (2748.20)	50 or less	
		Exhaust centre	Metal seal	**VQ7-8-FJG-D-□**	54.0 (2944.50)	45 or less	0.75
			Rubber seal	**VQ7-8-FJG-D-□R**	58.0 (3140.80)	50 or less	
		Double check	Metal seal	**VQ7-8-FPG-D-□**	40.0 (2159.30)	60 or less	1.98
			Rubber seal	**VQ7-8-FPG-D-□R**	40.0 (2159.30)	60 or less	
		Pressure centre	Metal seal	**VQ7-8-FIG-D-□**	54.0 (2944.50)	45 or less	0.75
			Rubber seal	**VQ7-8-FIG-D-□R**	58.0 (3140.80)	50 or less	

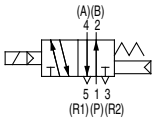
Note 1) Port size 3/8: Value when mounted on sub plate

Note 2) Based on JIS B 8375-1981 (Value for supply pressure of 0.5MPa, with light and surge voltage suppressor and using clean air.) Response time values will change depending on the pressure and air quality. Value when ON for double type.

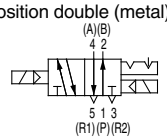
Note 3) Weight without sub plate (Sub plate: 3/8, 1/2: 0.68kg, 3/4: 1.29kg)

Symbols

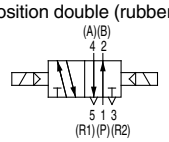
2 position single



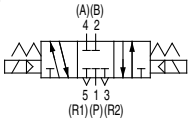
2 position double (metal)



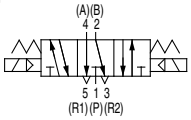
2 position double (rubber)



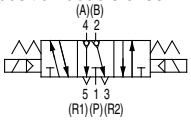
3 position closed centre



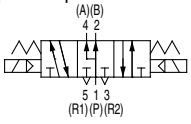
3 position exhaust centre



3 position double check



3 position pressure centre



Standard Specifications

			Metal seal	Rubber seal
Valve specifications	**Valve structure**		**Metal seal**	**Rubber seal**
	Fluid		Air, Inert gas	
	Maximum operating pressure		1.0MPa	
	Minimum operating pressure	**Single**	0.15MPa	0.20MPa
		Double	0.15MPa	0.15MPa
		3 position	0.15MPa	0.20MPa
	Ambient and fluid temperature		– 10 to 60° Note 1)	– 5 to 60° Note 1)
	Lubrication		Not required	
	Manual operation		Push type (tool required)	
	Impact/Vibration resistance		150/30 m/s² Note 2)	
	Enclosure		IP65 (splash proof, jet proof)	
Electrical specifications	**Rated coil voltage**		12VDC, 24VDC, 100VAC, 110VAC, 200VAC, 220VAC (50/60Hz)	
	Allowable voltage fluctuation		±10% of rated voltage	
	Coil insulation type		Class B equivalent	
	Power consumption (current)	**24VDC**	DC1W (42mA)	
		12VDC	DC1W (83mA)	
		100VAC	Start-up 1.2VA (12mA), Holding 1.2VA (12mA)	
		110VAC	Start-up 1.3VA (11.7mA), Holding 1.3VA (11.7mA)	
		200VAC	Start-up 2.4VA (12mA), Holding 2.4VA (12mA)	
		220VAC	Start-up 2.6VA (11.7mA), Holding 2.6VA (11.7mA)	

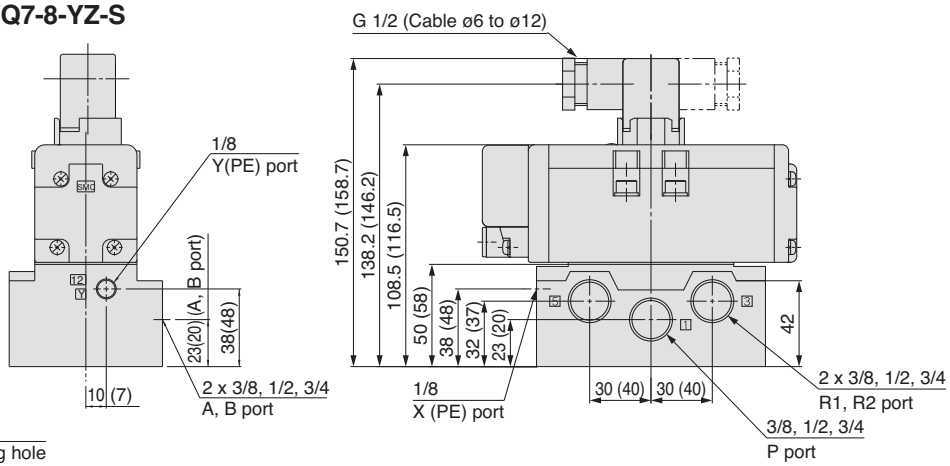
Note 1) For low temperature, use dry air with no condensation.

Note 2) Impact resistance: No malfunction when tested with a drop tester in the axial direction and at a right angle to the main valve and armature, one time each in both energized and deenergized states. (initial value)

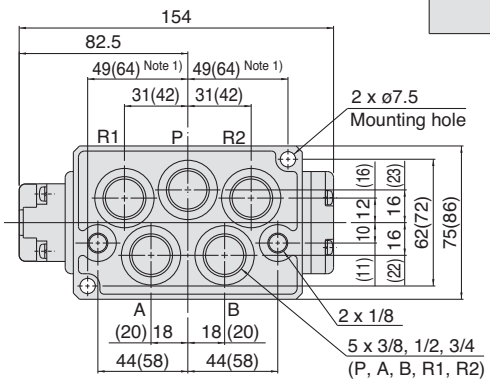
Vibration resistance: No malfunction when tested with one sweep of 8.3 to 2000Hz in the axial direction and at a right angle to the main valve and armature, one time each in both energized and deenergized states. (initial value)

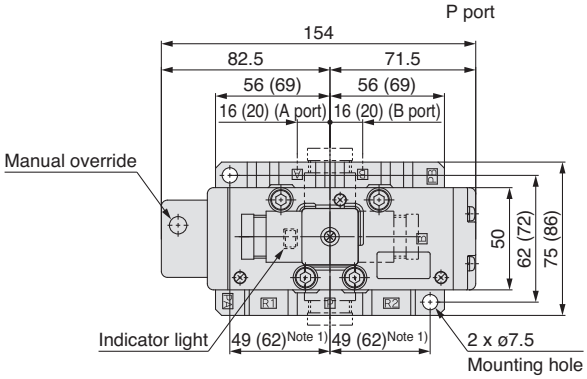
DIN Connector Type

2 position/Single : VQ7-8-FG-S
Single (reverse pressure) : VQ7-8-YZ-S



Bottom ported drawing

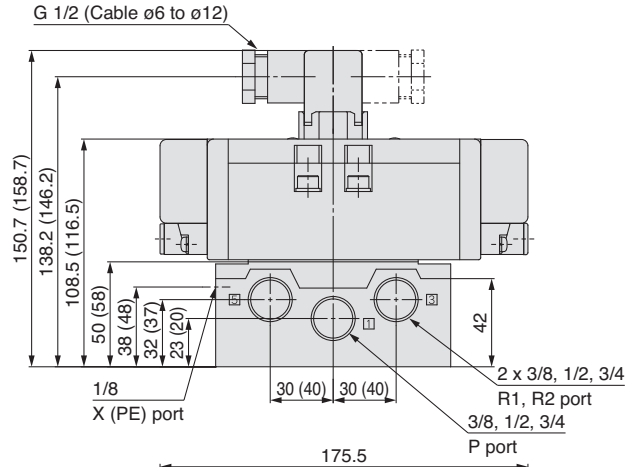


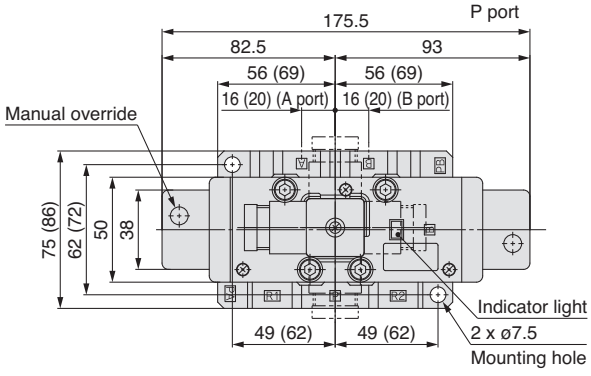


∗ ( ): 3/4

Note 1) For 3/4, the mounting hole pitch differs between the side ported type and the bottom ported type.

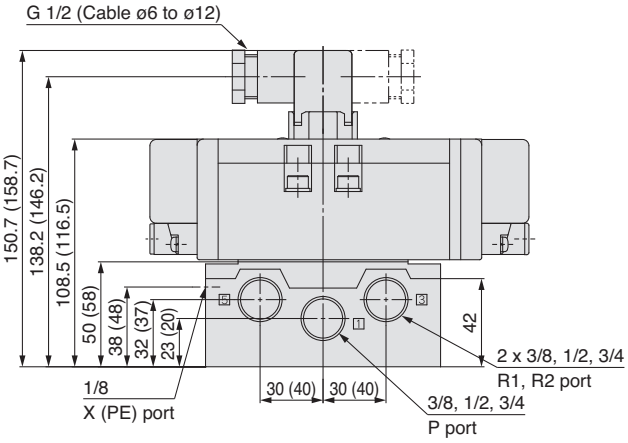
2 position/Double : VQ7-8-FG-D
Double (reverse pressure): VQ7-8-YZ-D

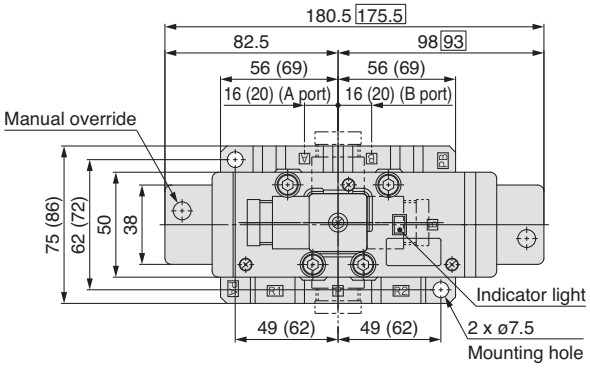




∗ ( ): 3/4

3 position/Closed centre : VQ7-8-FHG-D
Exaust centre : VQ7-8-FJG-D
Pressure centre : VQ7-8-FIG-D

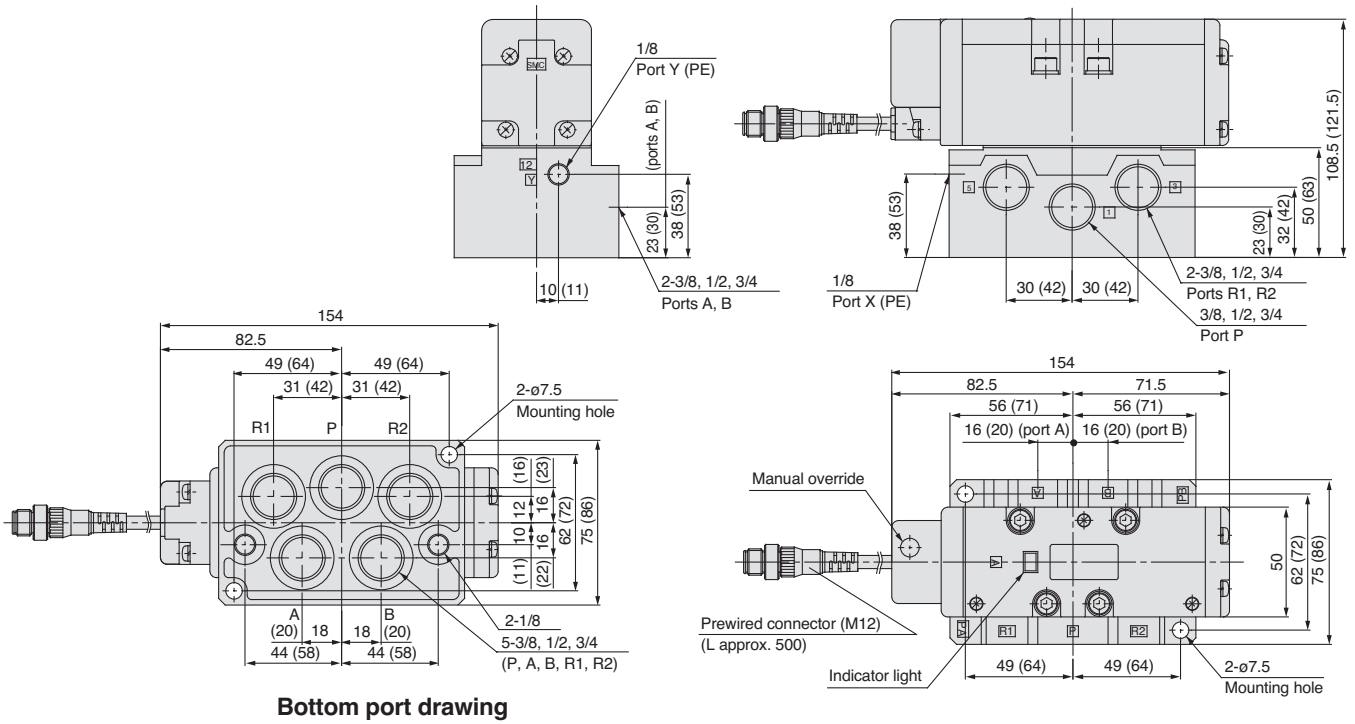




∗ ( ): 3/4
Dimensions inside ▭ are for rubber seals.

Prewired Connector Type

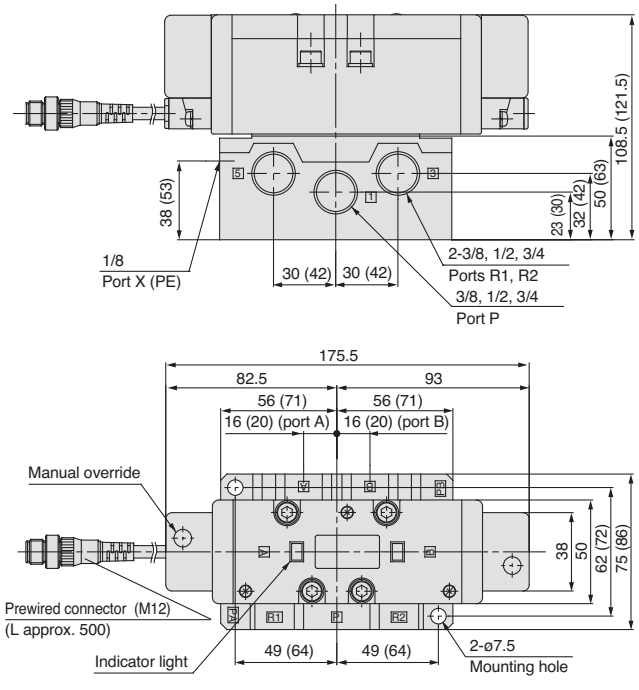
2 position/Single : VQ7-8-FG-S-□□□□SC
Single (reverse pressure): VQ7-8-YZ-S-□□□□SC



Bottom port drawing

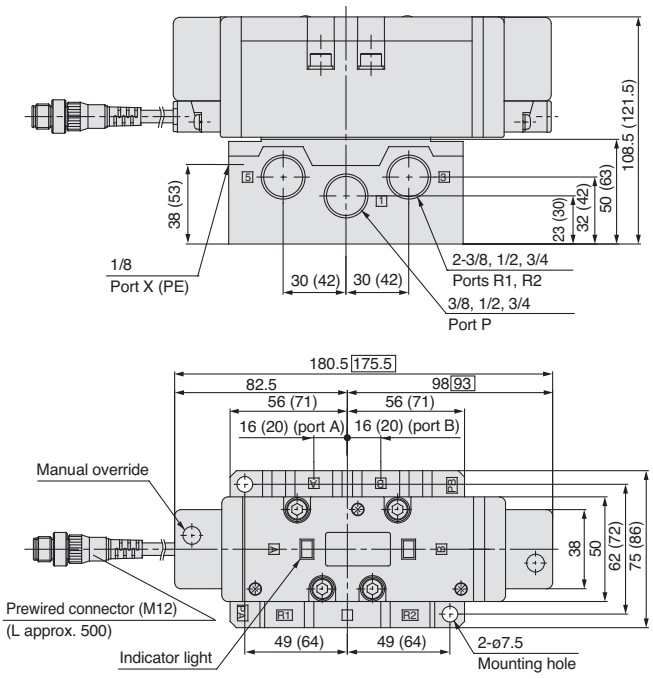
Dimensions inside ( ) are for 3/4

2 position/Double : VQ7-8-FG-D-□□□□SC
Double (reverse pressure): VQ7-8-YZ-D-□□□□SC



Dimensions inside ( ) are for 3/4

3 position/Closed centre : VQ7-8-FHG-D-□□□□SC
Exaust centre : VQ7-8-FJG-D-□□□□SC
Pressure centre: VQ7-8-FIG-D-□□□□SC



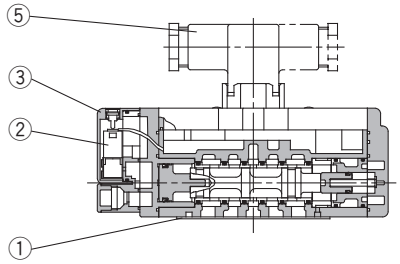
Dimensions inside ( ) are for 3/4
Dimensions inside ▭ are for rubber seals

Series VQ7-8
Construction

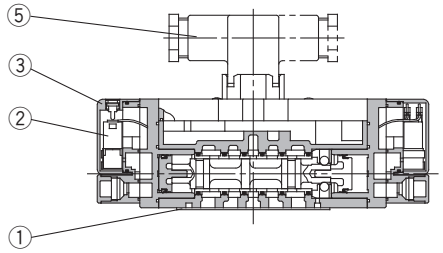
DIN Connector Type

Metal seal type

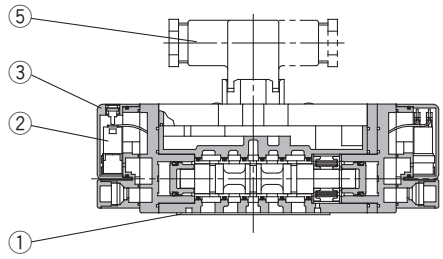
VQ7-8-FG-S-□



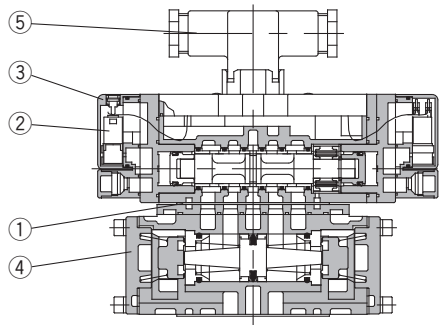
VQ7-8-FG-D-□



VQ7-8-$^{FHG}_{FJG}_{FIG}$-D-□

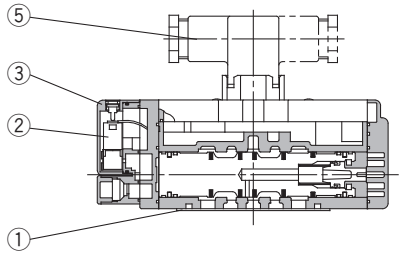


VQ7-8-FPG-D-□

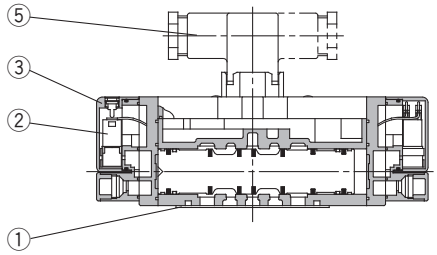


Rubber seal type

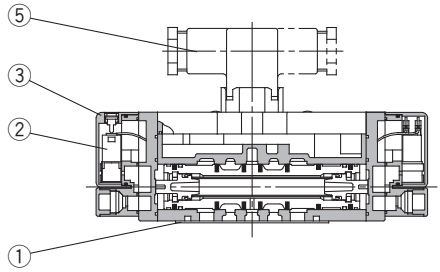
VQ7-8-FG-S-□R□



VQ7-8-FG-D-□R□



VQ7-8-$^{FHG}_{FJG}_{FIG}$-D-□R□



Replacement Parts (For valve)

Number	Description	VQ7-8-FG-S-□	VQ7-8-FG-D-□	VQ7-8-$^{FHG}_{FJG}_{FIG}$-D-□	VQ7-8-FPG-D-□	VQ7-8-FG-S-□R□	VQ7-8-FG-D-□R□	VQ7-8-$^{FHG}_{FJG}_{FIG}$-D-□R□
1	**Gasket**	VQ7080-13-4-1						
2	**Pilot valve assembly** (1) (2)	VQZ110Q-□ (5: 24 VDC, 6: 12 VDC, 1: For AC (3))						
3	**Pilot valve cover**	VQ7060-9A-1						
4	**Double check spacer**	—			VV72-FPG	—		
5	**DIN terminal**	GDM3D						

Note 1) When the voltage is the same, the replacement of pilot valve assembly is possible.
Note 2) Since the substrate circuit in the valve is different, voltage cannot be changed with the pilot valve assembly.
Note 3) The pilot valve for 100 to 240 VAC is common.

Series VQ7-8
Manifold Series VV72

How to Order Manifolds

E **VV72** **6** – **03R** – **□** **04D** **□** **□** – **Q**

Stations

1	1 station
⋮	⋮
10	10 stations

2 (B), 4 (A) port connection

03R	3/8 (right side)
04R	1/2 (right side)
03L	3/8 (left side)
04L	1/2 (left side)
03Y	3/8 (bottom)
04Y	1/ 2 (bottom)
□	Mixed

Note) In case of mixed ports, indicate piping specifications using the instructions and specification sheet.

Ordering source area code

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

Air release valve

Nil	Without
E	With air release valve

1 (P), 3 (R2), 5 (R1) port connection

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

Nil	Without
SB	With

Note) The mounting position of the silencer box corresponds to 3 (R2) and 5 (R1) port connections.

Air release valve coil rating

Nil	None
1	100VAC 50Hz/60Hz
2	200VAC 50Hz/60Hz
3	24VDC
4	12VDC
9	Other (less than 240V)

Note) Manifold exploded wiew, see page 1.20-35 for details.

Order Made Contact SMC for other voltages (9)

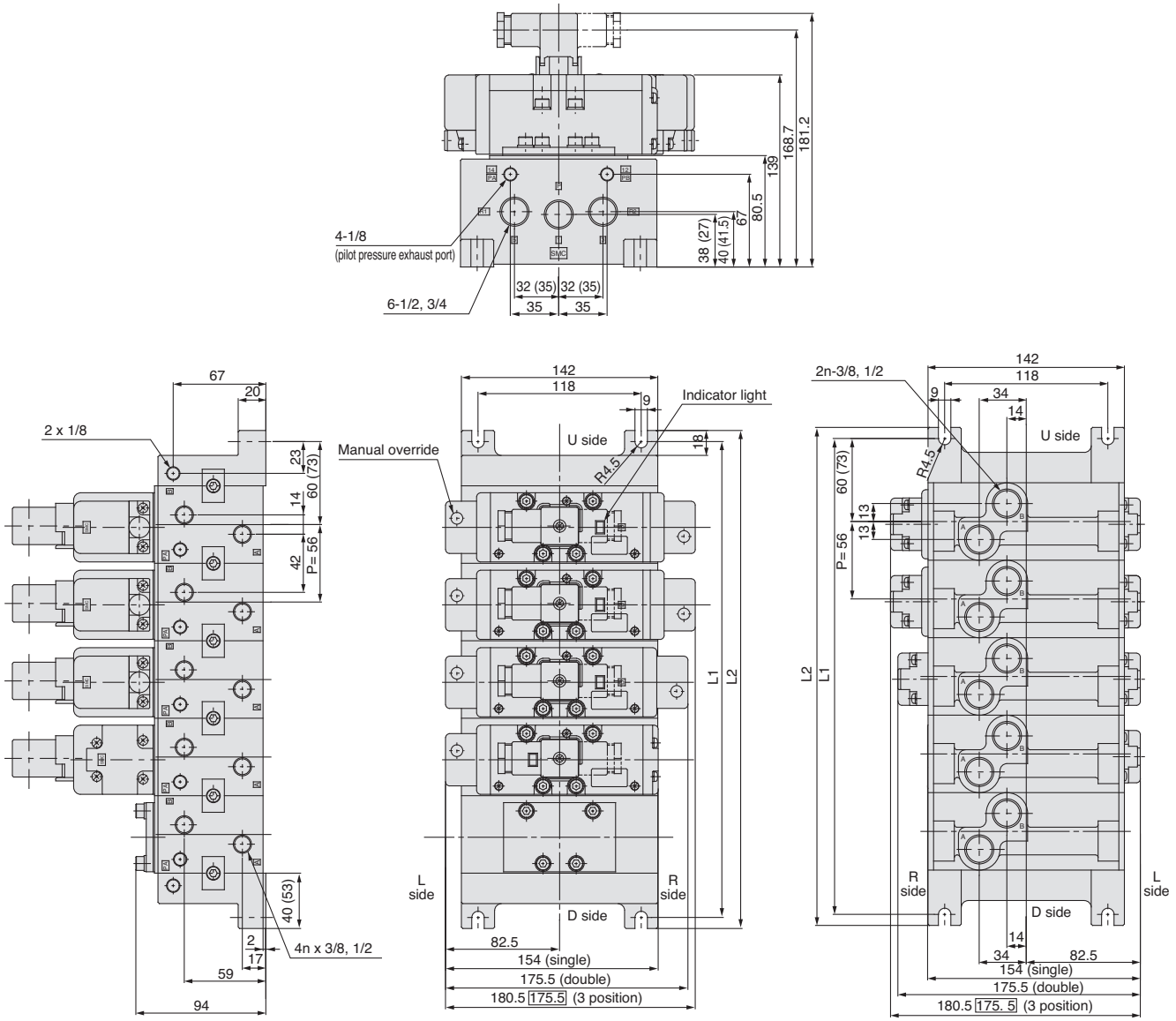
Protective class
class I (Mark: ⏚)..... DIN terminal type

Manifold specifications

Manifold block size	Applicable solenoid valves	Piping specifications		Stations	Weight kg
		2 (B), 4 (A) port size	1 (P), 3 (R2) 5 (R1) port size		
ISO size 2	VQ7-8 ISO size 2 series	3/8 1/2	1/2 3/4	Max. 10 stations	0.96n + 0.77 (n: stations)

DIN Connector Type

VV72□-□-□□□-



Bottom port drawing

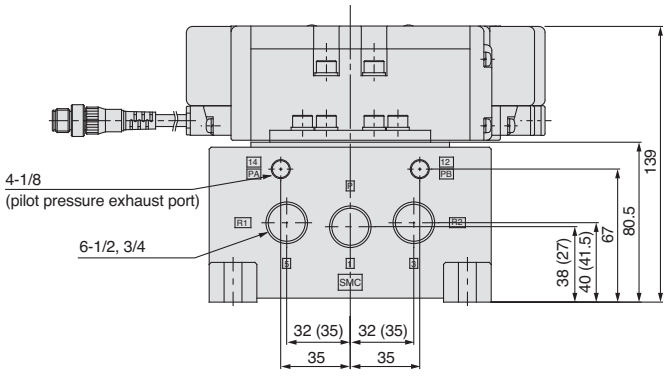
L: Dimensions

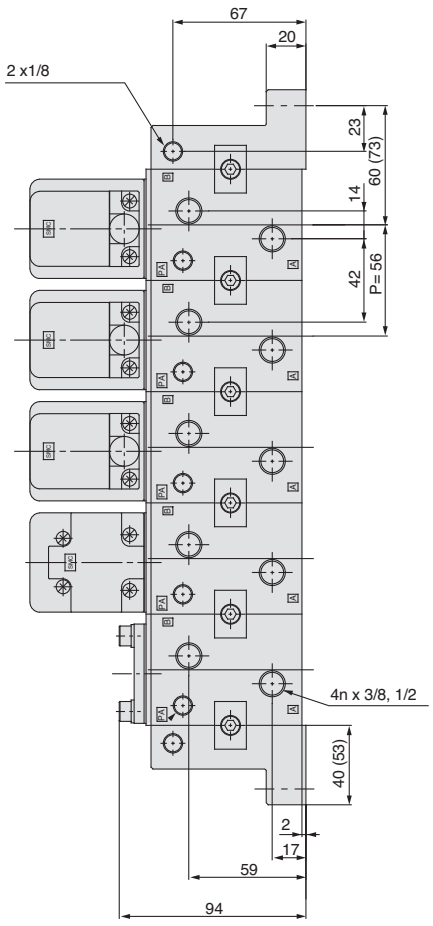
Port P, R1, R2	L \ n	1	2	3	4	5	6	7	8	9	10	Formula
1/2	L1	120	176	232	288	344	400	456	512	568	624	n: stations L1 = 56n + 64 L2 = 56n + 80
	L2	136	192	248	304	360	416	472	528	584	640	
3/4	L1	146	202	258	314	370	426	482	538	594	650	n: stations L1 = 56n + 90 L2 = 56n + 106
	L2	162	218	274	330	386	442	498	554	610	666	

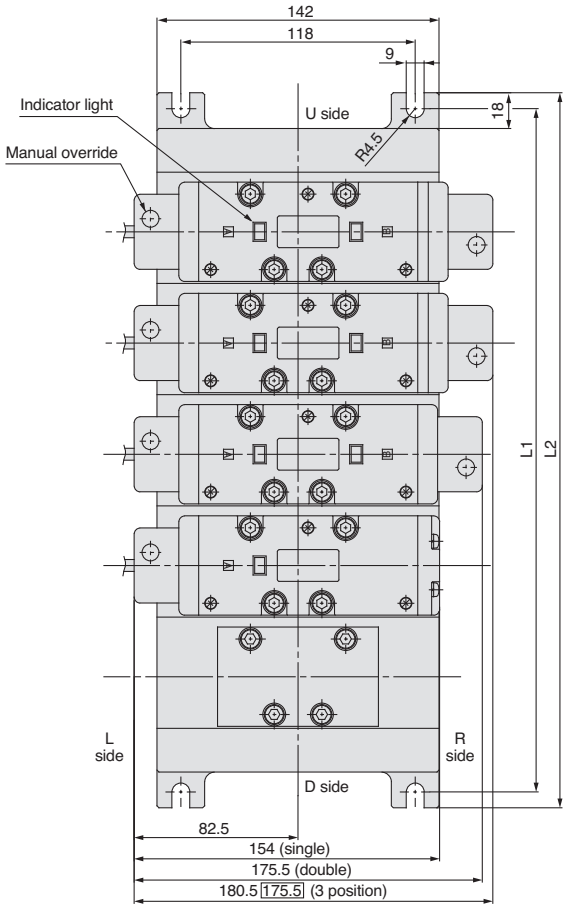
Dimensions inside ( ) are for 3/4
Dimensions inside ▭ are for rubber seals

Prewired Connector Type

VV72□-□-□□□







L: Dimensions

Port P, R1, R2	L \ n	1	2	3	4	5	6	7	8	9	10	Fomula
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 +1 06

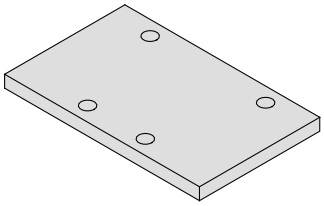
Dimensions inside ( ) are for 3/4
Dimensions inside ▭ are for rubber seals

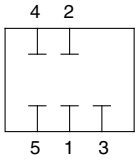
Optional Manifold Parts

Blank plate assembly

AXT512-9A

This is used by mounting it on a manifold block when a valve is removed for maintenance or when it is planned to install an additional valve in the future, etc.

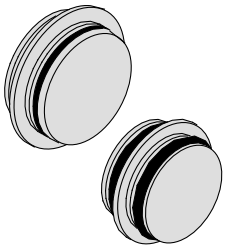


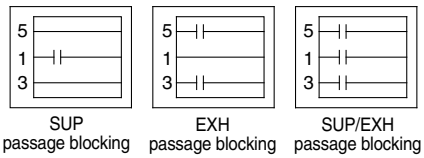


Blocking plate (for SUP/EXH passages)

AXT512-14-1A (for SUP)
AXT512-14-2A (for EXH)

When two or more different high pressures are supplied to one manifold, blocking plates are installed between stations having different pressures.
Also, in cases such as when valve exhaust effects other stations in a circuit, blocking plates are used for exhaust at stations where the exhaust is to be separated.

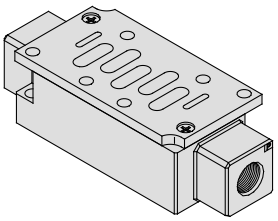


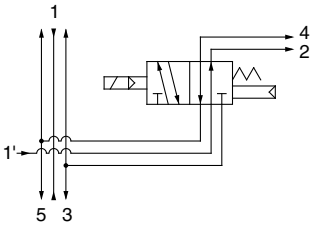


Individual SUP spacer

VV72-P-$^{03}_{04}$

By mounting individual supply spacers on a manifold block, supply ports can be provided individually for each valve.

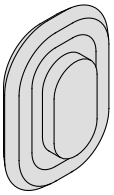


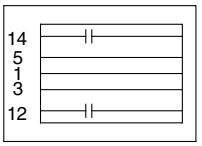


Blocking plate (for pilot EXH passage)

AZ512-49A

When a valve's pilot valve exhaust effects other valves in a circuit, blocking plates are used between stations where the pilot exhaust passages are to be separated.

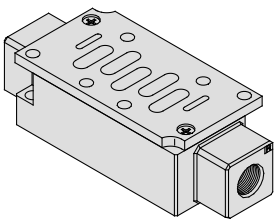


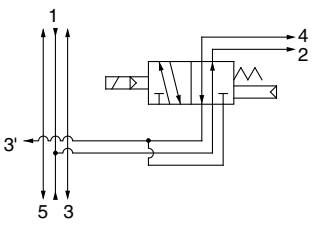


Individual EXH spacer

VV72-R-$^{03}_{04}$

By mounting individual exhaust spacers on a manifold block, exhaust ports can be provided individually for each valve.
(3, 5 common exhaust type)

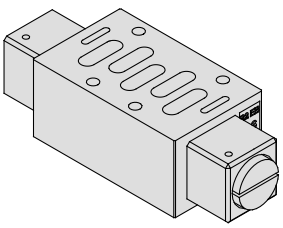


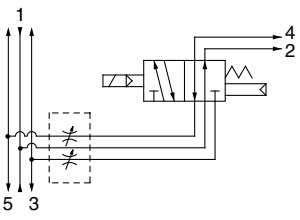


Throttle valve spacer

AXT510-32A

By mounting a throttle valve spacer on a manifold block, a cylinder's speed can be controlled by throttling the exhaust.

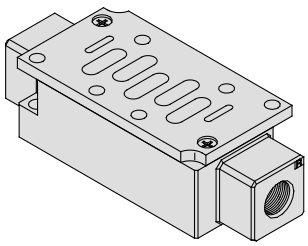


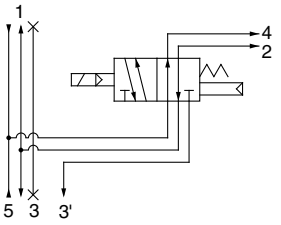


Reverse pressure spacer

AXT512-19A-2

With reverse pressure control manifold specifications, when pressure is changed individually on one side (ex. high speed cylinder return), pressure can be supplied individually to the R2 side by mounting a reverse pressure spacer. {port 3 (R2) is individual and 5 (R1) is common}

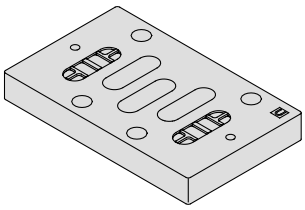


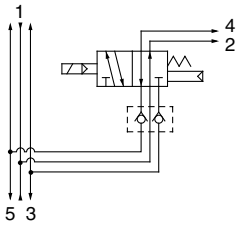


Main EXH back pressure check plate

AXT512-25A

In cases where back pressure effects actuator operation due to simultaneous operation of manifold valves, etc., this effect can be eliminated by installing a plate between the manifold block and the valve from which back pressure is to be prevented.

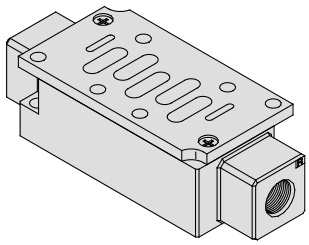


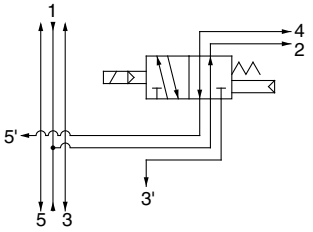


R1, R2 individual EXH spacer

VV72-R2-04

By mounting an individual exhaust spacer on a manifold block, individual exhaust is possible from both R1 and R2 .
{3 (R2) and 5 (R1) are individual ports}

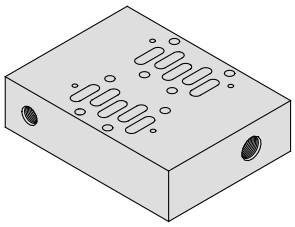


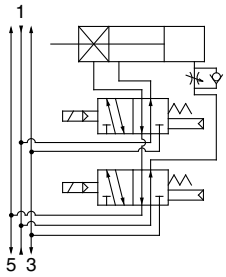


Adapter plate for locking cylinder

AXT602-6A

When using a locking cylinder with 2 valves for control, this spacer can be used by mounting on a manifold block. It consists of a circuit equipped with a function to prevent lurching during release.

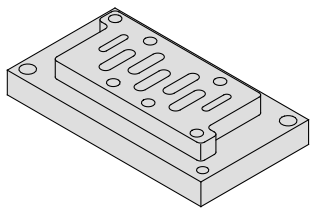




Conversion adapter plate

VV72-V-1

This conversion adapter plate allows a VQ7-6 (size 1) valve to be mounted on a VQ7-8 manifold base.
(V type)

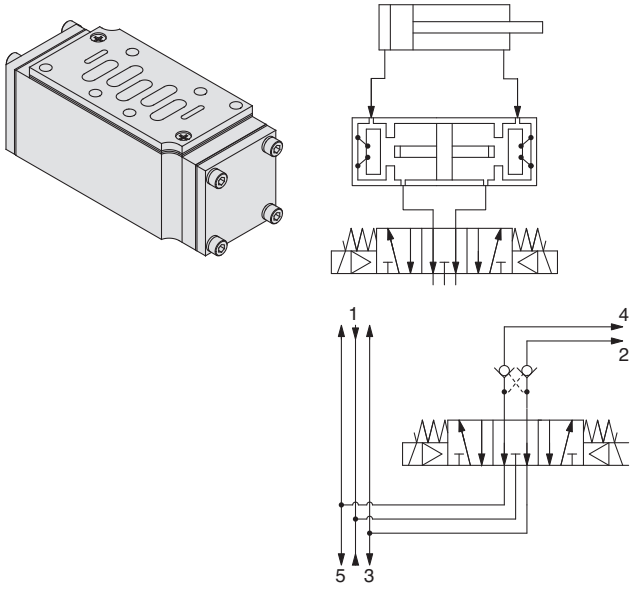


Optional Manifold Parts

Double check spacer

VV72-FPG

By combining a 3 position exhaust centre valve with a double check spacer, an intermediate stopping position of a cylinder can be held for an extended period. It can also be used for drop prevention at the cylinder stroke end when releasing residual supply pressure, by combination with a 2 position single or double valve.

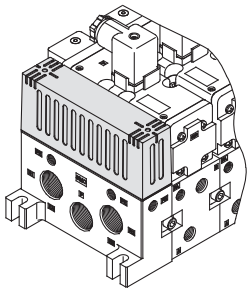


⚠Caution

- Since extended cylinder stops are not possible if there are leaks from piping between the valve and cylinder or from fittings, etc., check for leakage using a neutral liquid detergent.
- Since One-touch fittings allow slight air leakage, screw piping is recommended when stopping the cylinder in the middle for a long time.
- Combination of 3 position, closed center and pressure center valves is not possible.
- Set the load weight so that the cylinder side pressure is less than two times the supply side pressure.
- When using the residual pressure release function, confirm the action of actuators, etc., and operate after providing for safety measures.
- Be aware that if the exhaust side of perfect spacer is restricted excessively, the intermediate stopping accuracy will decrease and will lead to improper intermediate stops.
- To combat the effects of back pressure, when required, we recommend installing an individual EXH spacer between the double check spacer and the manifold.

Silencer box
VV72-□□□-□□-SB

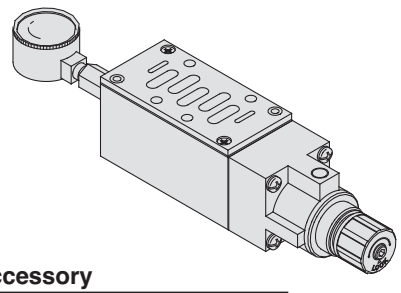
This can be provided as a unit on the end plate to reduce manifold exhaust noise and piping labor.

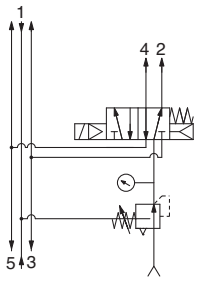


Interface regulator

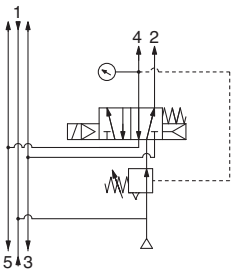
ARB350-00-$^{P}_{A}_{B}$

By mounting an interface regulator on a manifold block, it is possible to regulate each valve.

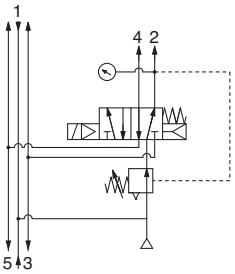




Regulating port P



Regulating port A



Regulating port B

Accessory

Description	Part no.	Qty.
Gasket	AXT510-13	1
Bolt	AXT632-54-6	4

Part No.

P reduced pressure	ARB350-00-P
A reduced pressure	ARB350-00-A
B reduced pressure	ARB350-00-B

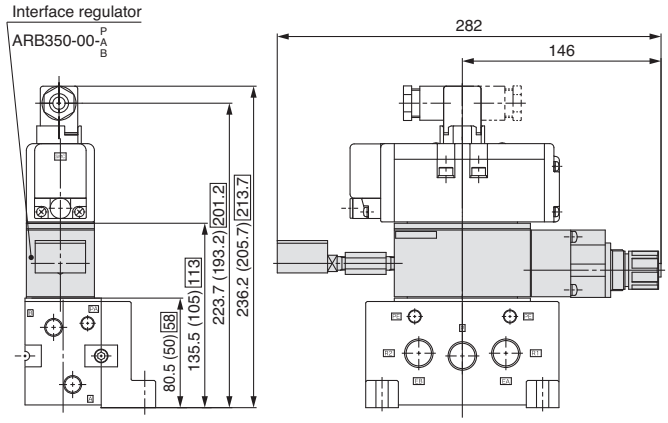
⚠Caution

- When combining a pressure centre valve and interface regulator with reduced pressure at ports A and B, use model ARB310-$^{A}_{B}$.
- When combining a reverse pressure valve and interface regulator, use model ARB310-$^{A}_{B}$. Further, it cannot be used with reduced pressure at port P.
- When combining a double check valve and interface regulator, use a manifold or sub plate as a base, and assemble by stacking in the order of double check spacer, interface regulator and valve.
- When combining a closed centre valve and interface regulator with reduced pressure at ports A and B, it cannot be used for intermediate cylinder stops because of air leakage from the regulator's relief port.

Manifold Options

Interface regulator

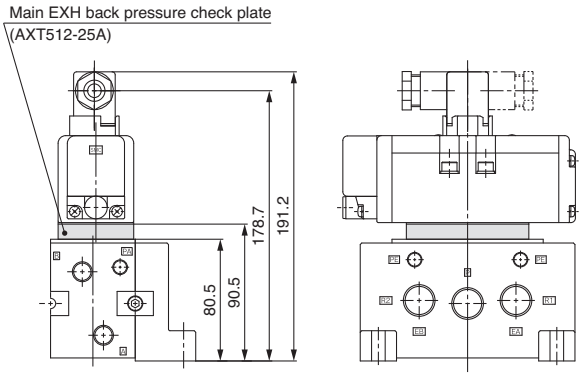
ARB350-00-



Dimensions inside ( ) are for sub plate apertures 3/8 and 1/2
Dimensions inside ☐ are for sub plate aperture 3/4

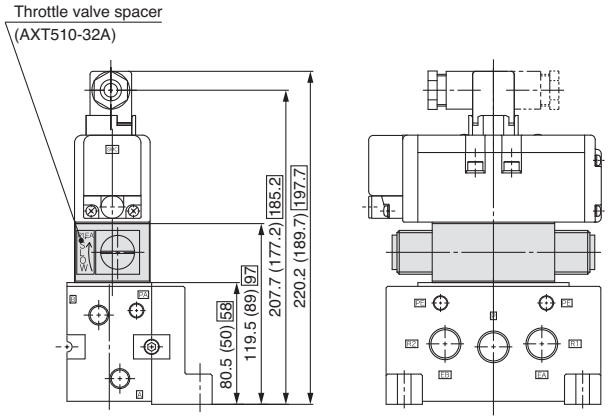
Main EXH back pressure check plate

AXT512-25A



Throttle valve spacer

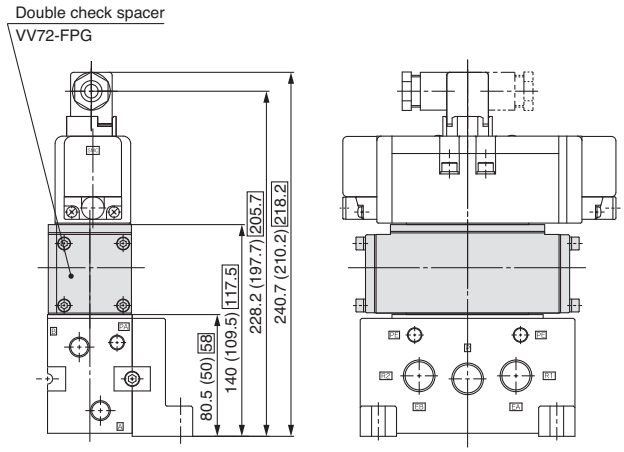
AXT510-32A



Dimensions inside ( ) are for sub plate apertures 3/8 and 1/2
Dimensions inside ☐ are for sub plate aperture 3/4

Double check spacer

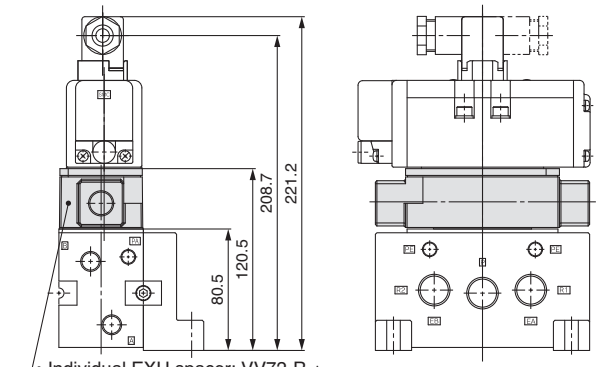
VV72-FPG



Dimensions inside ( ) are for sub plate apertures 3/8 and 1/2
Dimensions inside ☐ are for sub plate aperture 3/4

Manifold Options

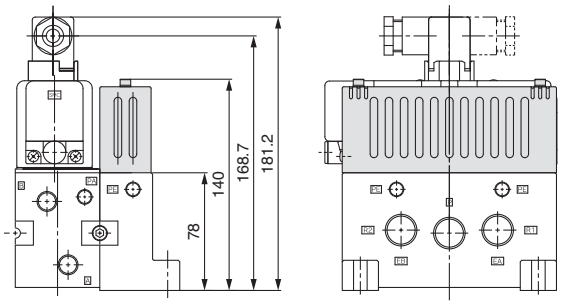
Individual EXH spacer **VV72-R-03, 04**
Individual SUP spacer **VV72-P-03, 04**
R1/R2 individual EXH spacer **VV72-R2-04**
Reverse pressure spacer **AXT512-19A-** $\frac{1}{2}$



- Individual EXH spacer: VV72-R-∗
  2 x 3/8, 1/2
- Individual SUP spacer: VV72-P-∗
  2 x 3/8, 1/2
- R1, R2 individual EXH spacer: VV72-R2-04
  2 x 1/2
- Reverse pressure spacer: AXT512-19A-$\frac{1}{2}$
  2 x 3/8, 1/2

Silencer box

AXT512-26A

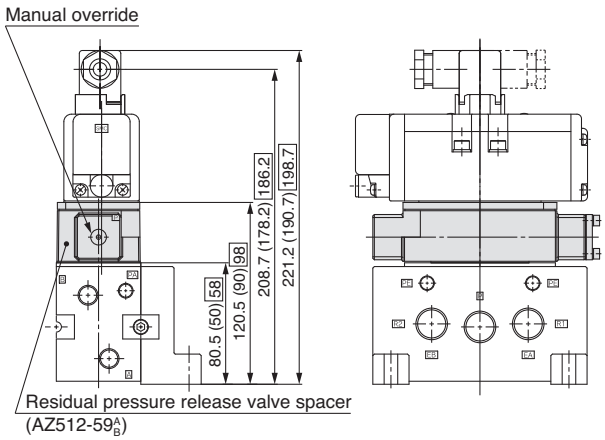


Spare parts

Description	Part no.
Element	AXT512-26-2

Residual pressure release valve spacer

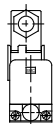
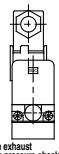
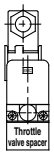
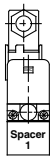
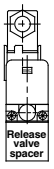
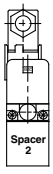
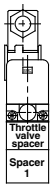
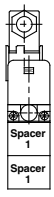
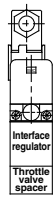
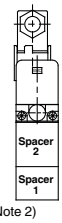
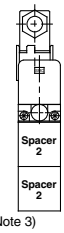
AZ512-59 $\frac{A}{B}$

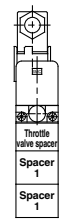
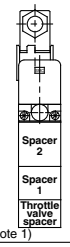
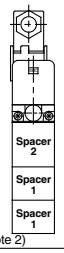
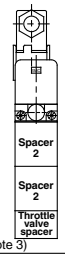
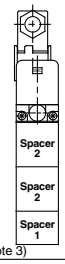


Dimensions inside ( ) are for sub plate apertures 3/8 and 1/2
Dimensions inside ▭ are for sub plate aperture 3/4

Manifold Options/Mounting Bolt Part Numbers

VQ7-6 mounting bolt part numbers

Number of options		0		Single stack					Double stack				
Mounting bolt	Part No.	AXT632-45-1	AXT632-45-2	AXT632-45-4	AXT632-45-5	AXT632-45-6	AXT632-45-7	AXT632-45-8	AXT632-45-9	AXT632-45-10	AXT632-45-11	AXT632-45-12	AXT632-45-13
	Size	M5 X 35 with SW	M5 X 15 with SW	M5 X 45 with SW	M5 X 60 with SW	M5 X 65 with SW	M5 X 70 with SW	M5 X 75 with SW	M5 X 90 with SW	M5 X 95 with SW	M5 X 100 with SW	M5 X 105 with SW	M5 X 115 with SW
Option mounting diagram												 Note 2)	 Note 3)

Number of options		Triple stack				
Mounting bolt	Part No.	AXT632-45-14	AXT632-45-16	AXT632-45-17	AXT632-45-18	AXT632-45-19
	Size	M5 X 120 with SW	M5 X 130 with SW	M5 X 135 with SW	M5 X 140 with SW	M5 X 145 with SW
Option mounting diagram			 Note 1)	 Note 2)	 Note 3)	 Note 3)

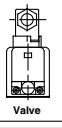
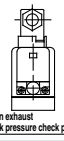
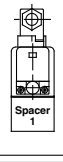
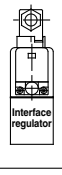
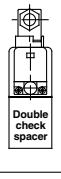
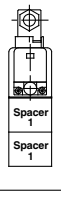
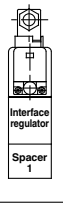
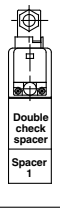
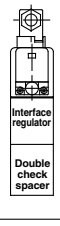
The installation position of spacer 1 in the option mounting diagrams is limited only by the precautions given below.

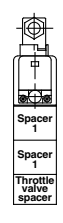
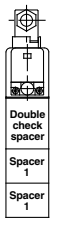
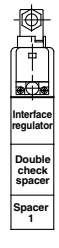
Spacers

- Main exhaust back pressure check plate
- Throttle valve spacer
- Release valve spacer
- Spacer 1
  - Individual supply spacer
  - Individual exhaust spacer
  - R1, R2 individual exhaust spacer
  - Reverse pressure spacer
  - Residual pressure release valve spacer
  - Individual supply spacer with residual pressure release valve
- Spacer 2
  - Interface regulator (P reduced pressure)
  - Interface regulator (A reduced pressure)
  - Interface regulator (B reduced pressure)
  - Double check spacer
  - Double check spacer with residual pressure release valve

Note 1) A throttle valve spacer and double check spacer (including those with residual pressure release valve) cannot be combined.
Note 2) When a double check spacer **(Top)** (including those with residual pressure release valve) and individual exhaust spacer **(Bottom)** are combined with a R1, R2 individual exhaust spacer **(Bottom)**, be careful regarding the installation position.
Note 3) When an interface regulator **(Top)** and double check spacer **(Bottom)** (including those with residual pressure release valve) **(Bottom)** are combined, be careful regarding the installation position.

VQ7-8 mounting bolt part numbers

Number of options		0		Single stack				Double stack			
Mounting bolt	Part No.	AXT632-54-1	AXT632-54-2	AXT632-54-3	AXT632-54-5	AXT632-54-6	AXT632-54-7	AXT632-54-8	AXT632-54-9	AXT632-54-10	AXT632-54-11
	Size	M6 X 45 with SW	M6 X 18 with SW	M6 X 55 with SW	M6 X 85 with SW	M6 X 100 with SW	M6 X 105 with SW	M6 X 125 with SW	M6 X 140 with SW	M6 X 145 with SW	M6 X 160 with SW
Option mounting diagram											

Number of options		Triple stack			
Mounting bolt	Part No.	AXT632-54-12	AXT632-54-13	AXT632-54-14	AXT632-54-15
	Size	M6 X 165 with SW	M6 X 180 with SW	M6 X 185 with SW	M6 X 200 with SW
Option mounting diagram					

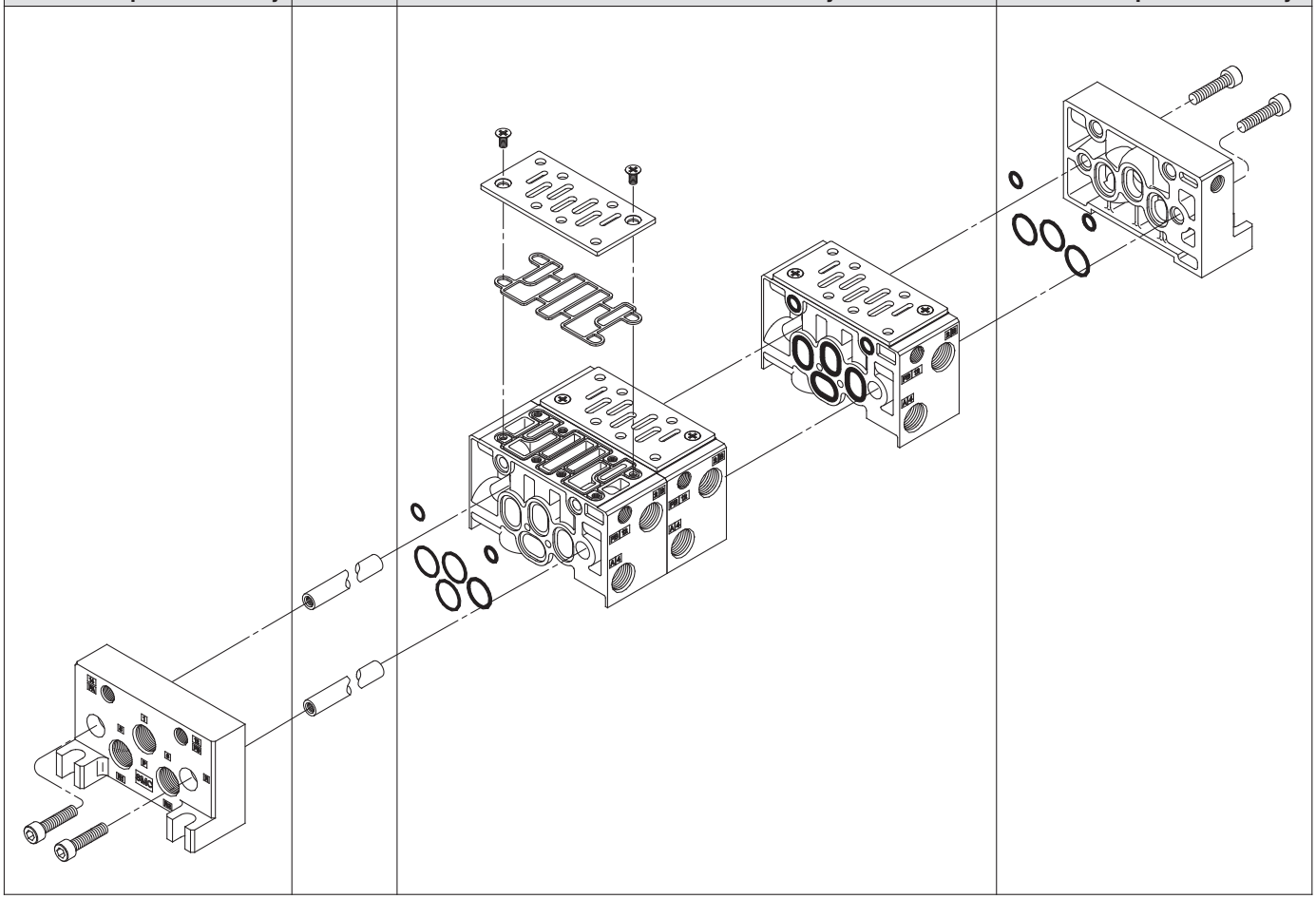
Spacers

- Main exhaust back pressure check plate
- Interface regulator (P reduced pressure)
- Interface regulator (A reduced pressure)
- Interface regulator (B reduced pressure)
- Double check spacer
- Spacer 1
  - Individual supply spacer
  - Individual exhaust spacer
  - R1, R2 individual exhaust spacer
  - Reverse pressure spacer
  - Residual pressure release valve spacer
- Throttle valve spacer

Note 1) A throttle spacer and double check spacer cannot be combined.
Note 2) There is no limitation on the mounting position for spacer 1.

Manifold Exploded View

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 – □□ – □

Ordering source area code

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

Cylinder port size

A02	1/4 (Side ported)
A03	3/8 (Side ported)
B02	1/4 (Bottom ported)
B03	3/8 (Bottom ported)
C6 (1)	One-touch fitting for ø6
C8 (1)	One-touch fitting for ø8
C10 (1)	One-touch fitting for ø10

Note 1) Side piping only
Note 2) In this manifold block assembly, the tension bolt for increasing station (1 station) is included.

Cylinder port location

L	L side
R	R side

Thread type

–	Rc
F	G
T	NPTF

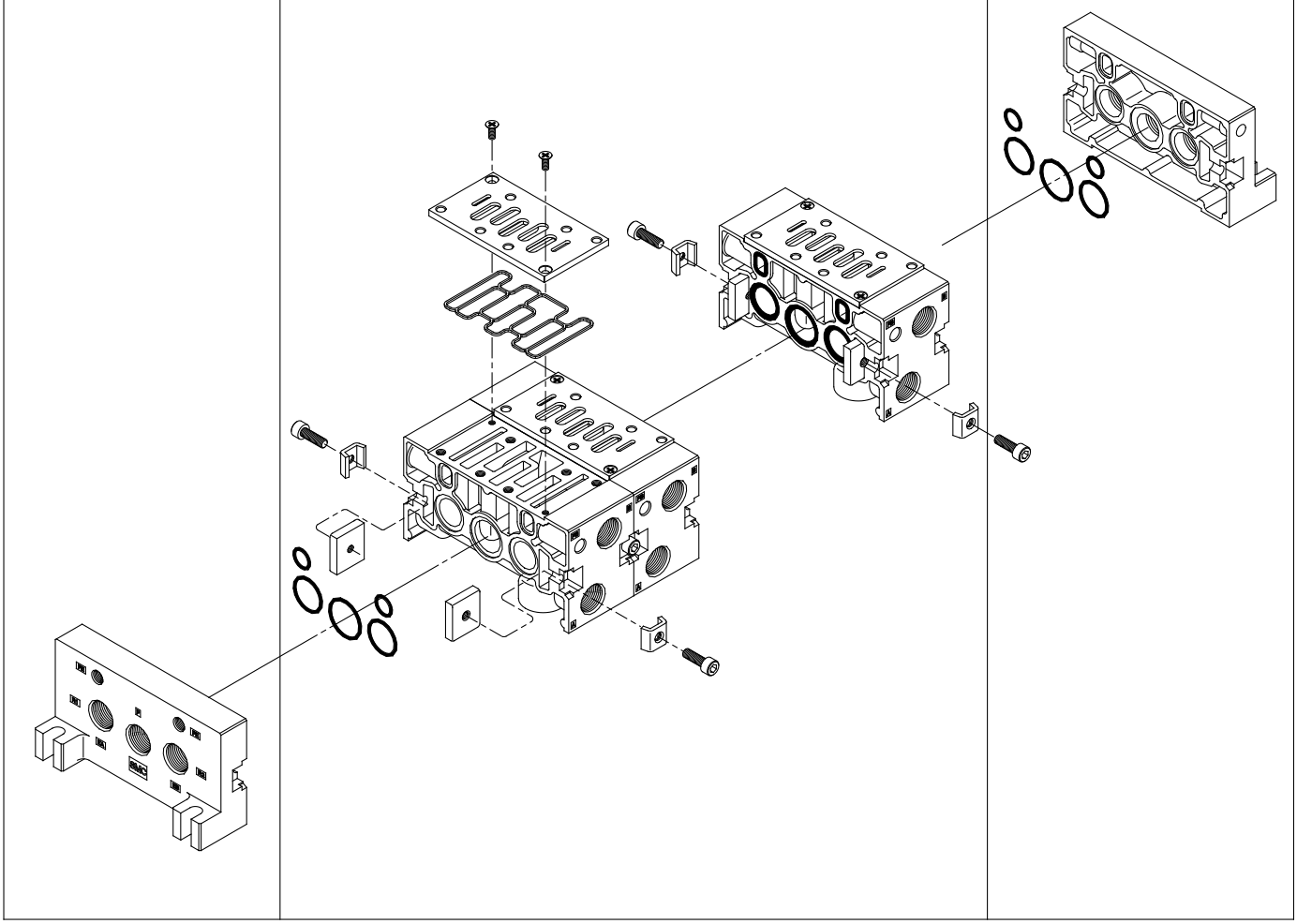
Note) It is not applicable to One-touch fittings.

< 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

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

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	

Series VQ7-6/7-8
Specific Product Precautions 1

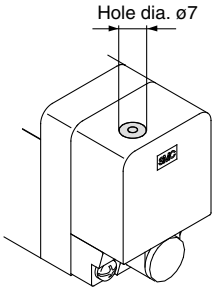
Be sure to read this before handling the products. For safety instructions and 3/4/5-port solenoid valve precautions, refer to the "Handling Precautions for SMC Products" and the "Operation Manual" on the SMC website: https://www.smc.eu

⚠ Warning

Manual Override Operation

Since connected equipment will be actuated when the manual override is operated, first confirm that conditions are safe.
The push type is standard (tool required).

Push type (tool required)



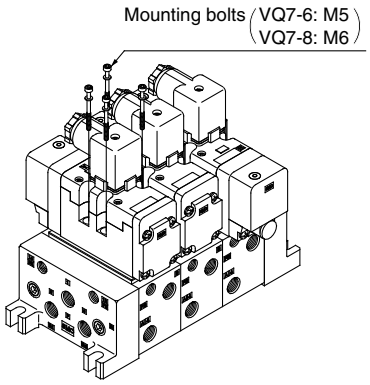
Press the manual override all the way down with a small screw driver, etc.
The manual override resets when released.

⚠ Caution

Mounting Valves

After confirming installation of the gasket, securely tighten the bolts with the proper torque shown in the table below.

Series	Proper tightening torque N·m
VQ7-6	2.3 to 3.7
VQ7-8	4.0 to 6.0



⚠ Caution

Installation and Removal of Pilot Valve cover

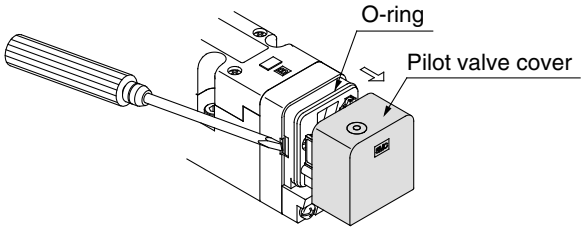
• Removal

To remove the pilot valve cover, spread the cover's hook outward about 1mm with a flat head screw driver, and pull the cover straight off.

If it is pulled off at an angle, the pilot valve may be damaged or the protective O-ring may be scratched.

• Installation

Put the cover back on straight without touching the pilot valve, and push it all the way until the cover's hook locks, without twisting the protective O-ring. (When pushed in, the hook opens and locks automatically.)

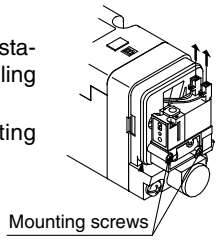


⚠ Caution

Replacement of Pilot Valve

• Removal

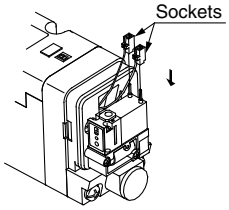
1) Take off the sockets which are installed on the pilot valve pins by pulling them straight upward.
2) Remove the pilot valve mounting screws with a small screw driver.



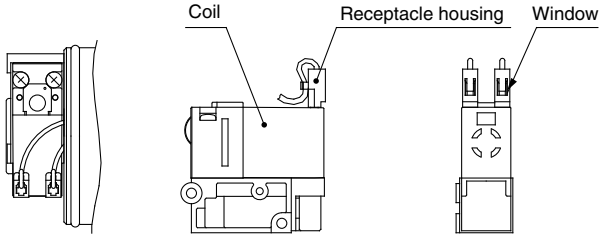
• Installation

1) After confirming installation of the gasket, securely tighten the mounting screws with the proper torque shown in the table below.
2) Put the sockets on straight and install them securely so that the receptacle housings touch the coil surface as shown in the drawing below.

   If they are pushed in with excessive force, there is a danger of the sockets coming off of the receptacle housings. Confirm that the sockets do not protrude from the windows on the side of the receptacle housings.



Proper tightening torque N·m
0.8 to 1.2



Series VQ7-6/7-8
Specific Product Precautions 2

Be sure to read this before handling the products. For safety instructions and 3/4/5-port solenoid valve precautions, refer to the "Handling Precautions for SMC Products" and the "Operation Manual" on the SMC website: https://www.smc.eu

⚠ Caution

Using a DIN Connector

ISO#: DIN 43650 A compatible

Connection

1. Loosen the top screw and remove the connector housing from the terminal spades on the solenoid.
2. Remove the housing screw and insert a screwdriver into the slot area on the underside of the DIN cap and carefully separate block and housing.
3. Loosen the terminal screws (slotted screws) on the terminal block, insert the core of the lead wire into the terminal in accordance with the prescribed connection method, and attach securely with the terminal screws.
4. Tighten the ground nut to secure the wire.

Change of electrical entry (Orientation)

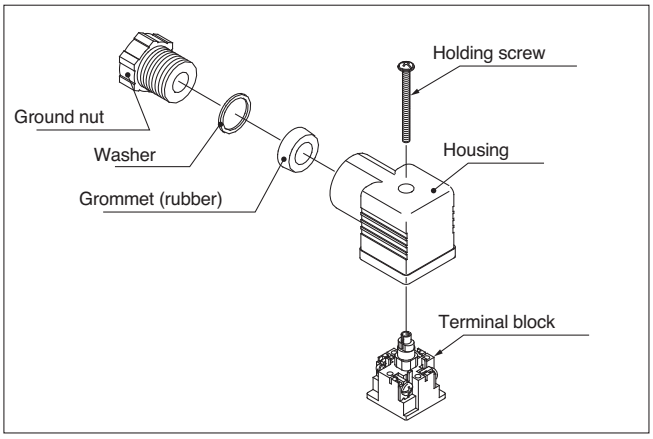
After separating terminal block and housing, the cord entry direction can be changed by attaching the housing in the desired direction (4 directions in 90° increments).

Precautions

Pull a connector out vertically, never at an angle.

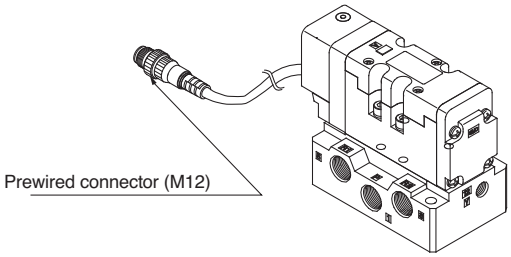
Applicable cable

O.D.: ø6 to ø12 (When you use the cord longer than ø9, cut the inside of grommet along the cutout and then insert the code.)



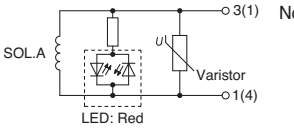
Using a Prewired Connector

4 wire round type connector (M12) conforming to NECA (Nippon Electric Control Equipment Industries Association) standard 4202



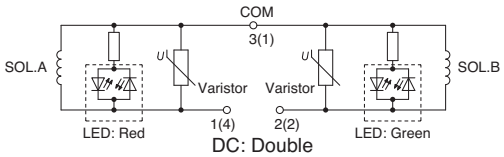
⚠ Caution

Internal Wiring Specifications

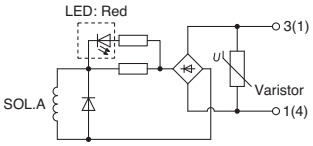


Note) Regarding the wiring for DC, coil surge voltage generated when OFF is about 60V.

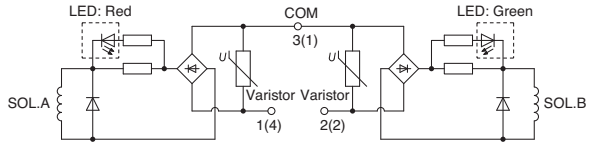
DC: Single



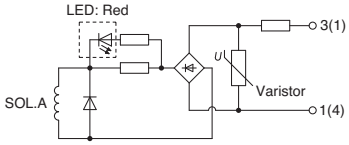
DC: Double



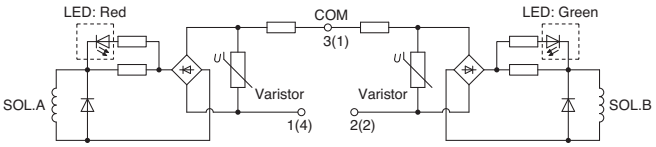
100 VAC: Single



100 VAC: Double



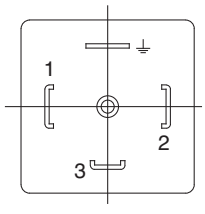
200 VAC or more: Single



200 VAC or more: Double

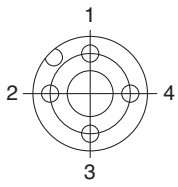
∗ Terminal numbers in the circuits are for a DIN connector. Numbers inside ( ) are pre-wired connector pin numbers.

DIN connector wiring specification



Terminal Nos.
1: A side SOL.
2: B side SOL.
3: COM terminal

Prewired connector wiring specification



Pin Nos.
1: COM. pin
2: B side SOL.
3: Not in use
4: A side SOL.

Note) There is no polarity. It can also be used as –COM.

⚠ Safety Instructions

These safety instructions are intended to prevent hazardous situations and/or equipment damage. These instructions indicate the level of potential hazard with the labels of **"Caution," "Warning"** or **"Danger."** They are all important notes for safety and must be followed in addition to International Standards (ISO/IEC) [1], and other safety regulations.

⚠ **Danger:**	**Danger** indicates a hazard with a high level of risk which, if not avoided, will result in death or serious injury.
⚠ **Warning:**	**Warning** indicates a hazard with a medium level of risk which, if not avoided, could result in death or serious injury.
⚠ **Caution:**	**Caution** indicates a hazard with a low level of risk which, if not avoided, could result in minor or moderate injury.

1) ISO 4414: Pneumatic fluid power – General rules and safety requirements for systems and their components.
ISO 4413: Hydraulic fluid power – General rules and safety requirements for systems and their components.
IEC 60204-1: Safety of machinery – Electrical equipment of machines. (Part 1: General requirements)
ISO 10218-1: Robots and robotic devices - Safety requirements for industrial robots - Part 1: Robots.
etc.

⚠ Warning

1. The compatibility of the product is the responsibility of the person who designs the equipment or decides its specifications.
Since the product specified here is used under various operating conditions, its compatibility with specific equipment must be decided by the person who designs the equipment or decides its specifications based on necessary analysis and test results. The expected performance and safety assurance of the equipment will be the responsibility of the person who has determined its compatibility with the product. This person should also continuously review all specifications of the product referring to its latest catalogue information, with a view to giving due consideration to any possibility of equipment failure when configuring the equipment.

2. Only personnel with appropriate training should operate machinery and equipment.
The product specified here may become unsafe if handled incorrectly. The assembly, operation and maintenance of machines or equipment including our products must be performed by an operator who is appropriately trained and experienced.

3. Do not service or attempt to remove product and machinery/ equipment until safety is confirmed.
1. The inspection and maintenance of machinery/equipment should only be performed after measures to prevent falling or runaway of the driven objects have been confirmed.
2. When the product is to be removed, confirm that the safety measures as mentioned above are implemented and the power from any appropriate source is cut, and read and understand the specific product precautions of all relevant products carefully.
3. Before machinery/equipment is restarted, take measures to prevent unexpected operation and malfunction.

4. Our products cannot be used beyond their specifications.
Our products are not developed, designed, and manufactured to be used under the following conditions or environments.
Use under such conditions or environments is not covered.
1. Conditions and environments outside of the given specifications, or use outdoors or in a place exposed to direct sunlight.
2. Use for nuclear power, railways, aviation, space equipment, ships, vehicles, military application, equipment affecting human life, body, and property, fuel equipment, entertainment equipment, emergency shut-off circuits, press clutches, brake circuits, safety equipment, etc., and use for applications that do not conform to standard specifications such as catalogues and operation manuals.
3. Use for interlock circuits, except for use with double interlock such as installing a mechanical protection function in case of failure. Please periodically inspect the product to confirm that the product is operating properly.

⚠ Caution

We develop, design, and manufacture our products to be used for automatic control equipment, and provide them for peaceful use in manufacturing industries.
Use in non-manufacturing industries is not covered.
Products we manufacture and sell cannot be used for the purpose of transactions or certification specified in the Measurement Act.
The new Measurement Act prohibits use of any unit other than SI units in Japan.

Limited warranty and Disclaimer/Compliance Requirements

The product used is subject to the following "Limited warranty and Disclaimer" and "Compliance Requirements".Read and accept them before using the product.

Limited warranty and Disclaimer

1. The warranty period of the product is 1 year in service or 1.5 years after the product is delivered, whichever is first. [2] Also, the product may have specified durability, running distance or replacement parts. Please consult your nearest sales branch.
2. For any failure or damage reported within the warranty period which is clearly our responsibility, a replacement product or necessary parts will be provided. This limited warranty applies only to our product independently, and not to any other damage incurred due to the failure of the product.
3. Prior to using SMC products, please read and understand the warranty terms and disclaimers noted in the specified catalogue for the particular products.

2) Vacuum pads are excluded from this 1 year warranty.
A vacuum pad is a consumable part, so it is warranted for a year after it is delivered. Also, even within the warranty period, the wear of a product due to the use of the vacuum pad or failure due to the deterioration of rubber material are not covered by the limited warranty.

Compliance Requirements

1. The use of SMC products with production equipment for the manufacture of weapons of mass destruction (WMD) or any other weapon is strictly prohibited.
2. The exports of SMC products or technology from one country to another are governed by the relevant security laws and regulations of the countries involved in the transaction. Prior to the shipment of a SMC product to another country, assure that all local rules governing that export are known and followed.

SMC Corporation (Europe)

Austria	+43 (0)2262622800	www.smc.at	office.at@smc.com
Belgium	+32 (0)33551464	www.smc.be	info@smc.be
Bulgaria	+359 (0)2807670	www.smc.bg	sales.bg@smc.com
Croatia	+385 (0)13707288	www.smc.hr	sales.hr@smc.com
Czech Republic	+420 541424611	www.smc.cz	office.at@smc.com
Denmark	+45 70252900	www.smcdk.com	smc.dk@smc.com
Estonia	+372 651 0370	www.smcee.ee	info.ee@smc.com
Finland	+358 207513513	www.smc.fi	smc.fi@smc.com
France	+33 (0)164761000	www.smc-france.fr	supportclient.fr@smc.com
Germany	+49 (0)61034020	www.smc.de	info.de@smc.com
Greece	+30 210 2717265	www.smchellas.gr	sales@smchellas.gr
Hungary	+36 23513000	www.smc.hu	office.hu@smc.com
Ireland	+353 (0)14039000	www.smcautomation.ie	technical.ie@smc.com
Italy	+39 03990691	www.smcitalia.it	mailbox.it@smc.com
Latvia	+371 67817700	www.smc.lv	info.lv@smc.com
Lithuania	+370 5 2308118	www.smclt.lt	info.lt@smc.com
Netherlands	+31 (0)205318888	www.smc.nl	info@smc.nl
Norway	+47 67129020	www.smc-norge.no	post.no@smc.com
Poland	+48 22 344 40 00	www.smc.pl	office.pl@smc.com
Portugal	+351 214724500	www.smc.eu	apoiocliente.pt@smc.com
Romania	+40 213205111	www.smcromania.ro	office.ro@smc.com
Russia	+7 (812)3036600	www.smc.eu	sales@smcru.com
Slovakia	+421 (0)413213212	www.smc.sk	sales.sk@smc.com
Slovenia	+386 (0)73885412	www.smc.si	office.si@smc.com
Spain	+34 945184100	www.smc.eu	post.es@smc.com
Sweden	+46 (0)86031240	www.smc.nu	order.se@smc.com
Switzerland	+41 (0)523963131	www.smc.ch	helpcenter.ch@smc.com
Turkey	+90 212 489 0 440	www.smcturkey.com.tr	satis@smcturkey.com.tr
UK	+44 (0)845 121 5122	www.smc.uk	sales.gb@smc.com
South Africa	+27 10 900 1233	www.smcza.co.za	Sales.za@smc.com

Printing DO 00 Printed in Spain