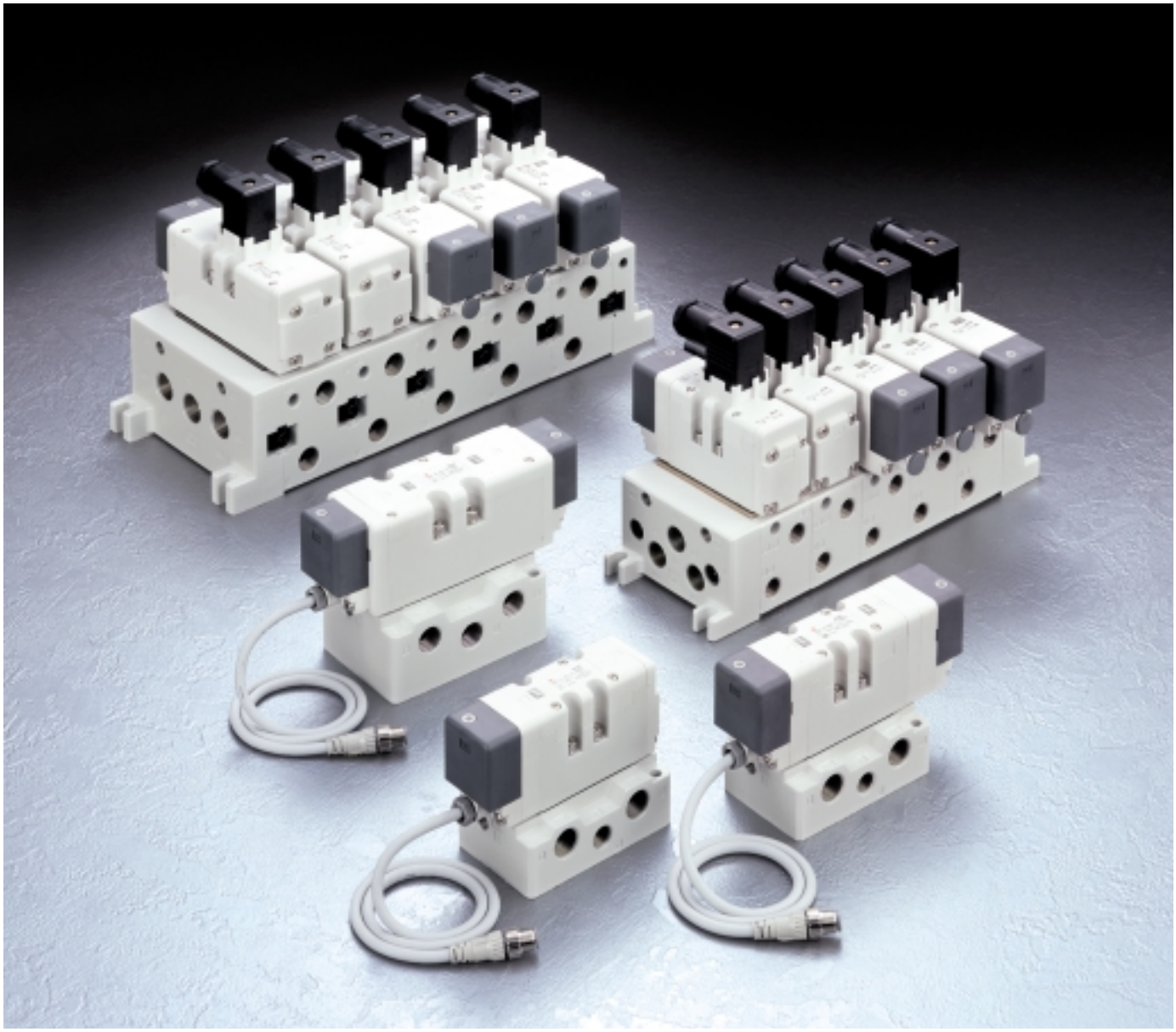
CAT.E154-A

SMC

ISO Standard Solenoid Valve

Series VQ7-6/7-8

(Size 1) (Size 2)



Conforms to ISO Standard 5599/I

Series VQ7-6, (Size 1)

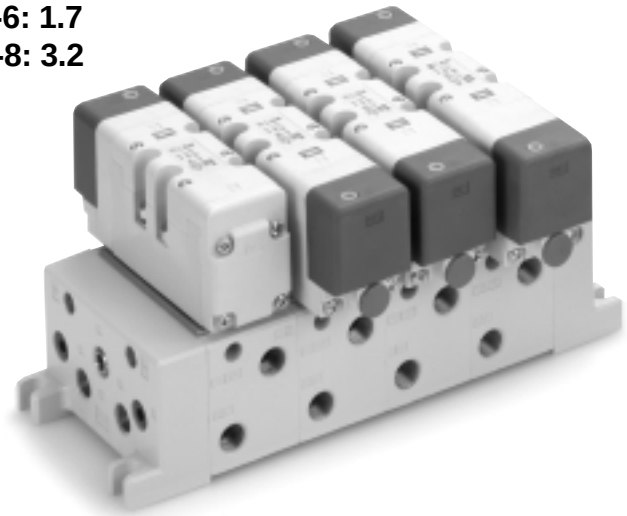
Large flow capacity

Ideal for driving cylinders up to

ø100 (VQ7-6, Size 1)
ø160 (VQ7-8, Size 2)
Cv factor VQ7-6: 1.7
VQ7-8: 3.2

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.

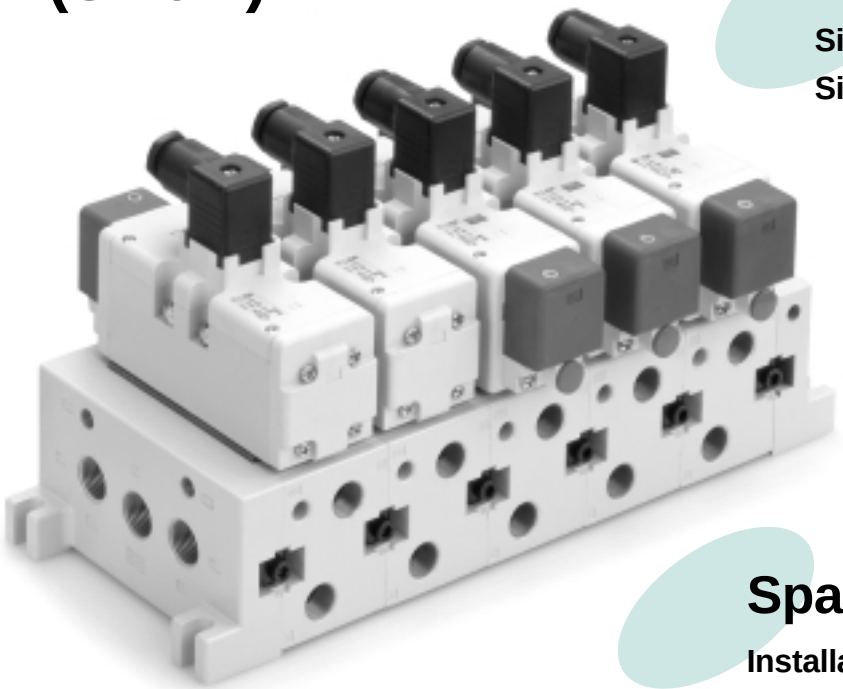
Interface regulator
Double check spacer
Double check spacer with residual pressure release valve
Individual supply spacer
Supply spacer with residual pressure release valve
Individual exhaust spacer

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 color 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

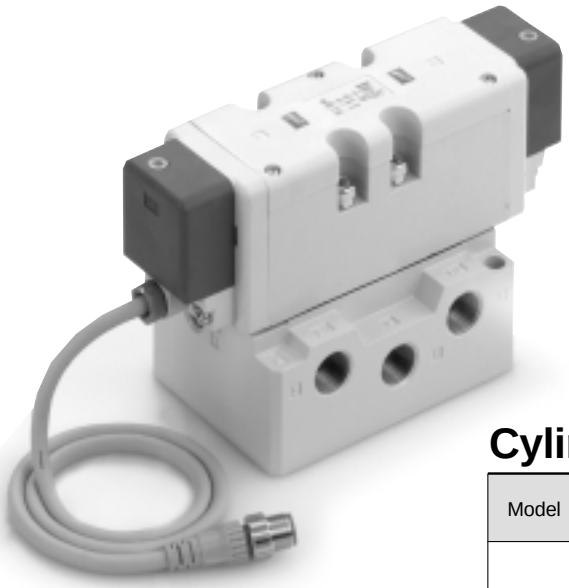
(Compared to previous series)

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	Cv factor Metal seal (Rubber seal)	Cylinder speed mm/s	Cylinder bore size mm							
			40	50	63	80	100	125	140	160
VQ7-6	1.5 (1.7)	150	■	■	■	■	■	■		
		300	■	■	■	■	■			
		450	■	■	■	■				
		600	■	■	■					
		750	■	■	■					
VQ7-8	3.2 (3.2)	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.

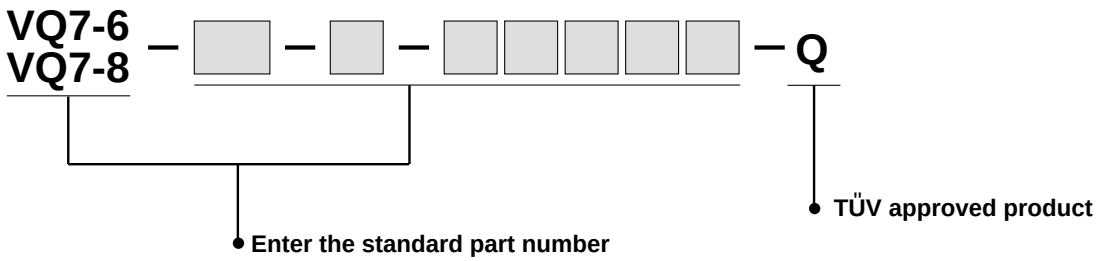
TÜV Approved Product

Conforms to standards necessary to satisfy EC directives.

The VQ7-6/7-8 series has received approval from TÜV Rheinland, an EC Notified Body (EC authorization No. 0197), for conformity to DIN VDE0580: 1994 Standards.

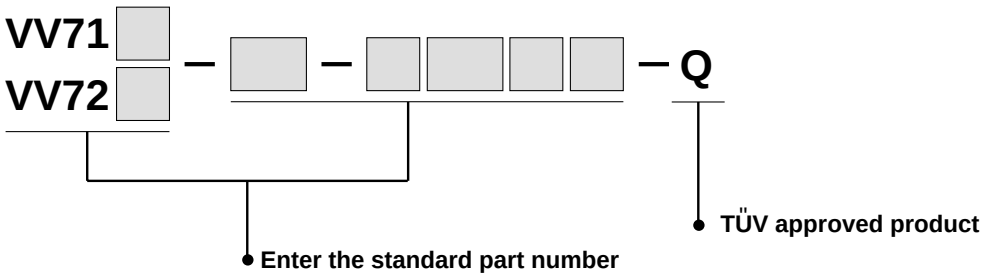
When ordering TÜV approved products, add "– Q" at the end of the standard part number.

Example of how to order a valve



Note) Voltage is 50VDC or less.

Example of how to order a manifold



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

For TÜV approved manifold options also add "– Q" at the end of the standard part number.

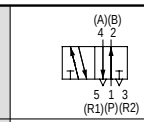
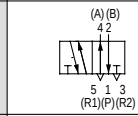
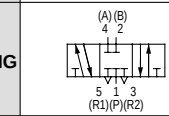
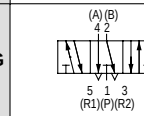
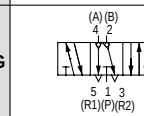
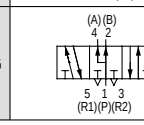
Table of Contents

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

How to Order Valves

VQ7 − 6 − FG − S − 3 □ □ □ □

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

* Contact SMC regarding other voltages.

Options *

Nil	None
N	Indicator light
Z	Indicator light with surge voltage suppressor
V	Individual pilot exhaust

* When 2 or more symbols are applicable, show them in alphabetical order.

Seal type

Nil	Metal seal
R	Rubber seal

Sub plate port size

Nil	Without sub plate
A02	Side port Rc1/4 *
A03	Side port Rc3/8
B02	Bottom port Rc1/4 *
B03	Bottom port Rc3/8

* Port R is Rc3/8

Connector

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

How to Order Sub Plates

VS7 − 1 − A02

Port size

A02	Side port Rc1/4 *
A03	Side port Rc3/8
B02	Bottom port Rc1/4 *
B03	Bottom port Rc3/8

* Ports 3 (R2) and 5 (R1) are Rc3/8

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	Rc1/4	Rc3/8	0.37
VS7-1-A03		Rc3/8		
VS7-1-B02	Bottom	Rc1/4	Rc3/8	
VS7-1-B03		Rc3/8		

Models

Series	Positions		Model		Note 1) Effective area mm² (Cv factor)	Note 2) Response time ms	Note 3) Weight kg
VQ7-6	2 position	Single	Metal seal	**VQ7-6-FG-S-□**	27.0 (1.5)	20 or less	0.40
			Rubber seal	**VQ7-6-FG-S-□R**	31.0 (1.7)	25 or less	
		Double	Metal seal	**VQ7-6-FG-D-□**	27.0 (1.5)	12 or less	0.45
			Rubber seal	**VQ7-6-FG-D-□R**	31.0 (1.7)	15 or less	
	3 position	Closed center	Metal seal	**VQ7-6-FHG-D-□**	25.5 (1.4)	40 or less	0.48
			Rubber seal	**VQ7-6-FHG-D-□R**	27.0 (1.5)	45 or less	
		Exhaust center	Metal seal	**VQ7-6-FJG-D-□**	27.0 (1.5)	40 or less	0.48
			Rubber seal	**VQ7-6-FJG-D-□R**	31.0 (1.7)	45 or less	
		Double check	Metal seal	**VQ7-6-FPG-D-□**	20.0 (1.1)	50 or less	0.84
			Rubber seal	**VQ7-6-FPG-D-□R**	20.0 (1.1)	50 or less	
		Pressure center	Metal seal	**VQ7-6-FIG-D-□**	27.0 (1.5)	40 or less	0.48
			Rubber seal	**VQ7-6-FIG-D-□R**	31.0 (1.7)	45 or less	

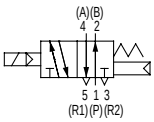
Note 1) Port size Rc1/4: Value when mounted on sub plate.

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.

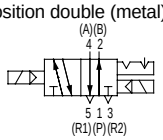
Note 3) The weight without sub plate. (Sub plate: 0.37kg)

Symbols

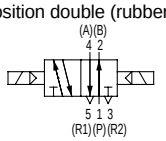
2 position single



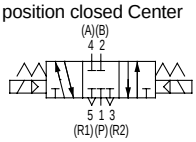
2 position double (metal)



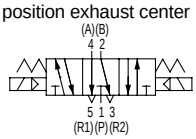
2 position double (rubber)



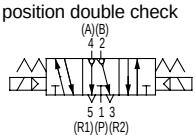
3 position closed Center



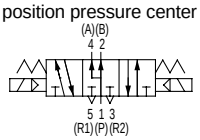
3 position exhaust center



3 position double check



3 position pressure center



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)	

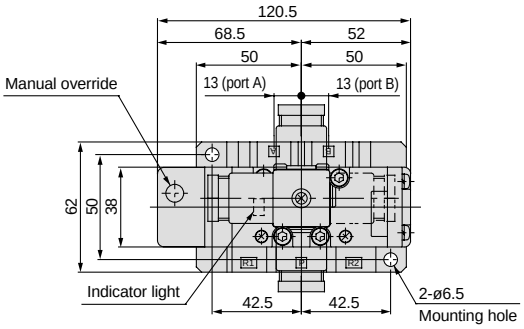
Note 1) For low temperature, use dry air with no condensation.

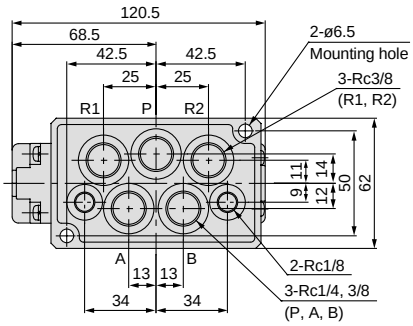
Note 2) Impact resistance: No malfunction when tested with a drop tester in the axial direction and at a right angle to the main valve and armature, one time each in both energized and deenergized states. (initial value)

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)

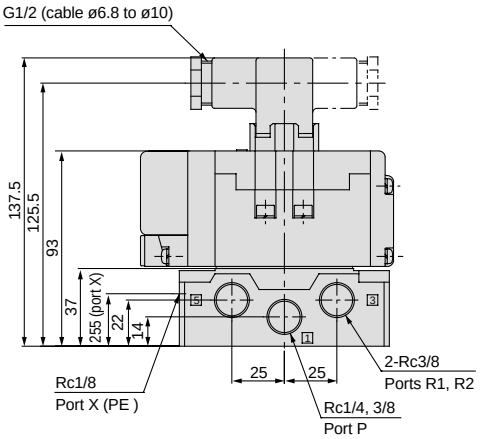
DIN Connector Type

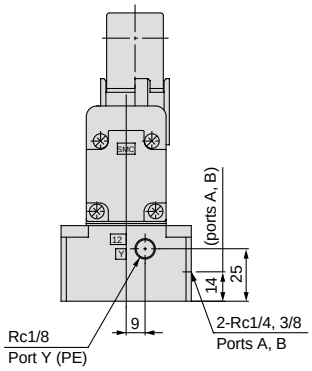
2 position/Single : VQ7-6-FG-S
Single (reverse pressure): VQ7-6-YZ-S



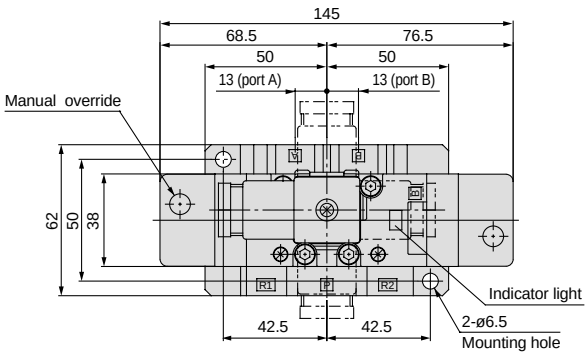


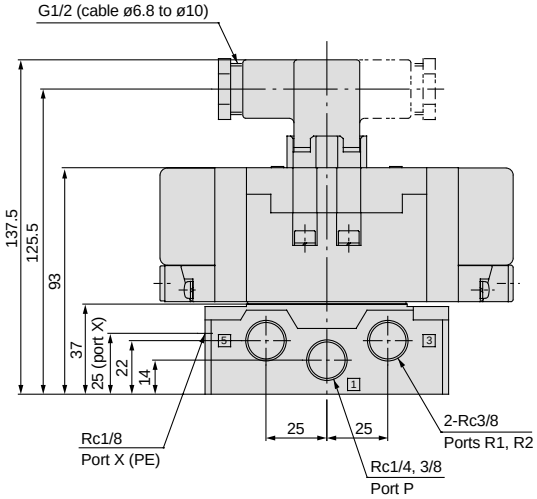
Bottom port drawing



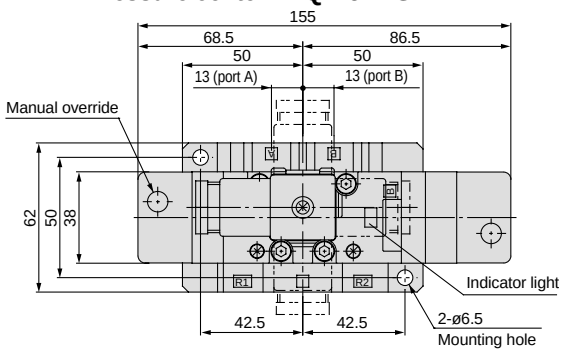


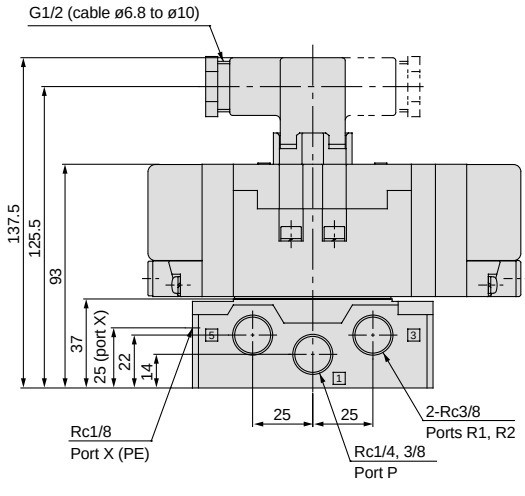
2 position/Double : VQ7-6-FG-D
Double (reverse pressure): VQ7-6-YZ-D





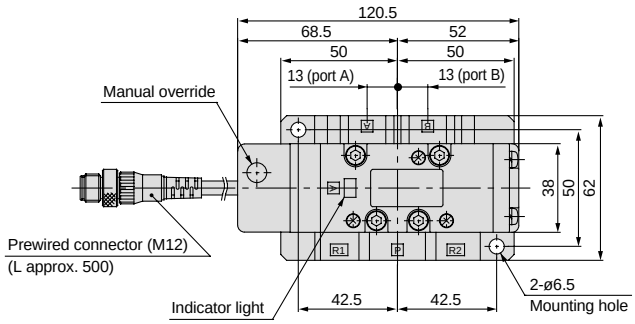
3 position/Closed center : VQ7-6-FHG-D
Exhaust center : VQ7-6-FJG-D
Pressure center : VQ7-6-FIG-D

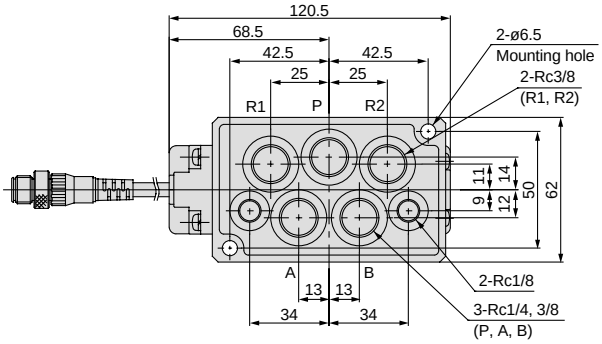


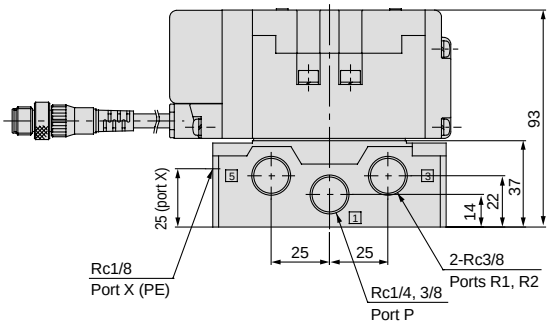


Prewired Connector Type

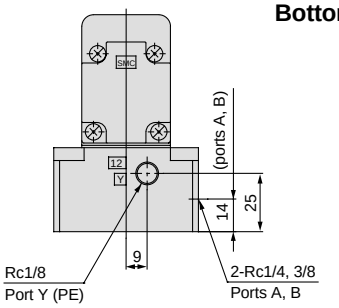
2 position/Single : VQ7-6-FG-S□□□□SC
Single (reverse pressure): VQ7-6-YZ-S□□□□SC



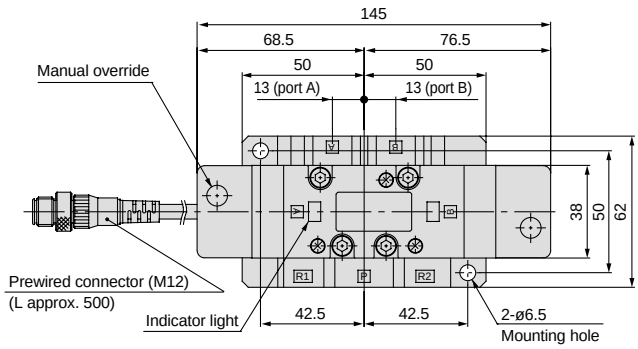


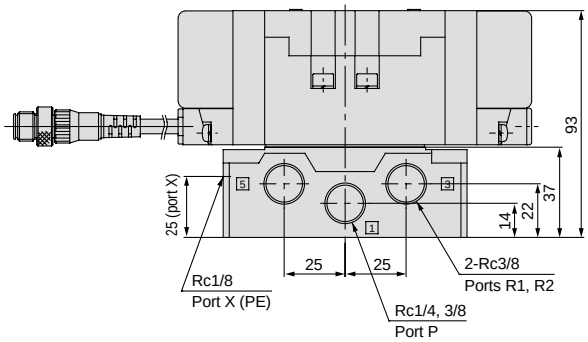


Bottom port drawing

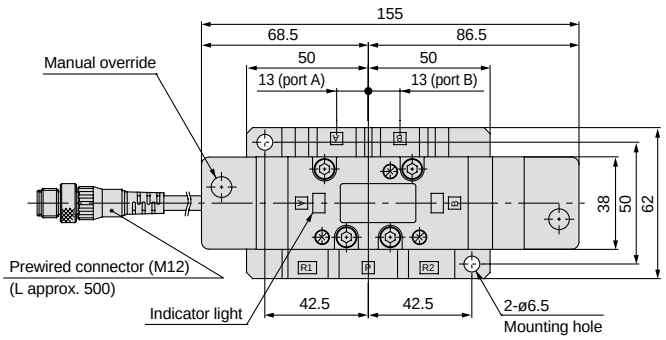


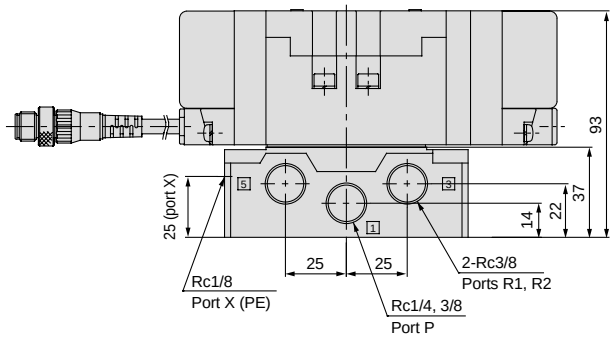
2 position/Double : VQ7-6-FG-D-□□□□SC
Double (reverse pressure): VQ7-6-YZ-D-□□□□SC





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



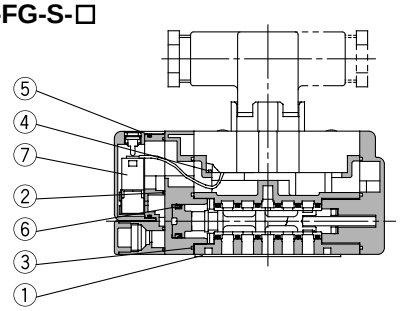


Series VQ7-6
Construction

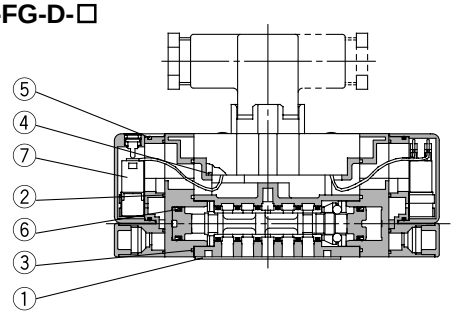
DIN Connector Type

Metal seal type

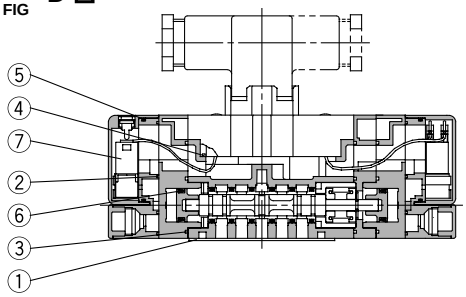
VQ7-6-FG-S-□



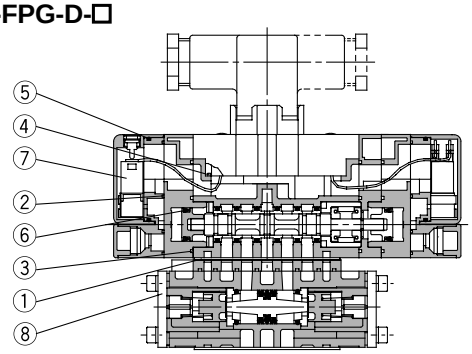
VQ7-6-FG-D-□



VQ7-6-FHG/FJG/FIG-D-□

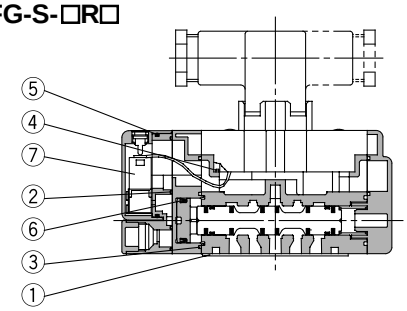


VQ7-6-FPG-D-□

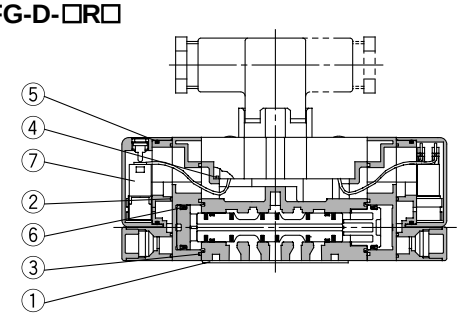


Rubber seal type

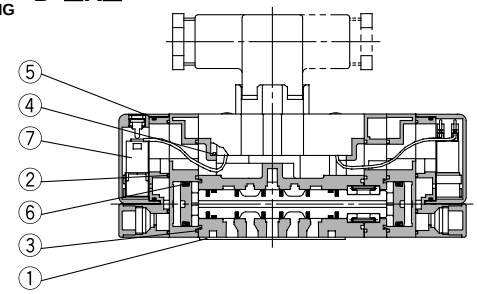
VQ7-6-FG-S-□R□



VQ7-6-FG-D-□R□



VQ7-6-FHG/FJG/FIG-D-□R□



Valve replacement parts

No.	Description	Material	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	NBR	AXT500-13						
2	Gasket A	NBR	VQ7060-13-2						
3	Gasket B	NBR	VQ7060-13-1						
4	Gasket C	NBR	VQ7060-13-3						
5	O-ring	NBR	37 x 1.6						
6	Mini Y seal	NBR	MYN-11				MYN-16		
7	Pilot valve assembly		VQZ110Q-□						
8	Double check spacer		—			VV71-FPG	—		

Series VQ7-6
Manifold Series VV71

How to order Manifolds

VV71 [6] − [02R] − [ ] [02D] [ ] [ ]

Stations

1	1 station
⋮	⋮
10	10 stations

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

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

02R	Rc1/4 (right side)
03R	Rc3/8 (right side)
02L	Rc1/4 (left side)
03L	Rc3/8 (left side)
02Y	Rc1/4 (bottom)
03Y	Rc3/8 (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 on pages 33 and 34.

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

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 on pages 33 and 34.

Control unit type (see pages 13 and 14 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

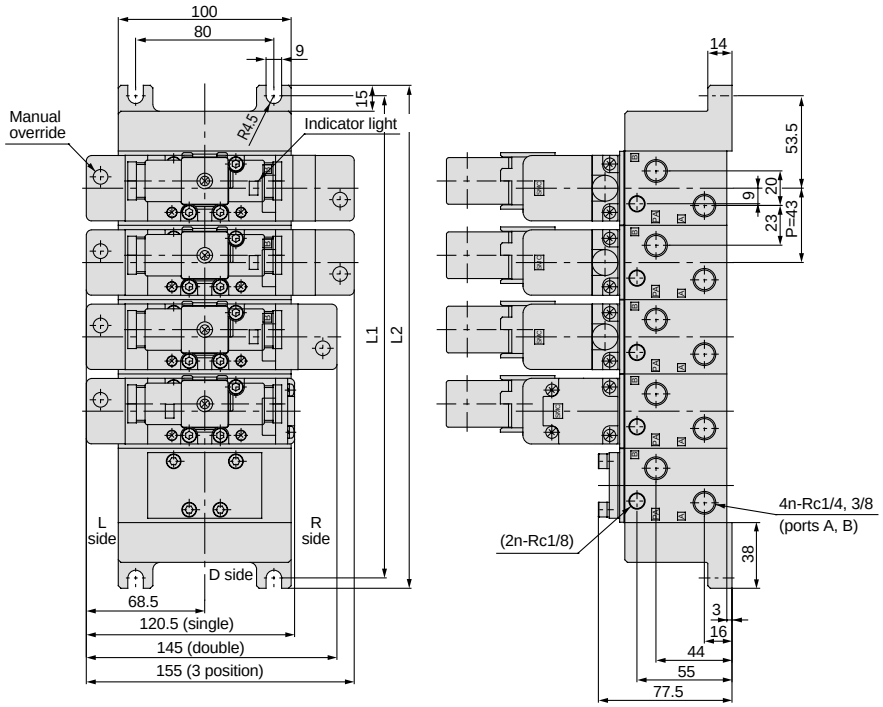
Manifold Specifications

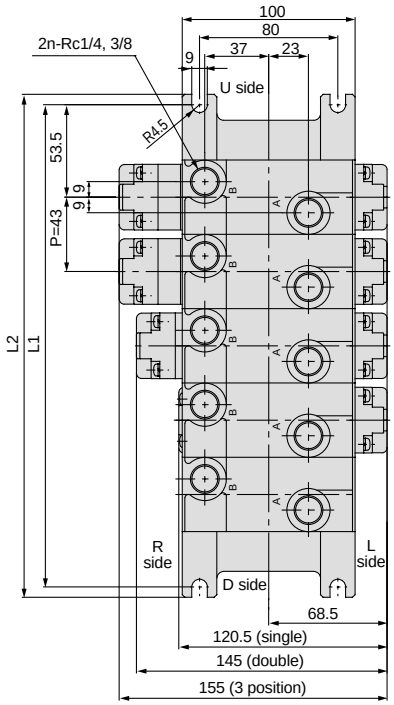
Manifold block size	Applicable solenoid valve	Piping specifications			Stations	Weight kg
		Ports 2 (B), 4 (A)		1 (P), 3 (R2) 5 (R1) port size		
		Piping direction	Size			
ISO size 1	VQ7-6 ISO size 1 series	Right, Left	Rc1/4 Rc3/8 C6 (for ø6) C8 (for ø8) C10 (for ø10)	Rc1/4 Rc3/8 C12 (for ø12)	Note) 10 stations max.	0.43n + 0.49 (n: Stations)
		Bottom	Rc1/4 Rc3/8			

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

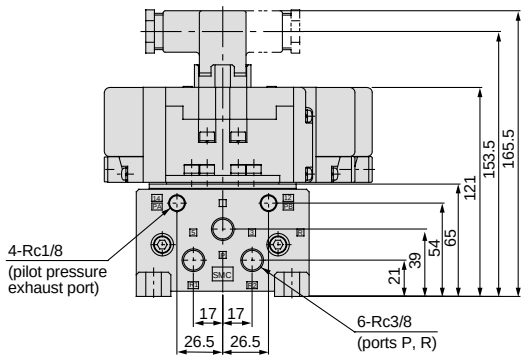
DIN Connector Type

VV71□-□-□□□





Bottom port drawing

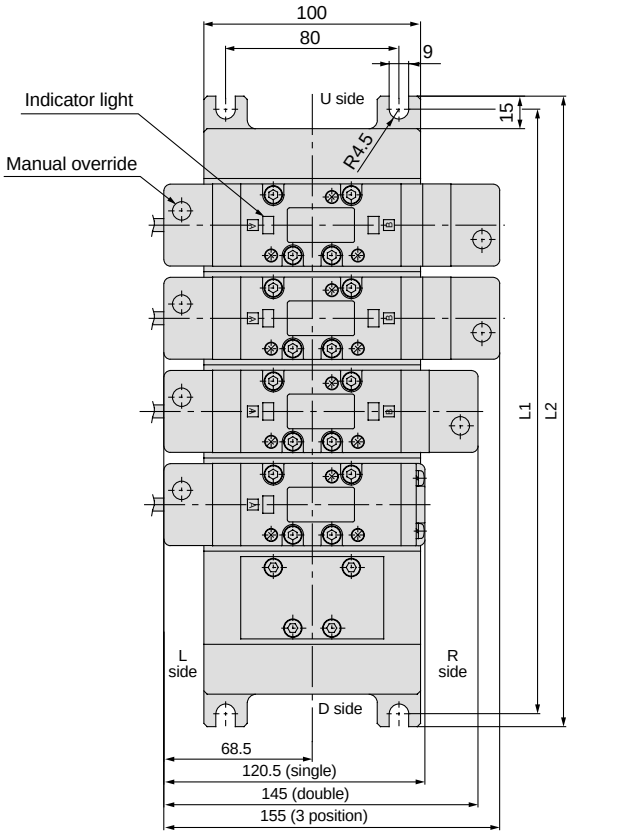


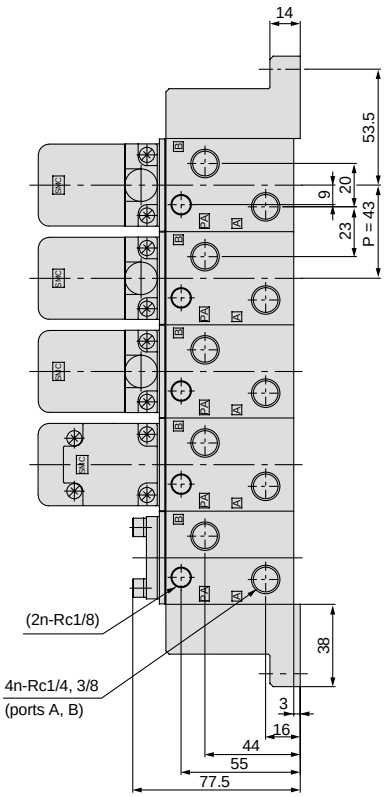
L: Dimensions n: Stations

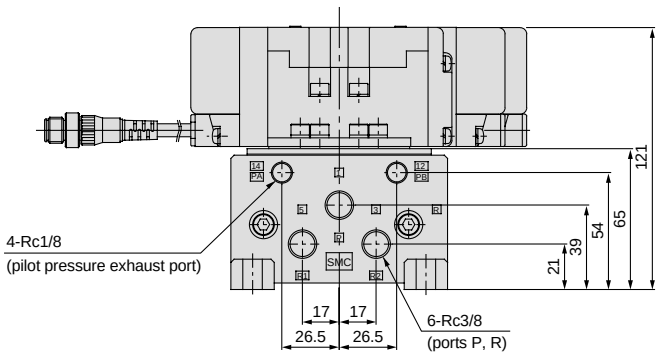
	1	2	3	4	5	6	7	8	9	10	Formula
L1	107	150	193	236	279	322	365	408	451	494	L1 = 43n + 64
L2	119	162	205	248	291	334	377	420	463	506	L2 = 43n + 76

Prewired Connector Type

VV71□-□-□□□







L: Dimensions n: Stations

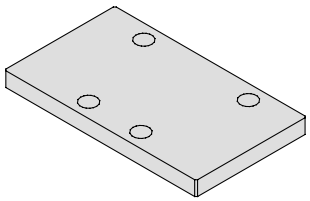
	1	2	3	4	5	6	7	8	9	10	Formula
L1	107	150	193	236	279	322	365	408	451	494	L1 = 43n + 64
L2	119	162	205	248	291	334	377	420	463	506	L2 = 43n + 76

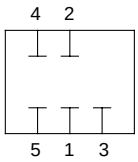
Optional Manifold Parts

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.

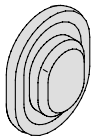


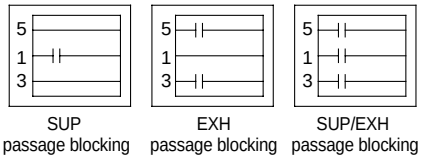


Blocking plate (for SUP/EXH passages)

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.

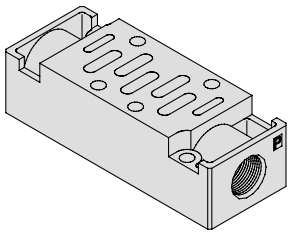


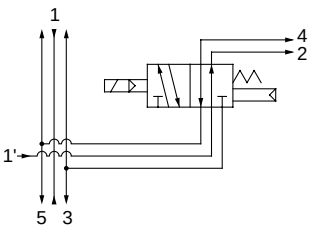


Individual SUP spacer

VV71-P- $\begin{matrix}\textbf{02}\\\textbf{03}\\\textbf{C10}\end{matrix}$

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

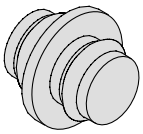


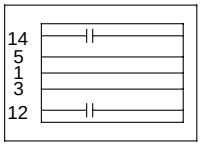


Blocking plate (for pilot EXH passage)

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.

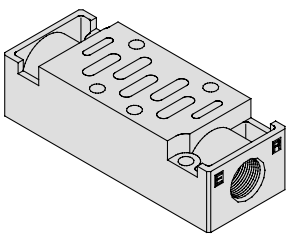


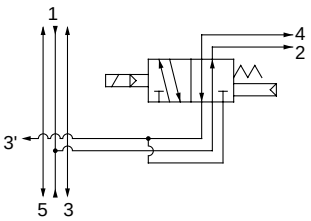


Individual EXH spacer

VV71-R- $\begin{matrix}\textbf{02}\\\textbf{03}\\\textbf{C12}\end{matrix}$

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

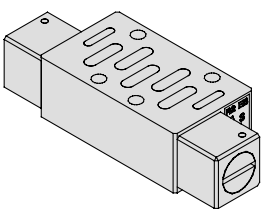


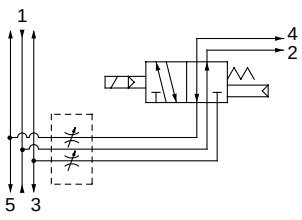


Throttle valve spacer

AXT503-23A

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

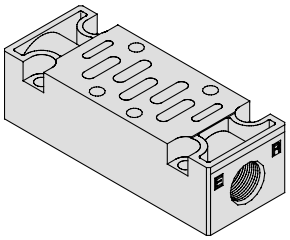


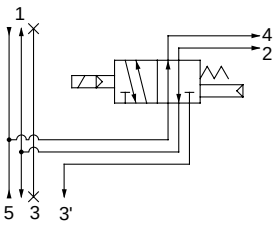


Reverse pressure spacer

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}

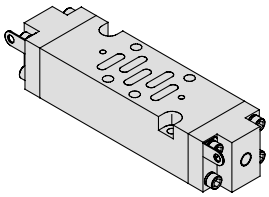


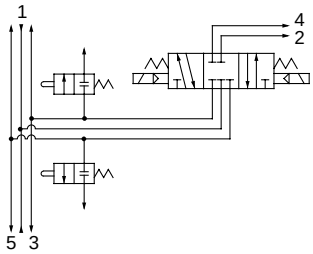


Residual pressure release valve spacer

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 center or perfect type valve. Residual pressure at ports A and B is exhausted individually to the outside by manual operation.

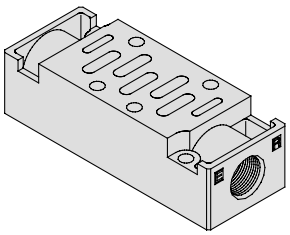


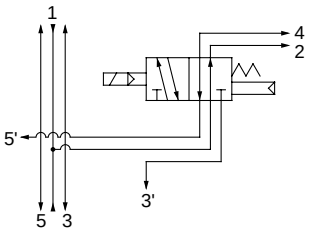


R1, R2 individual EXH spacer

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}

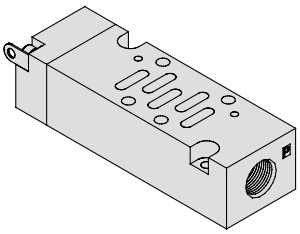


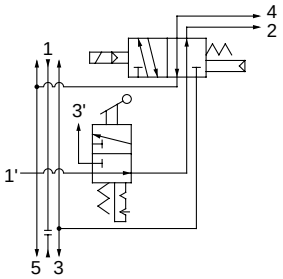


Individual SUP spacer with residual pressure release valve

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.

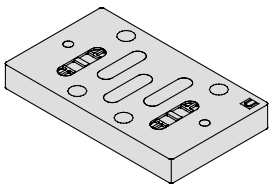


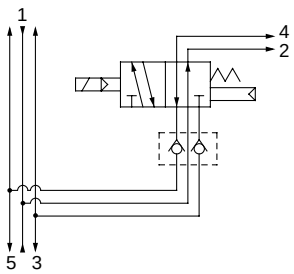


Main EXH back pressure check plate

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.

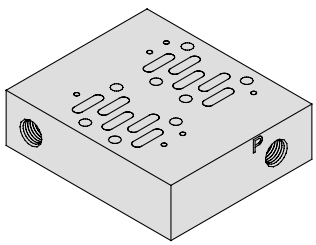


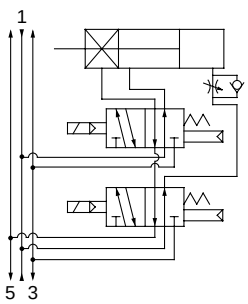


Adapter plate for locking cylinder

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.



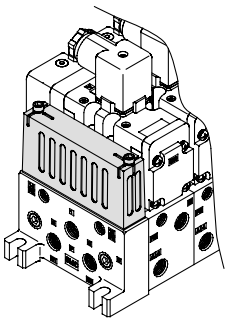


Optional Manifold Parts

Silencer box

VV71-□□□-□□-SB

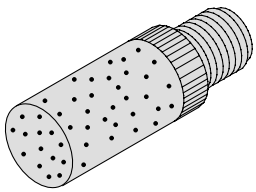
This can be provided as a unit on the end plate to reduce manifold exhaust noise and piping labor.



Pilot EXH silencer

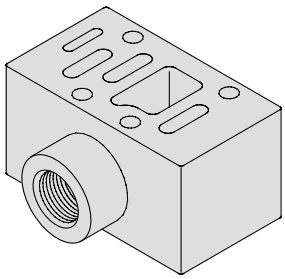
AN110-01

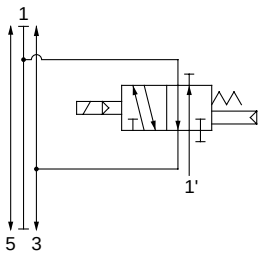
This is used by mounting on the pilot exhaust port in order to reduce manifold and single type pilot exhaust noise, and to prevent the entry of dust.



Release valve spacer

AXT502-17A

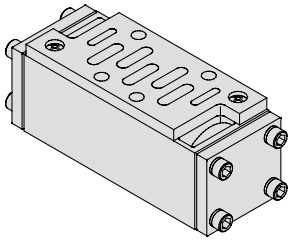


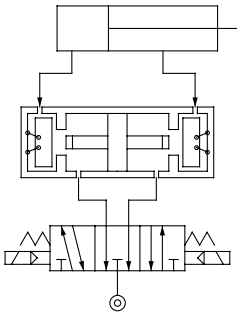


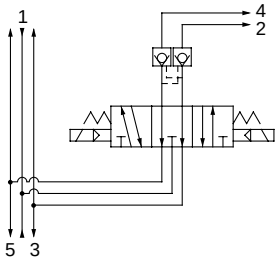
Double check spacer

VV71-FPG

By combining a 3 position exhaust center 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.







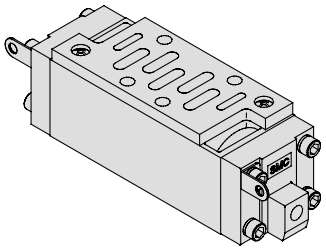
Specifications

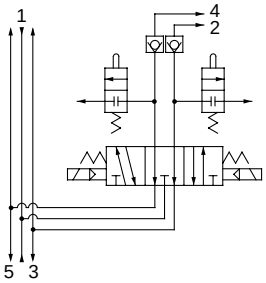
Double check spacer part no.		VV71-FPG		
Applicable solenoid or air operated valve		Series VQ7-6		
Leakage cm³/min (ANR)	One solenoid energized (One pilot pressurized)	P	R1	130
			R2	
	Both solenoids unenergized (Both pilots unpressurized)	P	R1	130
			R2	
		B	R1	0
		A	R2	

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.





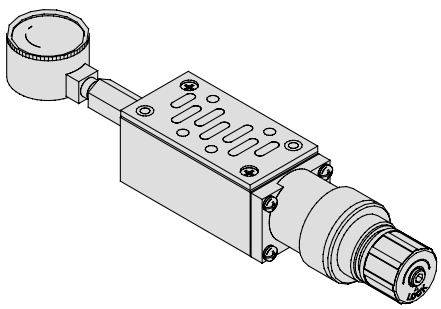
⚠ Handling precautions

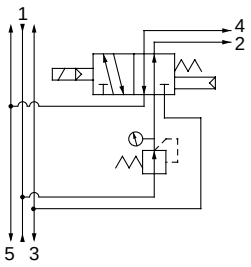
- Since extended cylinder stops are not possible if there are leaks from piping between the valve and cylinder or from fittings, etc., check for leakage using a neutral liquid detergent.
- Since One-touch fittings allow for some air leakage, threaded piping is recommended in cases of extended intermediate cylinder stops.
- This spacer cannot be combined with a 3 position closed center valve.
- 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.

Interface regulator

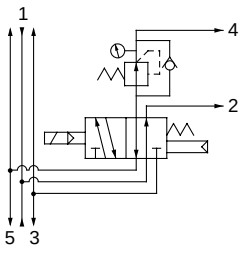
ARB250-00-$^{P}_{A}$ $_{B}$

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

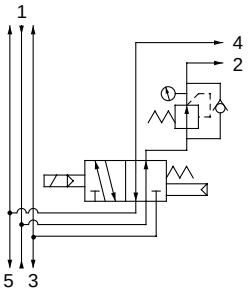




P reduced pressure



A reduced pressure



B reduced pressure

Part No.

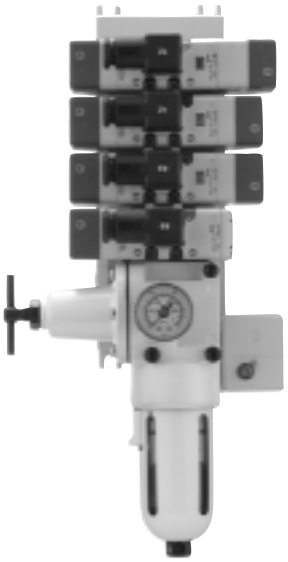
P reduced pressure	ARB250-00-P
A reduced pressure	ARB250-00-A
B reduced pressure	ARB250-00-B

⚠ Handling precautions

- When combining a pressure center 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 center 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

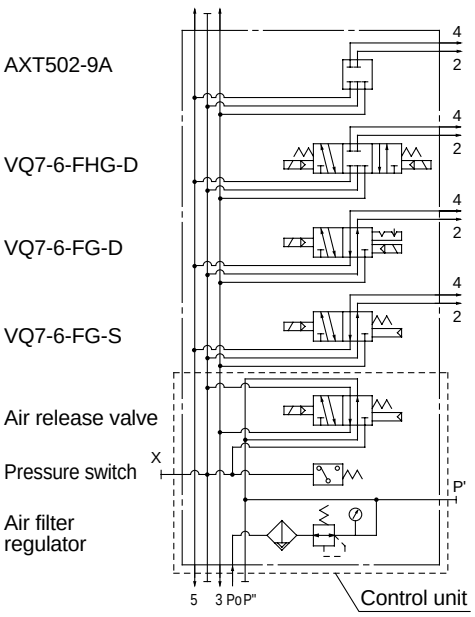
Options

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

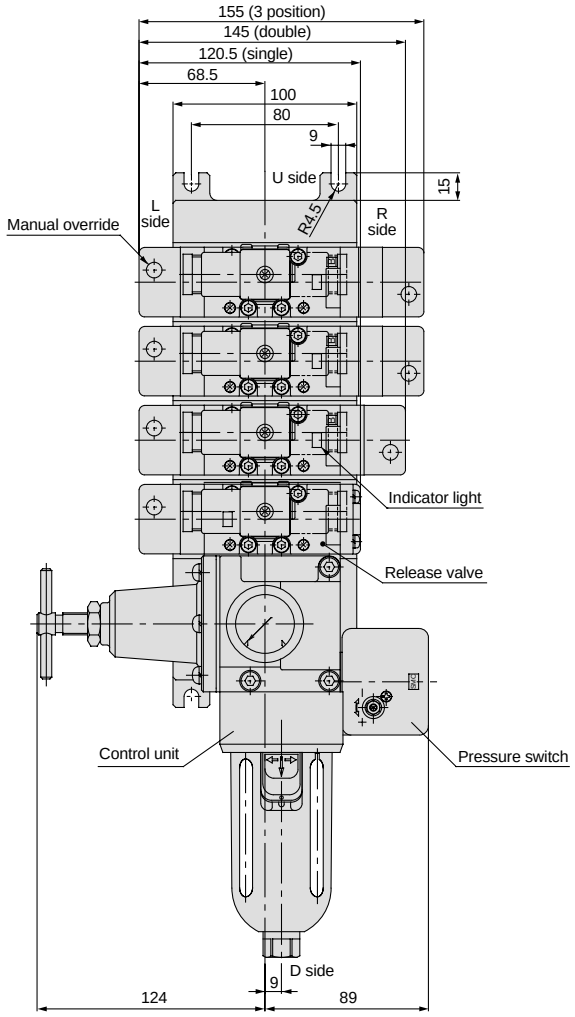
<Construction and piping >

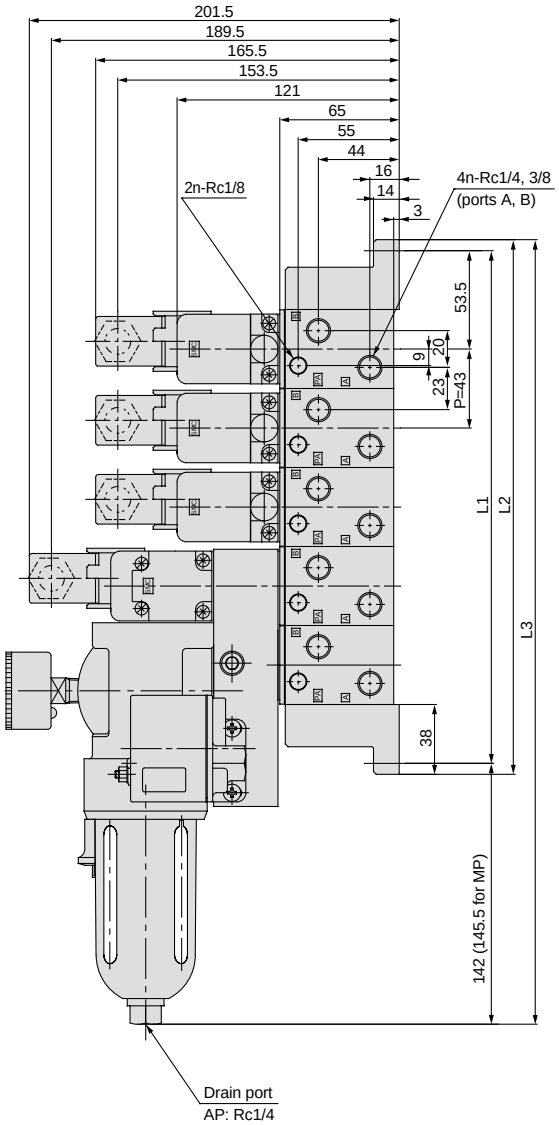
1) The supply pressure (Po) passes through the regulator with filter ①and is adjusted to the prescribed pressure. Next, it goes through the release valve ②(downstream residual pressure switching function used as normally ON) and is supplied to the manifold base side (P).
2) When the release valve ② is 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.

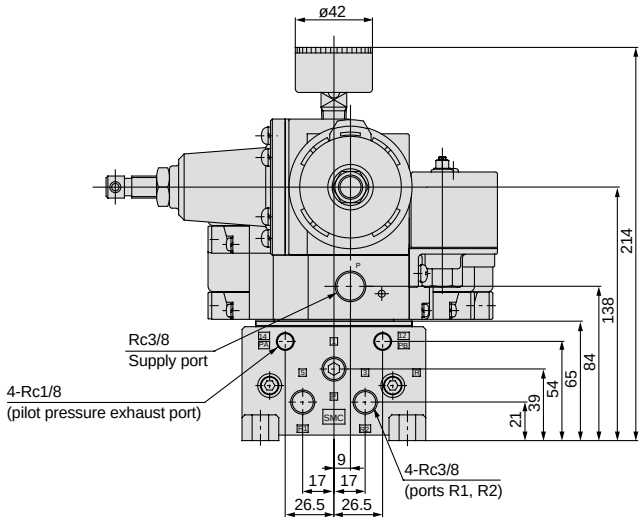
⚠Caution

• 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

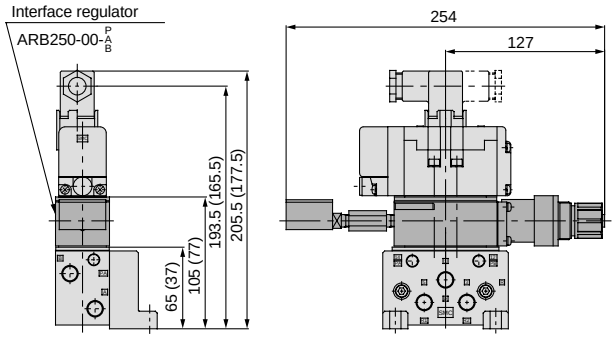
	1	2	3	4	5	6	7	8	9	10	Formula
L1	107	150	193	236	279	322	365	408	451	494	L1 = 43n + 64
L2	119	162	205	248	291	334	377	420	463	506	L2 = 43n + 76
L3	255	298	341	384	427	470	513	556	599	642	L3 = 43n + 212 (215.5)
	(258.5)	(301.5)	(344.5)	(387.5)	(430.5)	(473.5)	(516.5)	(559.5)	(602.5)	(645.5)	

L3 dimensions inside ( ) are for MP

Manifold Options

Interface regulator

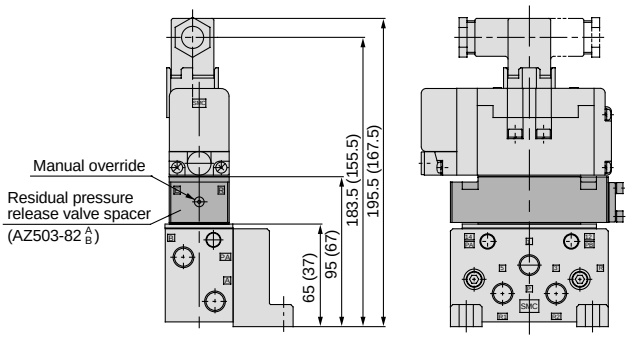
ARB250-00-P/A/B



Dimensions inside ( ) are for sub plate

Residual pressure release valve spacer

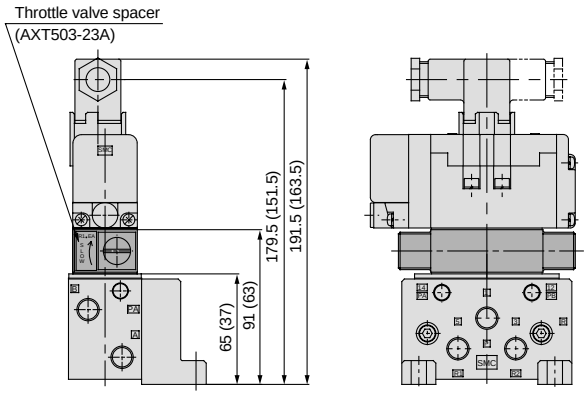
AZ503-82 A/B



Dimensions inside ( ) are for sub plate

Throttle valve spacer

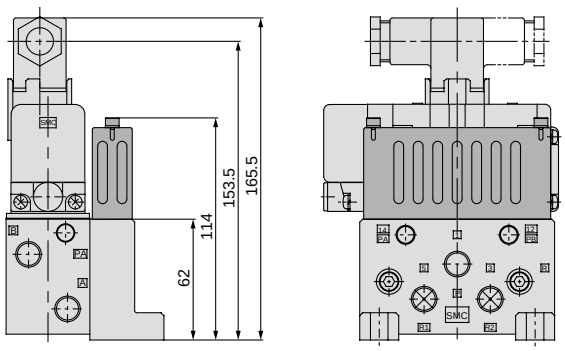
AXT503-23A



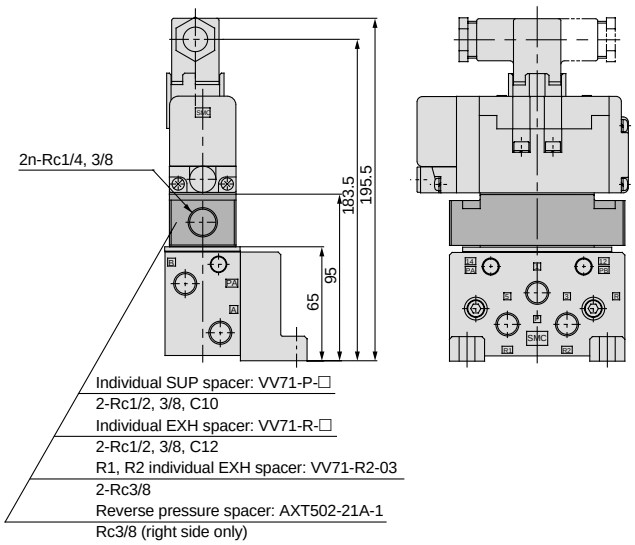
Dimensions inside ( ) are for sub plate

Silencer box

AXT503-60A

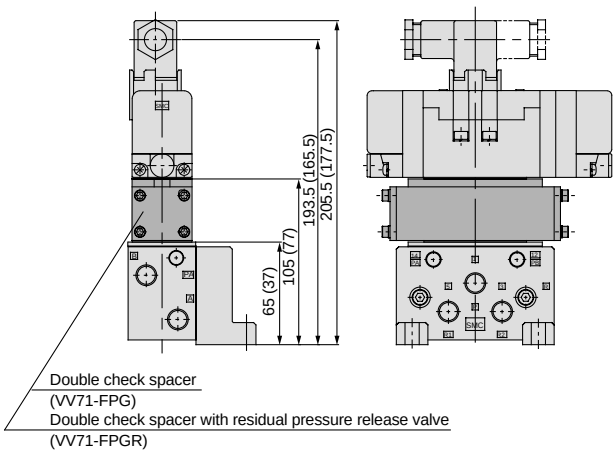


Individual SUP spacer **VV71-P-☐**
Individual EXH spacer **VV71-R-☐**
R1, R2 individual EXH spacer **VV71-R2-03**
Reverse pressure spacer **AXT502-21A-1**



Double check spacer **VV71-FPG**

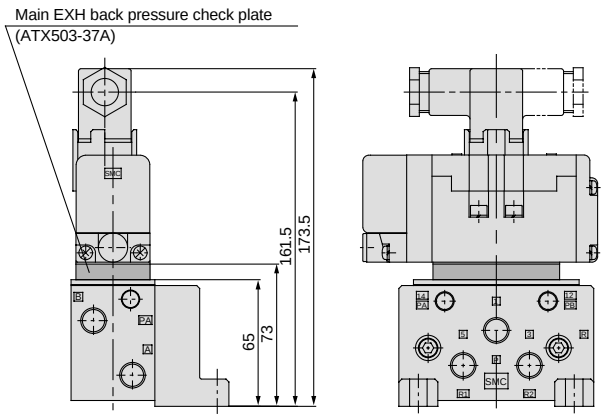
Double check spacer with residual pressure release valve **VV71-FPGR**



Dimensions inside ( ) are for sub plate

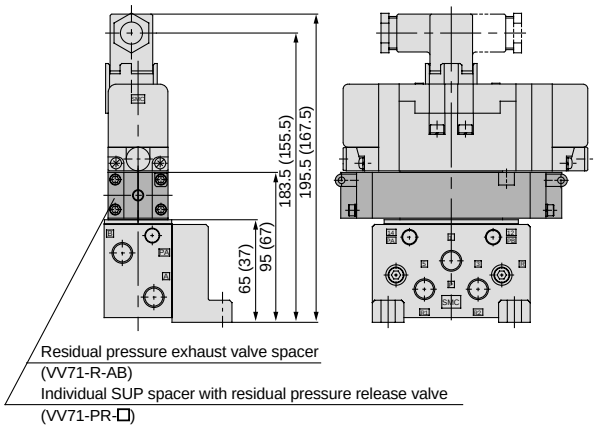
Main EXH back pressure check plate

AXT503-37A



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

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



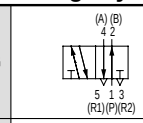
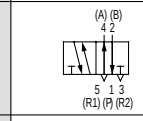
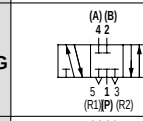
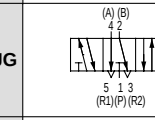
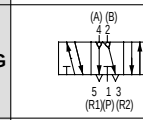
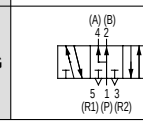
Dimensions inside ( ) are for sub plate

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

How to Order Valves

VQ7 − 8 − FG − S − 3 □ □ □ □

Passage symbol

FG	
* YZ	
FHG	
FJG	
FPG	
FIG	

* Optional

Connector

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

Sub plate port size

Nil	Without sub plate
A03	Side port Rc3/8
A04	Side port Rc1/2
A06	Side port Rc3/4
B03	Bottom port Rc3/8
B04	Bottom port Rc1/2
B06	Bottom port Rc3/4

Seal type

Nil	Metal seal
R	Rubber seal

Options *

Nil	None
N	Indicator light
Z	Indicator light with surge voltage suppressor
V	Individual pilot exhaust

* When two or more symbols are applicable, indicate in alphabetical order.

Number of solenoids

S	Single
D	Double

Coil rating

1	100VAC
2	200VAC
3	24VDC
4	12VDC
9 *	Other voltage

* Contact SMC regarding other voltages.

How to Order Sub Plates

VS7 − 2 − A03

Port size

A03	Side port Rc3/8
A04	Side port Rc1/2
A06	Side port Rc3/4
B03	Bottom port Rc3/8
B04	Bottom port Rc1/2
B06	Bottom port Rc3/4

Specifications

Model	Piping specifications		Weight kg
	Piping direction	Port size	
VS7-2-A03	Side	Rc3/8	0.68
VS7-2-A04		Rc1/2	
VS7-2-A06		Rc3/4	1.29
VS7-2-B03	Bottom	Rc3/8	0.68
VS7-2-B04		Rc1/2	
VS7-2-B06		Rc3/4	1.29

Models

Series	Number of positions		Models		Note 1) Effective area mm² (Cv factor)	Note 2) Response time ms	Note 3) Weight kg
VQ7-8	2 position	Single	Metal seal	**VQ7-8-FG-S-□**	58.0 (3.2)	40 or less	0.64
			Rubber seal	**VQ7-8-FG-S-□R**	58.0 (3.2)	45 or less	
		Double	Metal seal	**VQ7-8-FG-D-□**	58.0 (3.2)	15 or less	0.70
			Rubber seal	**VQ7-8-FG-D-□R**	58.0 (3.2)	20 or less	
	3 position	Closed center	Metal seal	**VQ7-8-FHG-D-□**	50.4 (2.8)	45 or less	0.75
			Rubber seal	**VQ7-8-FHG-D-□R**	50.4 (2.8)	50 or less	
		Exhaust center	Metal seal	**VQ7-8-FJG-D-□**	54.0 (3.0)	45 or less	0.75
			Rubber seal	**VQ7-8-FJG-D-□R**	58.0 (3.2)	50 or less	
		Double check	Metal seal	**VQ7-8-FPG-D-□**	40.0 (2.2)	60 or less	1.98
			Rubber seal	**VQ7-8-FPG-D-□R**	40.0 (2.2)	60 or less	
		Pressure center	Metal seal	**VQ7-8-FIG-D-□**	54.0 (3.0)	45 or less	0.75
			Rubber seal	**VQ7-8-FIG-D-□R**	58.0 (3.2)	50 or less	

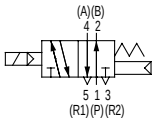
Note 1) Port size Rc3/8: Value when mounted on sub plate

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.

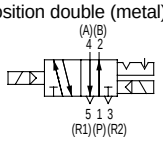
Note 3) Weight without sub plate (Sub plate: Rc3/8, 1/2: 0.68kg, Rc3/4: 1.29kg)

Symbols

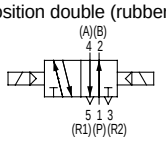
2 position single



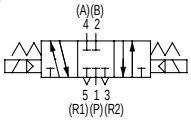
2 position double (metal)



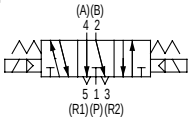
2 position double (rubber)



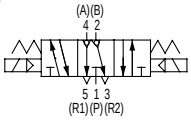
3 position closed center



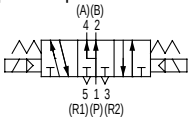
3 position exhaust center



3 position double check



3 position pressure center



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)	

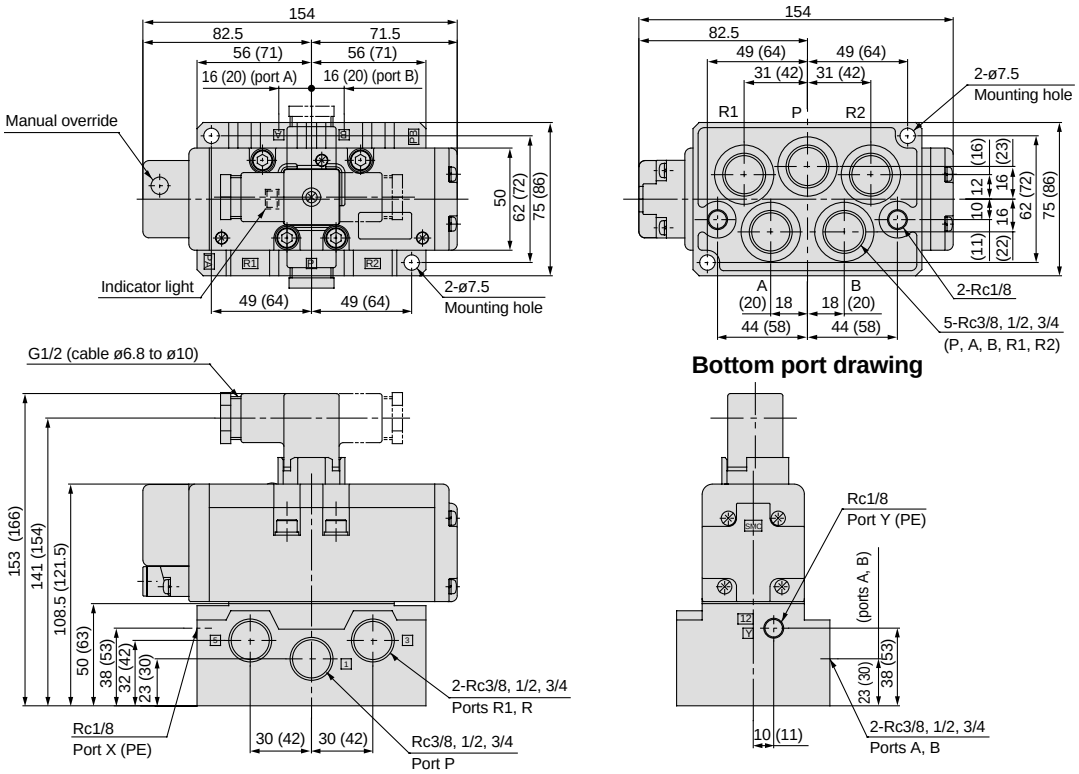
Note 1) For low temperature, use dry air with no condensation.

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)

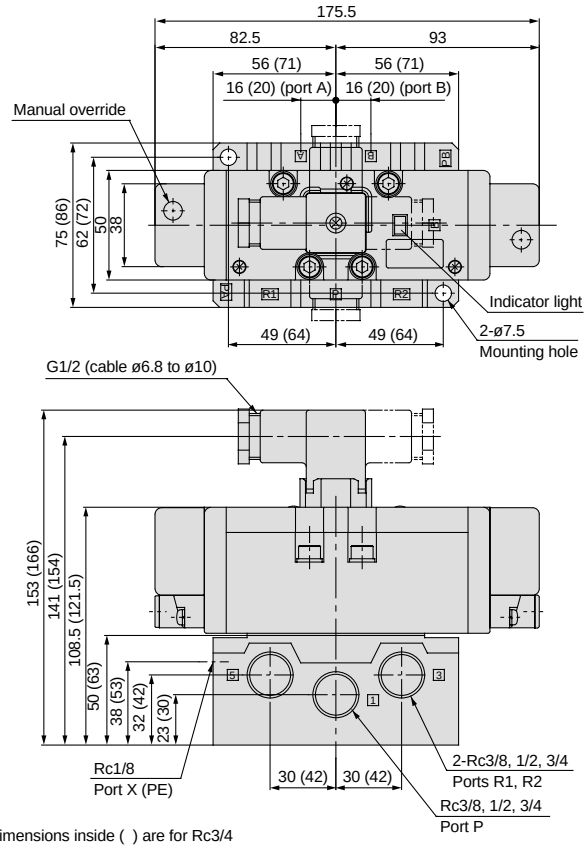
DIN Connector Type

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



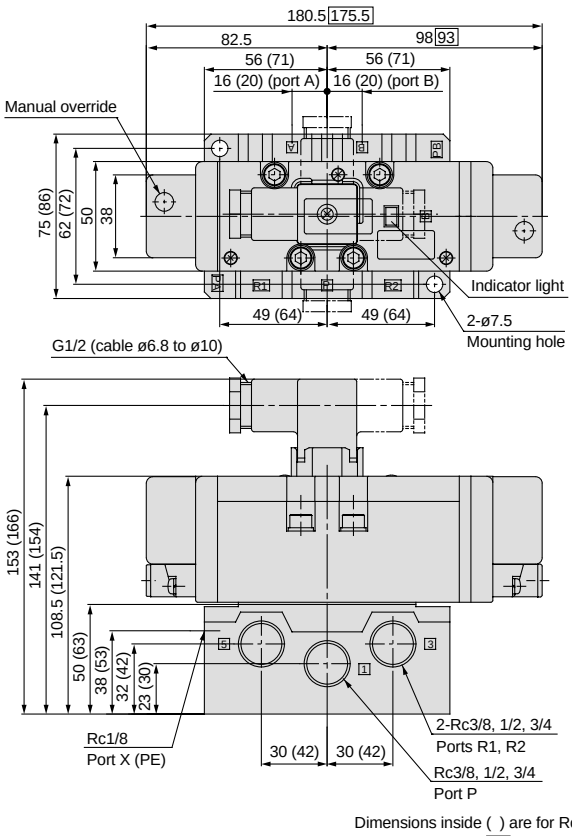
Dimensions inside ( ) are for Rc(PT) 3/4

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



Dimensions inside ( ) are for Rc3/4

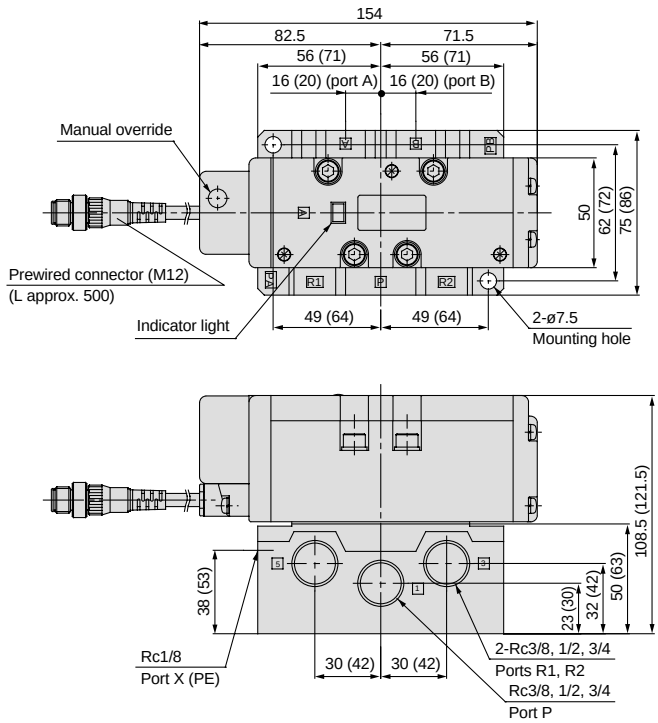
3 position/Closed center : VQ7-8-FHG-D
Exaust center : VQ7-8-FJG-D
Pressure center : VQ7-8-FIG-D

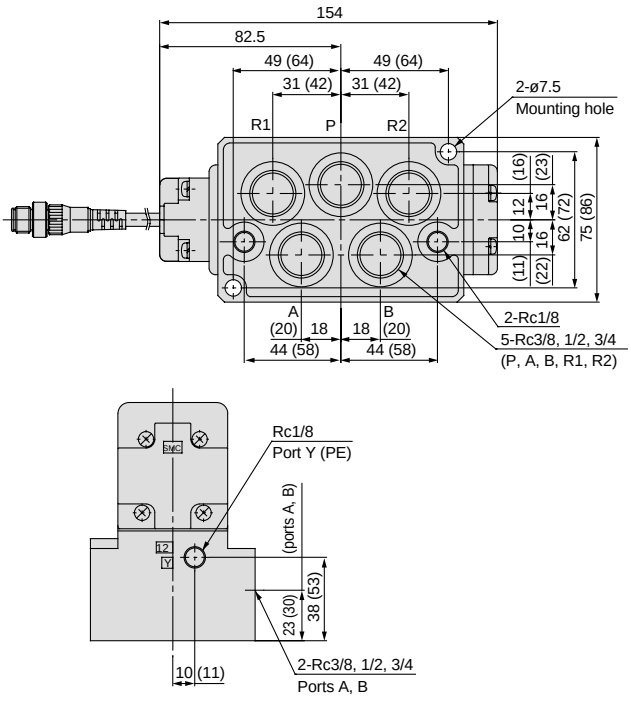


Dimensions inside ( ) are for Rc3/4
Dimensions inside ☐ are for rubber seals

Prewired Connector Type

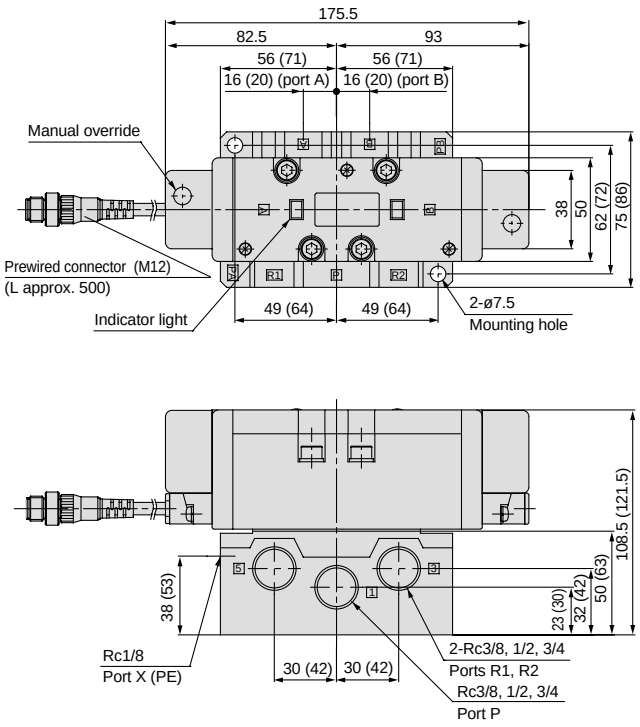
2 position/Single : VQ7-8-FG-S-□□□□SC
Single (reverse pressure): VQ7-8-YZ-S-□□□□SC





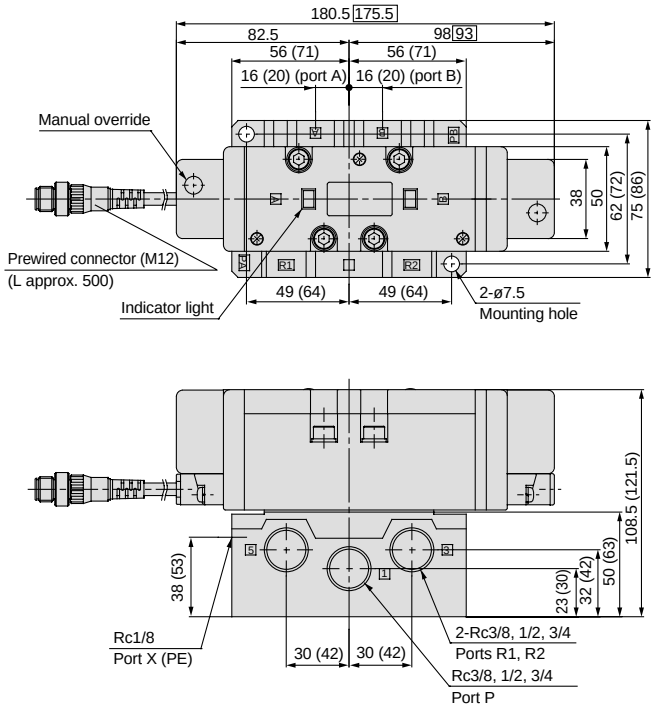
Dimensions inside ( ) are for Rc3/4

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



Dimensions inside ( ) are for Rc3/4

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



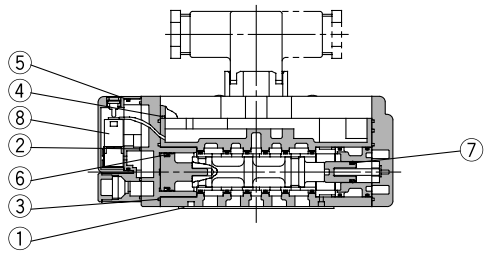
Dimensions inside ( ) are for Rc3/4
Dimensions inside ☐ are for rubber seals

Series VQ7-8
Construction

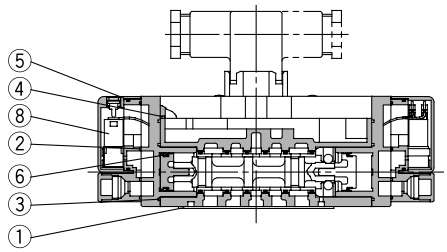
DIN Connector Type

Metal seal type

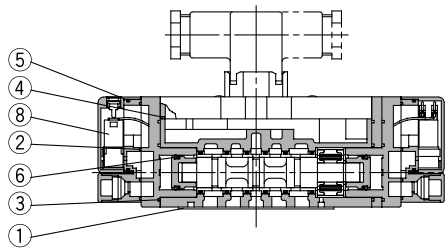
VQ7-8-FG-S-□



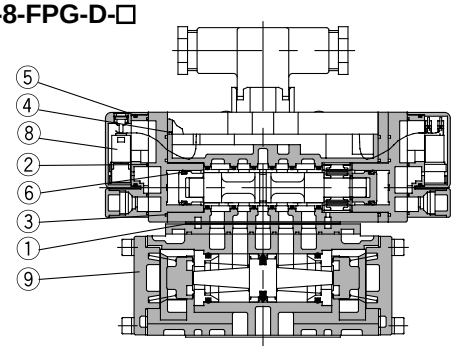
VQ7-8-FG-D-□



VQ7-8- FHG FJG FIG **-D-□**

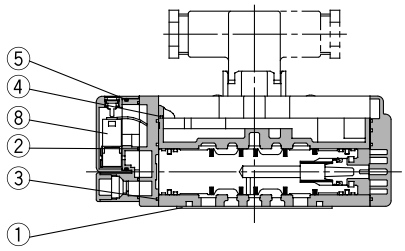


VQ7-8-FPG-D-□

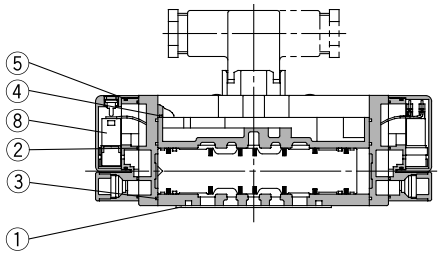


Rubber seal type

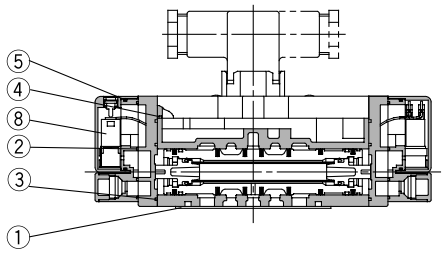
VQ7-8-FG-S-□R□



VQ7-8-FG-D-□R□



VQ7-8- FHG FJG FIG **-D-□R□**



Valve replacement parts

No.	Description	Material	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	NBR	AXT510-13						
2	Gasket A	NBR	VQ7060-13-2						
3	Gasket B	NBR	VQ7080-13-1						
4	Gasket C	NBR	VQ7080-13-3						
5	O-ring	NBR	37 x 1.6						
6	Mini Y seal	NBR	MYN-16		MYN-14		—		
7	Mini Y seal	NBR	MYN-8	—					
8	Pilot valve assembly		VQZ110Q-□						
9	Double check spacer		—			VV72-FPG	—		

Series VQ7-8
Manifold Series VV72

How to Order Manifolds

VV72 [6] – [03R] – [ ] [04D] [ ] [ ]

Stations

1	1 station
⋮	⋮
10	10 stations

2 (B), 4 (A) port connection

03R	Rc3/8 (right side)
04R	Rc1/2 (right side)
03L	Rc3/8 (left side)
04L	Rc1/2 (left side)
03Y	Rc3/8 (bottom)
04Y	Rc1/ 2 (bottom)
*	Mixed

Note) In case of mixed ports, indicate piping specifications using the instructions and specification sheet on pages 35 and 36.

Air release valve

Nil	Without
E	With air release valve

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

04D	Rc1/2 (bottom)
04U	Rc1/2 (top)
04B	Rc1/2 (both sides)
06D	Rc3/4 (bottom)
06U	Rc3/4 (top)
06B	Rc3/4 (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

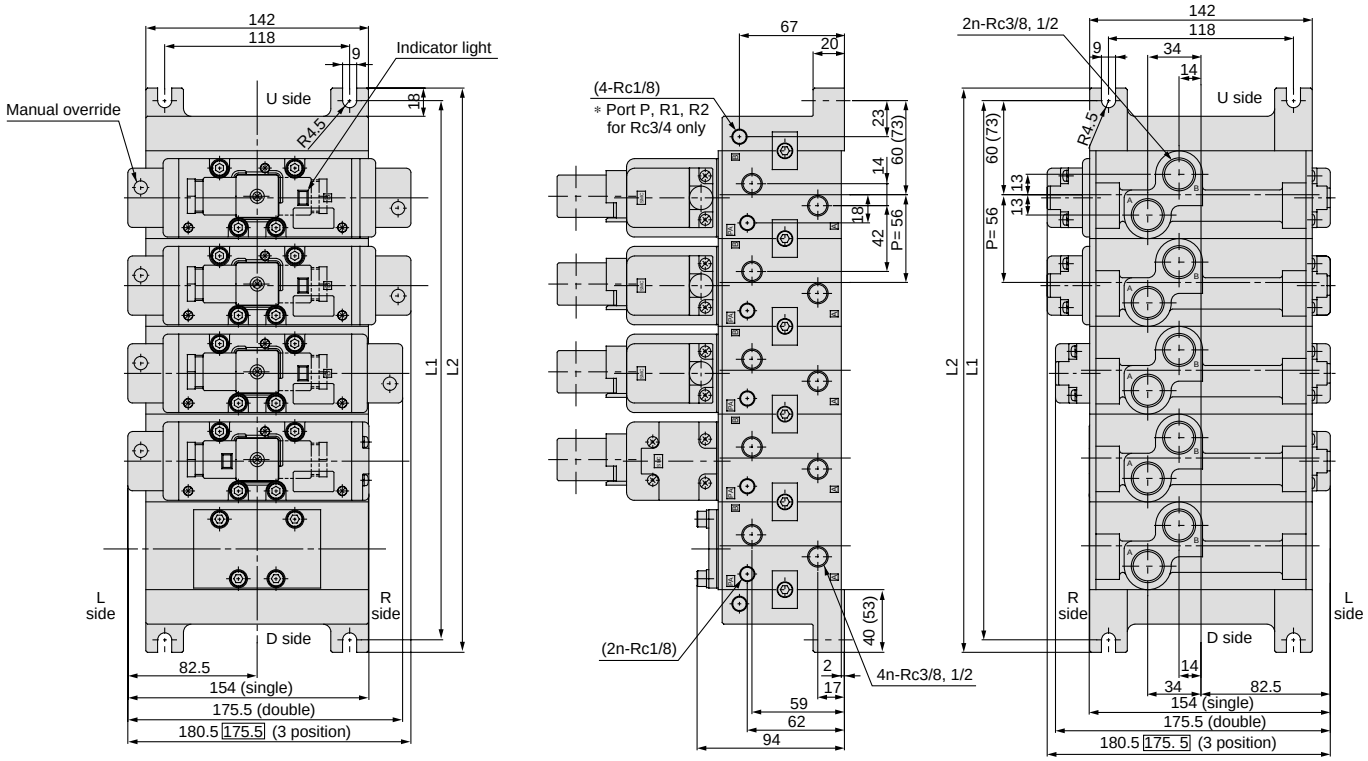
Nil	None
1	100VAC 50Hz/60Hz
2	200VAC 50Hz/60Hz
3	24VDC
4	12VDC
9	Other

Manifold specifications

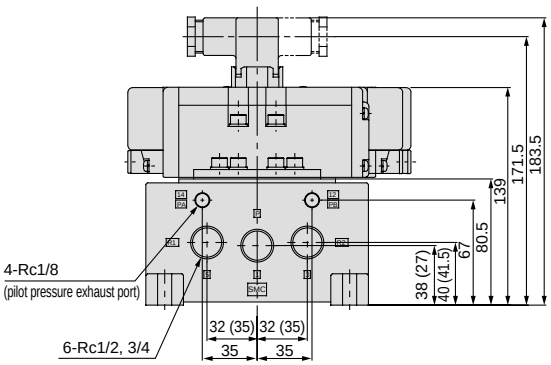
Manifold block size	Applicable solenoid valves	Piping specifications		Stations	Weight kg
		2 (B), 4 (A) port size	1 (P), 3 (R2) 5 (R1) port size		
ISO size 2	VQ7-8 ISO size 2 series	Rc3/8 Rc1/2	Rc1/2 Rc3/4	Max. 10 stations	0.96n + 0.77 (n: stations)

DIN Connector Type

VV72□-□-□□□



Bottom port drawing



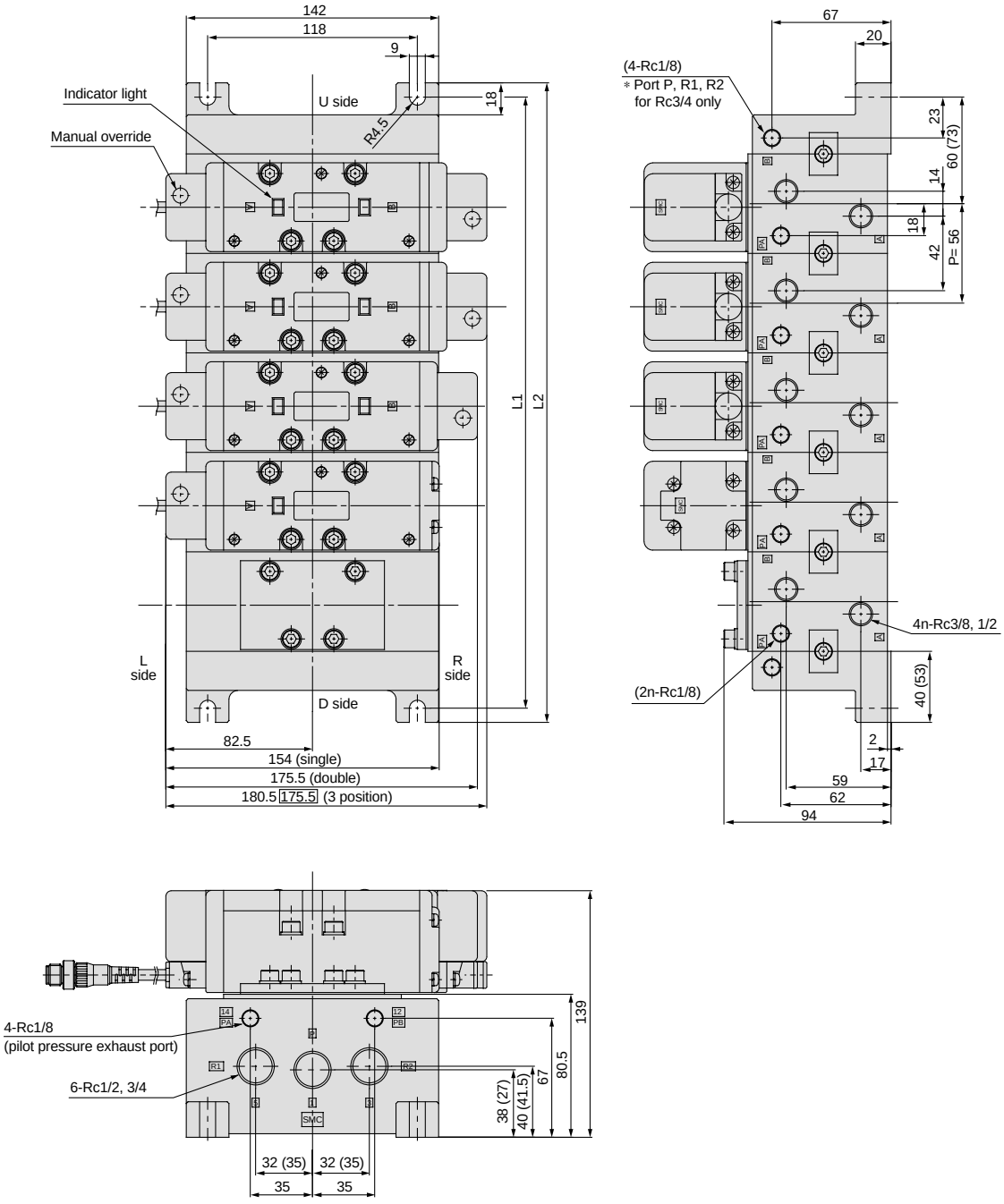
L: Dimensions

Port P, R1, R2	L \ n	1	2	3	4	5	6	7	8	9	10	Formula
Rc1/2	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
Rc3/4	L1	146	202	258	314	370	426	482	538	594	650	n: stations L1 = 56n + 90
	L2	162	218	274	330	386	442	498	554	610	666	L2 = 56n + 106

Dimensions inside ( ) are for Rc3/4
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
Rc1/2	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	
Rc3/4	L1	146	202	258	314	370	426	482	538	594	650	n: stations L1 = 56n + 90 L2 = 56n +1 06
	L2	162	218	274	330	386	442	498	554	610	666	

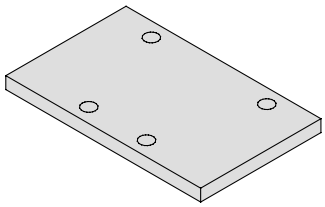
Dimensions inside ( ) are for Rc3/4
Dimensions inside ▭ are for rubber seals

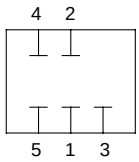
Optional Manifold Parts

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.

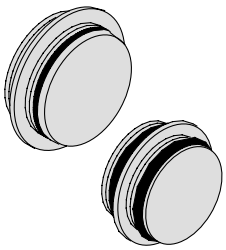


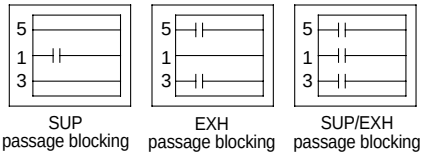


Blocking plate (for SUP/EXH passages)

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.

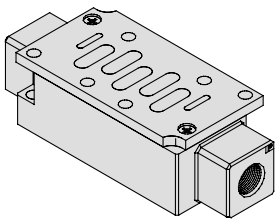


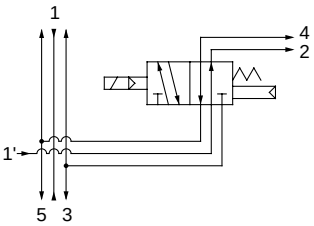


Individual SUP spacer

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

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

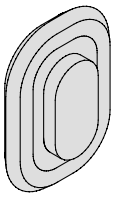


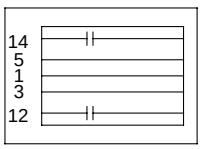


Blocking plate (for pilot EXH passage)

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.

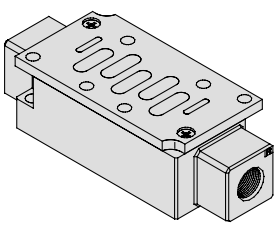


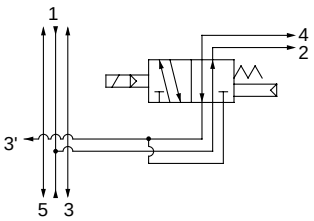


Individual EXH spacer

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)

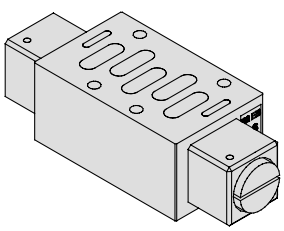


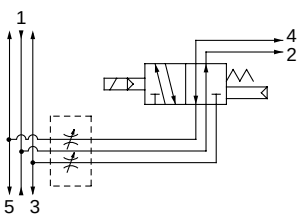


Throttle valve spacer

AXT510-32A

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

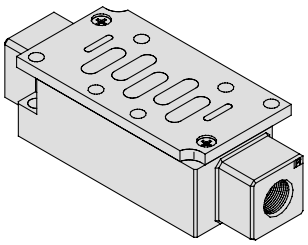


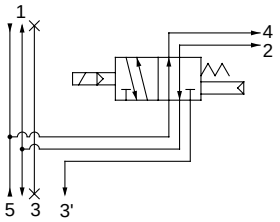


Reverse pressure spacer

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}

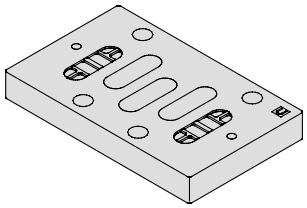


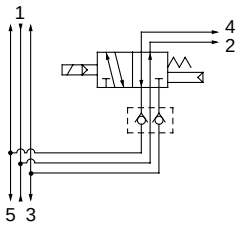


Main EXH back pressure check plate

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.

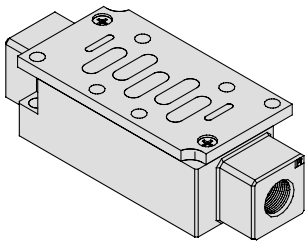


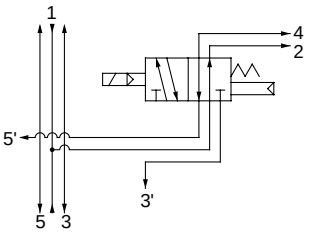


R1, R2 individual EXH spacer

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}

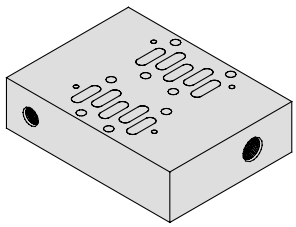


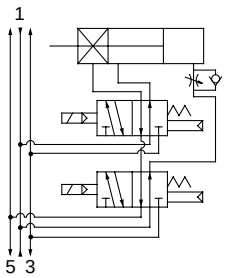


Adapter plate for locking cylinder

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.

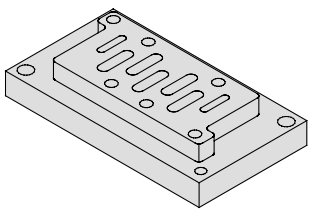




Conversion adapter plate

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)

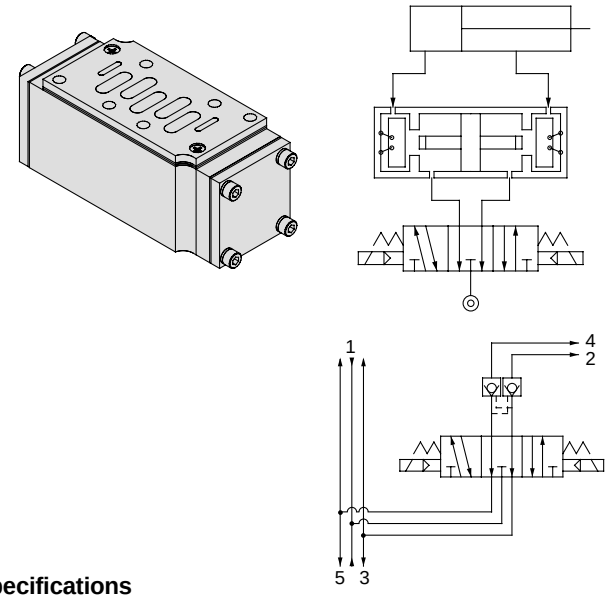


Optional Manifold Parts

Double check spacer

VV72-FPG

By combining a 3 position exhaust center 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.



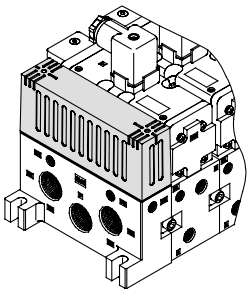
Specifications

Double check spacer part no.		VV72-FPG		
Applicable solenoid or air operated valve		Series VS7-8, VSA7-8		
Leakage cm³/min (ANR)	One solenoid energized (One pilot pressurized)	P	R1	280
			R2	
	Both solenoids unenergized (Both pilots unpressurized)	P	R1	280
			R2	
		A	R1	0
		B	R2	

Silencer box

VV72-□□□-□□-SB

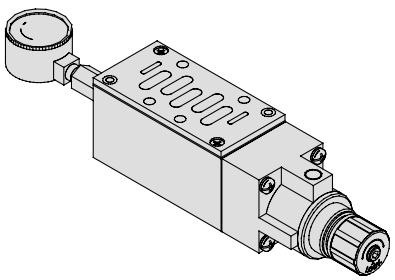
This can be provided as a unit on the end plate to reduce manifold exhaust noise and piping labor.

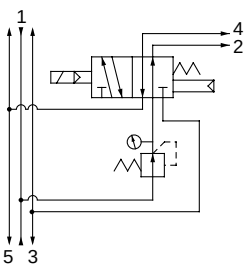


Interface regulator

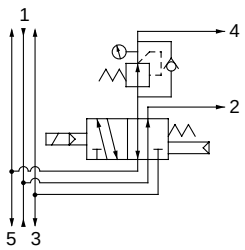
ARB350-00-P/A/B

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

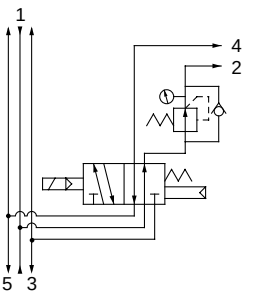




P reduced pressure



A reduced pressure



B reduced pressure

Part No.

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

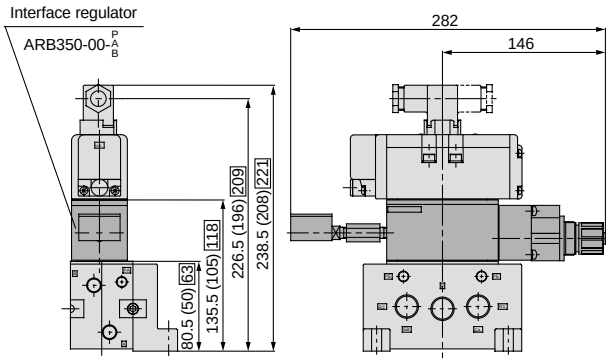
⚠Caution

- When combining a pressure center 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 center 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

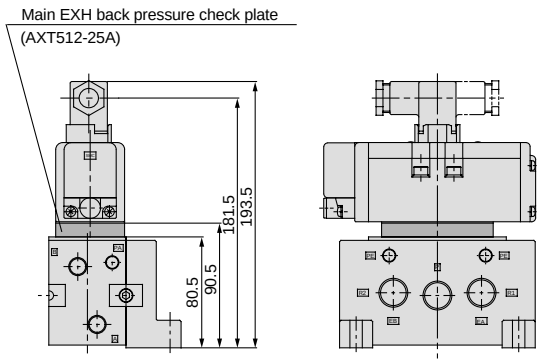
ARB350-00-P/A/B



Dimensions inside ( ) are for sub plate apertures Rc3/8 and 1/2
Dimensions inside ▭ are for sub plate aperture Rc3/4

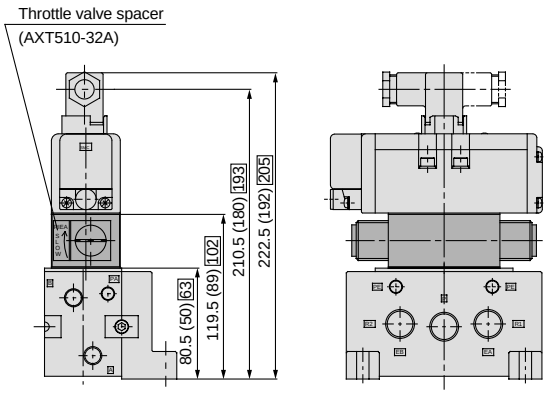
Main EXH back pressure check plate

AXT512-25A



Throttle valve spacer

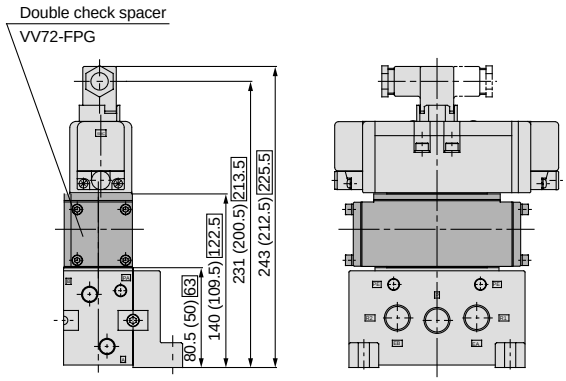
AXT510-32A



Dimensions inside ( ) are for sub plate apertures Rc3/8 and 1/2
Dimensions inside ▭ are for sub plate aperture Rc3/4

Double check spacer

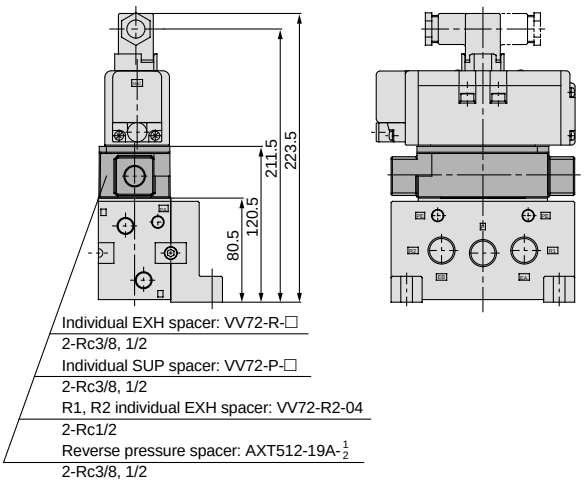
VV72-FPG



Dimensions inside ( ) are for sub plate apertures Rc3/8 and 1/2
Dimensions inside ▭ are for sub plate aperture Rc3/4

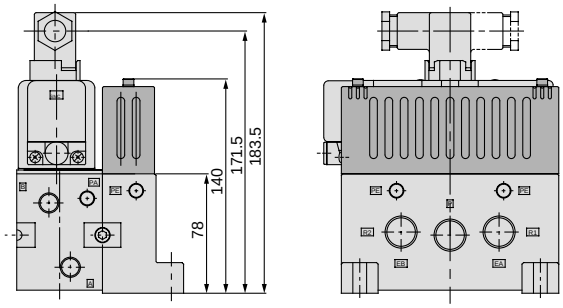
Manifold Options

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-$\frac{1}{2}$**



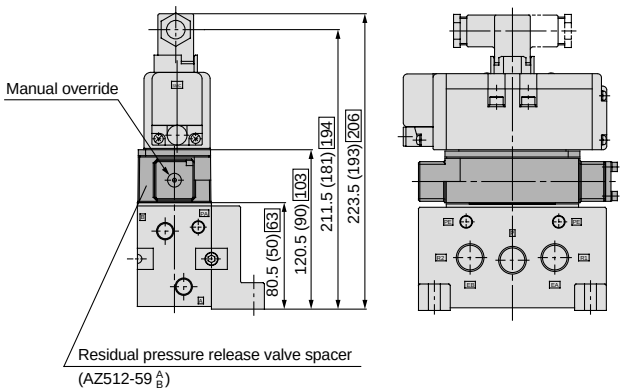
Silencer box

AXT512-26A



Residual pressure release valve spacer

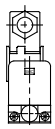
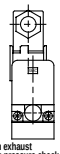
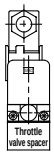
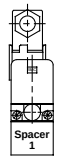
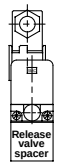
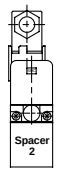
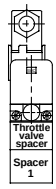
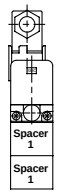
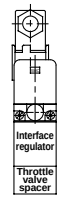
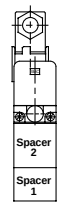
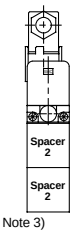
AZ512-59 $\frac{A}{B}$

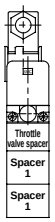
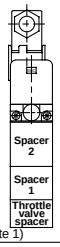
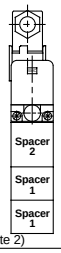
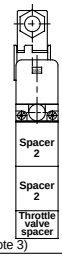
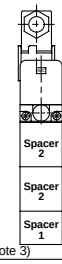


Dimensions inside ( ) are for sub plate apertures Rc3/8 and 1/2
Dimensions inside □ are for sub plate aperture Rc3/4

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)

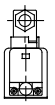
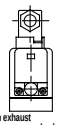
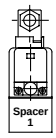
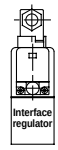
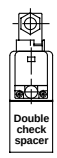
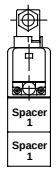
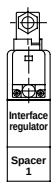
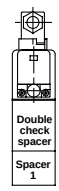
The installation position of spacer 1 in the option mounting diagrams is limited only by the precautions given below.

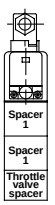
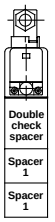
Spacers

- 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					

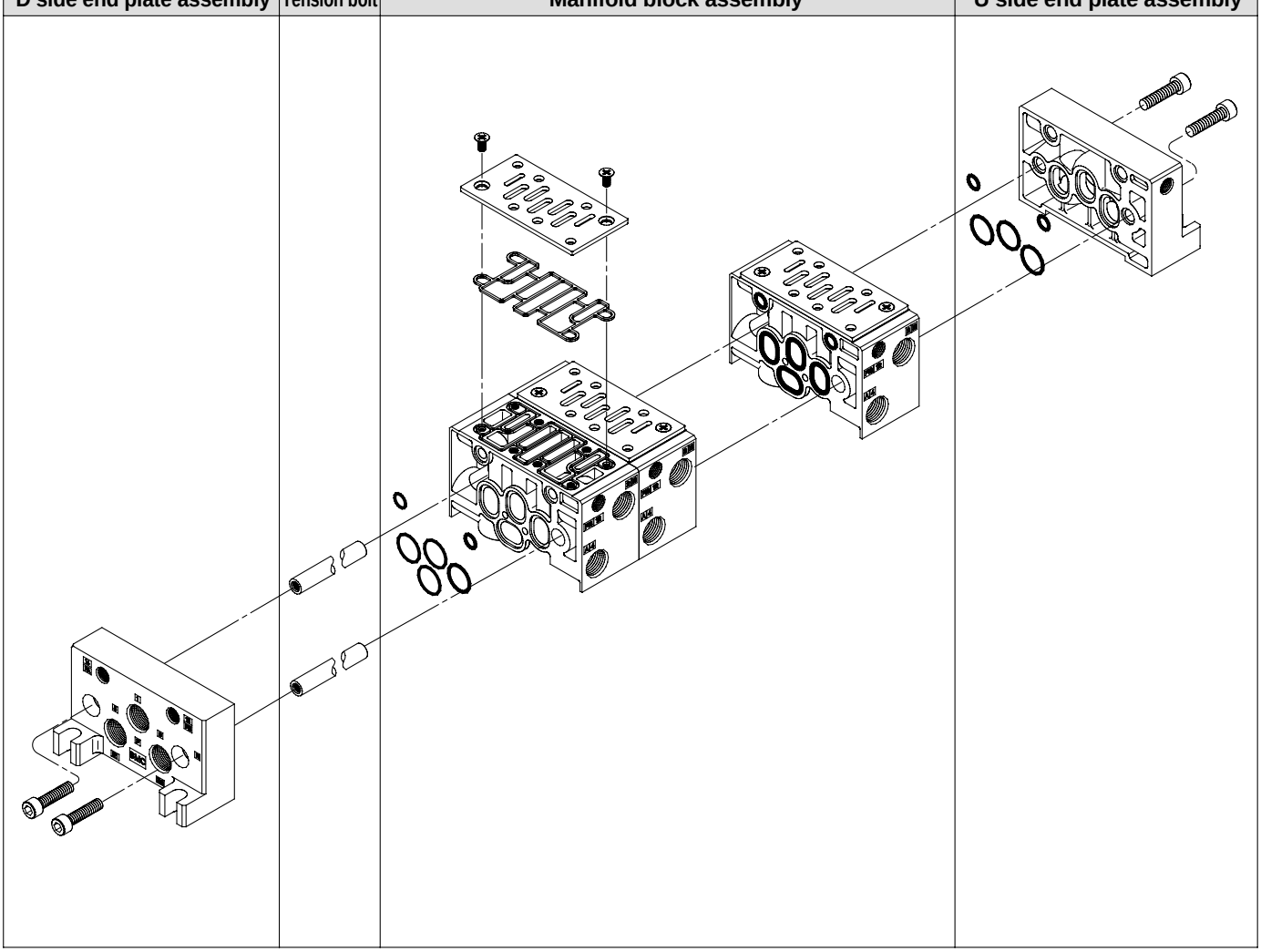
Spacers

- 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 >

AXT502 – □ A – □

End plate position

L	L side
R	R side

P, R port size

02	Rc1/4
03	Rc3/8
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.

AXT502 – 1A – □□ – □

Wiring specification

A	Side
B	Bottom

Cylinder port position

L	L side
R	R side

Cylinder port size

02	Rc1/4
03	Rc3/8
C6 Note 1)	ø6 One-touch fitting
C8 Note 1)	ø8 One-touch fitting
C10 Note 1)	ø10 One-touch fitting

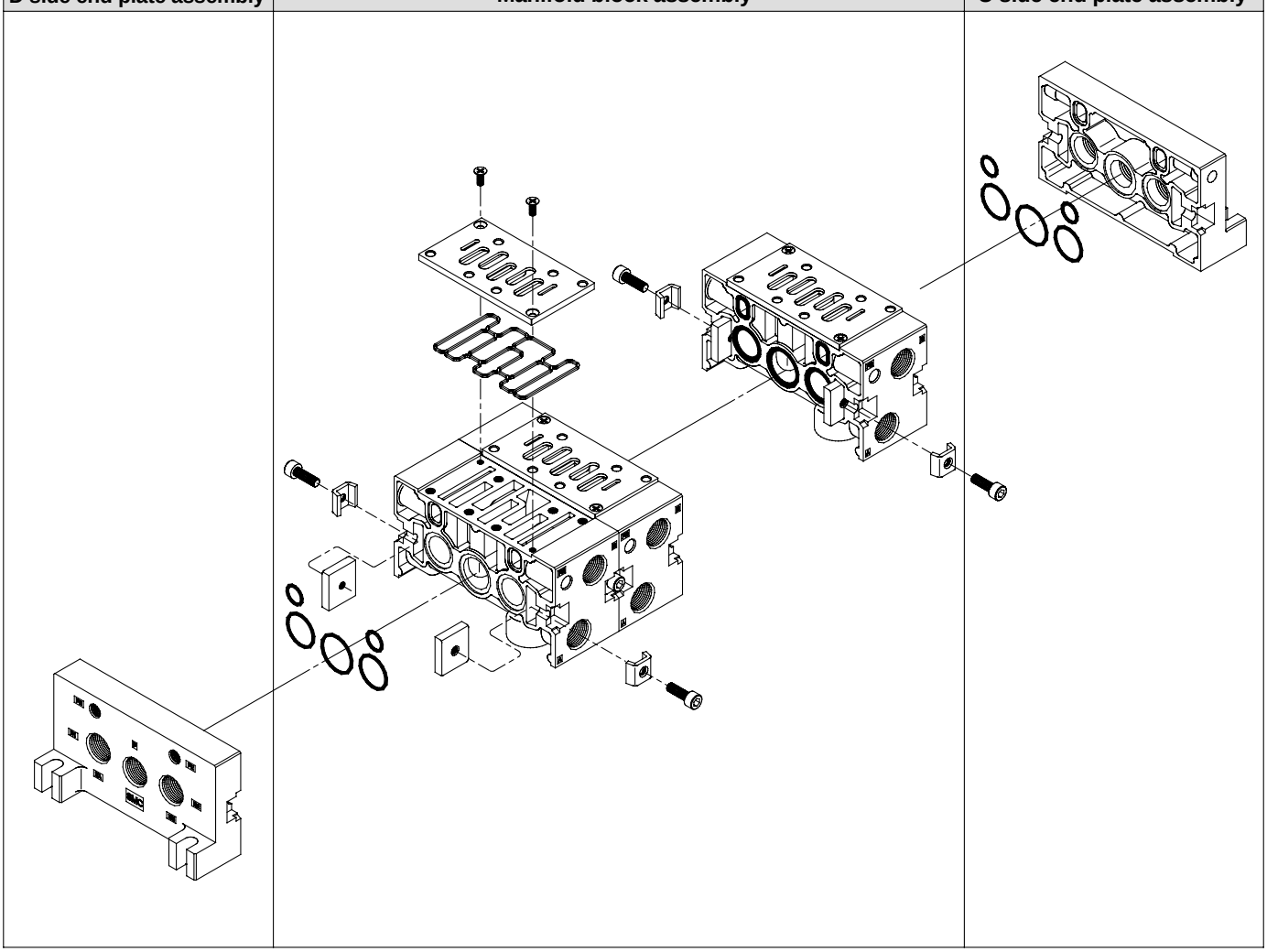
Note 1) Side ported only

< Manifold block replacement parts >

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

Manifold Exploded View

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



< End plate assembly >

AXT512 – □ A – □

End plate position

L	L side
R	R side

P, R port size

04	Rc1/2
06	Rc3/4
C12	ø12 One-touch fitting

<Manifold block assembly>

AXT512 – 1A – □ □ – □

Wiring specification

A	Side
B	Bottom

Cylinder port position

L	L side
R	R side

Cylinder port size

03	Rc3/8
04	Rc1/2

< Manifold block replacement parts>

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

Manifold Specification Sheet

Series VQ7-6

1. How to order manifolds

VV71 [6] — [02R] — [ ] [02D] [ ] [ ]

① ② ③ ④ ⑤ ⑥

① Stations

1	1 station
⋮	⋮
10	10 stations

Note) When equipped with control unit, one or two stations are used for mounting.

② 2(B), 4(A) port connection

02R	Rc1/4 (right side)
03R	Rc3/8 (right side)
02L	Rc1/4 (left side)
03L	Rc3/8 (left side)
02Y	Rc1/4 (bottom)
03Y	Rc3/8 (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) In case of mixed ports, indicate piping specifications using the manifold specification sheet on page 34.

③ Control unit type (see pages 13 and 14 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	2	1

④ 1(P), 3(R2), 5(R1) port connection

02D	Rc1/4 (bottom side)
02U	Rc1/4 (top side)
02B	Rc1/4 (both sides)
03D	Rc3/8 (bottom side)
03U	Rc3/8 (top side)
03B	Rc3/8 (both sides)
C12D	One-touch fitting ø12 (bottom side)
C12U	One-touch fitting ø12 (top side)
C12B	One-touch fitting ø1 (both sides)
*	Mixed

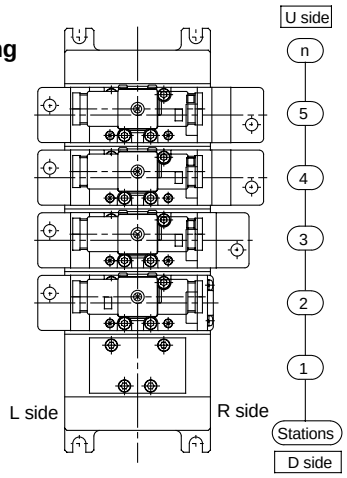
Note) In case of mixed ports, indicate piping specifications using the manifold specification sheet on page 34.

⑤ Silencer box

Nil	Without
SB	With

⑥ Air release valve coil rating

Nil	None
1	100VAC 50Hz/60Hz
2	200VAC 50Hz/60Hz
3	24VDC
4	12VDC
9	Other



2. How to order valves

VQ7 — 6 — [FG] — [S] — [3] [ ] [ ] [ ]

① ② ③ ④ ⑤ ⑥

① Type of actuation

FG	2 position
FHG	3 position closed center
FJG	3 position exhaust center
FIG	3 position pressure center
FPG	3 position double check
YZ	2 position reverse pressure

② Number of solenoids

S	Single
D	Double

③ Coil rating

1	100VAC
2	200VAC
3	24VDC
4	12VDC
9 *	Other voltage

* Contact SMC regarding other voltages.

④ Options *

Nil	None
N	Indicator light
Z	Indicator light with surge voltage suppressor
V	Individual exhaust (port PE)

* When two or more symbols are applicable, indicate in alphabetical order.

⑤ Seal type

Nil	Metal seal
R	Rubber seal

⑥ Connector

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

Manifold Specification Sheet

Series VQ7-6 ISO Size 1

Date / /

Company name	
Contact person	
Specification sheet no.	
Order no.	
Equipment name	
Quantity	set(s) Date required

How to Order Manifolds

VV71 □—□—□□□

- VQ7-6 ISO Size 1

Specification sheet

← D side U side →

Description/Model		Stations	1	2	3	4	5	6	7	8	9	10	
Valves	2 position single												
	2 position double												
	3 position closed center												
	3 position exhaust center												
	3 position pressure center												
	2 position reverse pressure (single)												
	2 position reverse pressure (double)												
Options	Blank plate AXT502-9A												
	Individual SUP spacer VV71-P-$^{03}_{C10}$												
	Individual EXH spacer VV71-R-$^{03}_{C12}$												
	Double check spacer VV71-FPG (Enter only when using for a 2 position single or double.)												
	Double spacer with residual pressure release valve VV71-FPGR (Enter only when using for a 2 position single or double.)												
	Individual SUP spacer with residual pressure release valve VV71-PR-$^{02}_{03}$												
	Residual pressure release valve spacer VV71-R-AB												
	Interface regulator ARB250-00-$^{P}_{A}$	P reduced pressure											
		A reduced pressure											
		B reduced pressure											
	Throttle valve spacer AXT503-23A												
	Reverse pressure spacer AXT502-21A-1												
	R1, R2 individual EXH spacer VV71-R2-03												
	Main EXH back pressure check plate AXT503-37A												
	Blocking plate AXT502-14	Passage 1 (P)											
		Passage 3 (R1)											
		Passage 5 (R2)											
Port size (ports 2, 4) (when mixed)	Rc1/4	02											
	Rc3/8	03											
	ø6 One-touch fitting	C6											
	ø8 One-touch fitting	C8											
	ø10 One-touch fitting	C10											
Description/Model		Stations											

Notes
- Double check spacers (including those with residual pressure release valve) cannot be combined with closed center or pressure center.
- In case of a control unit, two stations are used for mounting. However, one station is used for the E type. There is a maximum of 10 stations, including the control unit mounting stations.

Applicable valves and options

	Part No.	Quantity

	Part No.	Quantity

Order no.	
Clerk (code no.)	
Branch code	

∗ Please copy this page for use as needed.

Manifold Specification Sheet

Series VQ7-8

1. How to order manifolds

VV72 [6] — [03R] — [ ] [04D] [ ] [ ]

① ② ③ ④ ⑤ ⑥

① Stations

1	1 station
⋮	⋮
10	10 stations

② 2(B), 4(A) port connection

03R	Rc3/8 (right side)
04R	Rc1/2 (right side)
03L	Rc3/8 (left side)
04L	Rc1/2 (left side)
03Y	Rc3/8 (bottom)
04Y	Rc1/2 (bottom)
*	Mixed

Note) In case of mixed ports, indicate piping specifications using the manifold specification sheet on page 36.

③ Air release valve

Nil	Without
E	With air release valve

④ 1(P), 3(R2), 5(R1) port connection

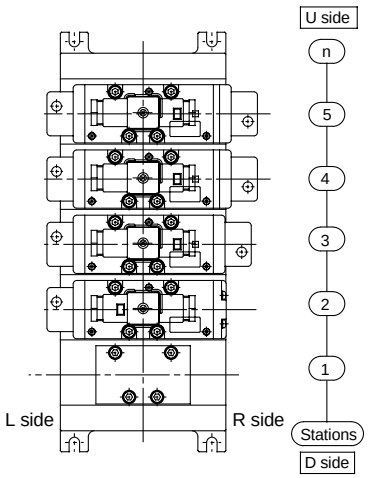
04D	Rc1/2 (bottom side)
04U	Rc1/2 (top side)
04B	Rc1/2 (both sides)
06D	Rc3/4 (bottom side)
06U	Rc3/4 (top side)
06B	Rc3/4 (both sides)

⑤ Silencer box

Nil	Without
SB	With

⑥ Air release valve coil rating

Nil	None
1	100VAC 50Hz/60Hz
2	200VAC 50Hz/60Hz
3	24VDC
4	12VDC
9	Other



2. How to order valves

VQ7 — 8 — [FG] — [S] — [3] [ ] [ ] [ ]

① ② ③ ④ ⑤ ⑥

① Type of actuation

FG	2 position
FHG	3 position closed center
FJG	3 position exhaust center
FIG	3 position pressure center
FPG	3 position double check
YZ	2 position reverse pressure

② Number of solenoids

S	Single
D	Double

③ Coil rating

1	100VAC
2	200VAC
3	24VDC
4	12VDC
9 *	Other voltages

* Contact SMC regarding other voltages.

④ Options *

Nil	None
N	Indicator light
Z	Indicator light with surge voltage suppressor
V	Individual exhaust (port PE)

* When two or more symbols are applicable, indicate in alphabetical order.

⑤ Seal type

Nil	Metal seal
R	Rubber seal

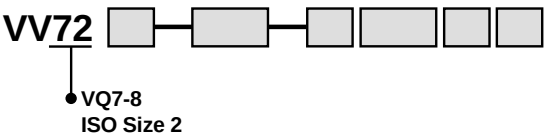
⑥ Connector

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

Manifold Specification Sheet

Series VQ7-8 ISO Size 2

How to Order Manifolds



Date: / /

Company name	
Contact person	
Specification sheet no.	
Order no.	
Equipment name	
Quantity	set(s) Date requried

Specification sheet

← D side U side →

Description/Model			Stations	1	2	3	4	5	6	7	8	9	10	
Valves	2 position single													
	2 position double													
	3 position closed center													
	3 position exaust center													
	3 position pressure center													
	2 position reverse pressure (single)													
	2 position reverse pressure (double)													
Options	Blank plate AXT512-9A													
	Individual SUP spacer VV72-P-03/04													
	Individual EXH spacer VV72-R-03/04													
	Double check spacer VV72-FPG	(Enter only when using for 2 position single or double.)												
	Interface regulator ARB350-00-P/A/B		P reduced pressure											
			A reduced pressure											
			B reduced pressure											
	Throttle valve spacer AXT510-32A													
	Reverse pressure spacer AXT512-19A-2													
	R1, R2 individual EXH spacer VV72-R2-04													
	Main EXH back pressure check plate AXT512-25A													
	Blocking plate	AXT512-14-1A	Passage 1 (P)											
		AXT512-14-2A	Passage 3 (R1)											
			Passage 5 (R2)											
Port size (ports 2, 4) (when mixed)	Rc3/8		03											
	Rc1/2		04											
Description/Model			Stations											
Note	• Double check spacers cannot be combined with closed center or pressure center.													

Applicable valves and options

	Part No.	Quantity

	Part No.	Quantity

Order no.	
Clerk (code no.)	
Branch code	

∗ Please copy this page for use as needed.

Series VQ7-6/7-8
Safety Instructions

These safety instructions are intended to prevent a hazardous situation and/or equipment damage. These instructions indicate the level of potential hazard by a label of **"Caution", "Warning" or "Danger"**. To ensure safety, be sure to observe ISO 4414 Note 1), JIS B 8370 Note 2) and other safety practices.

⚠ **Caution:** Operator error could result in injury or equipment damage.

⚠ **Warning:** Operator error could result in serious injury or loss of life.

⚠ **Danger:** In extreme conditions, there is a possible result of serious injury or loss of life.

Note 1) ISO 4414 : Pneumatic fluid power – Recommendations for the application of equipment to transmission and control systems.

Note 2) JIS B 8370 : General Rules for Pneumatic Systems

⚠Warning

1. The compatibility of pneumatic equipment is the responsibility of the person who designs the pneumatic system or decides its specifications.

Since the products specified here are used in various operating conditions, their compatibility for the specific pneumatic system must be based on specifications or after analysis and/or tests to meet your specific requirements.

2. Only trained personnel should operate pneumatically operated machinery and equipment.

Compressed air can be dangerous if an operator is unfamiliar with it. Assembly, handling or repair of pneumatic systems should be performed by trained and experienced operators.

3. Do not service machinery/equipment or attempt to remove components until safety is confirmed.

1. Inspection and maintenance of machinery/equipment should only be performed after confirmation of safe locked-out control positions.
2. When equipment is to be removed, confirm the safety process as mentioned above. Cut the supply pressure for this equipment and exhaust all residual compressed air in the system.
3. Before machinery/equipment is restarted, take measures to prevent shooting-out of cylinder piston rod, etc. (Bleed air into the system gradually to create back pressure.)

4. Contact SMC if the product is to be used in any of the following conditions:

1. Conditions and environments beyond the given specifications, or if product is used outdoors.
2. Installation on equipment in conjunction with atomic energy, railway, air navigation, vehicles, medical equipment, food and beverages, recreation equipment, emergency stop circuits, press applications, or safety equipment.
3. An application which has the possibility of having negative effects on people, property, or animals, requiring special safety analysis.

Series VQ7-6/7-8
5 Port Solenoid Valve Precautions 1

Be sure to read before handling.

Precautions on Design

⚠Warning

1. Actuator drive

When an actuator, such as a cylinder, is to be driven using a valve, take appropriate measures to prevent potential danger caused by actuator operation.

2. Intermediate stopping

When a 3 position closed center valve is used to stop a cylinder at an intermediate position, accurate stopping of the piston in a predetermined position is not possible due to the compressibility of air. Furthermore, since valves and cylinders are not guaranteed for zero air leakage, it may not be possible to hold a stopped position for an extended length of time. Contact SMC if it is necessary to hold a stopped position for an extended time.

3. Effect of back pressure when using a manifold

Use caution when valves are used on a manifold, as actuator malfunction due to back pressure may occur. Special caution is necessary when using a 3 position exhaust center valve, or when driving a single acting cylinder, etc. When there is a danger of this kind of malfunction, implement countermeasures such as the use of an individual exhaust spacer assembly or exhaust blocking plate.

4. Disposition of pilot exhaust

Operate the pilot exhaust port (PE) with silencers mounted on both the D and U sides, or with release to atmosphere. If merged with the main exhaust, the main valve may malfunction due to back pressure.

5. Holding of pressure (including vacuum)

Since valves are subject to air leakage, they cannot be used for applications such as holding pressure (including vacuum) in a pressure vessel.

6. Cannot be used as an emergency shutoff valve, etc.

The valves presented in this catalog are not designed for safety applications such as an emergency shutoff valve. If the valves are used in this type of system, other reliable safety assurance measures should also be adopted.

7. Maintenance space

The installation should allow sufficient space for maintenance activities.

8. Release of residual pressure

Provide a residual pressure release function for maintenance purposes. Special consideration should be given to the release of residual pressure between the valve and cylinder in the case of a 3 position closed center type valve.

9. Vacuum applications

When a valve is used for vacuum switching, etc., take measures against the suction of external dust or other contaminants from vacuum pads and exhaust ports, etc. Moreover, an external pilot type valve should be used in this case. Contact SMC in case of an internal pilot type or air operated valve, etc.

Selection

⚠Warning

1. Confirm the specifications.

The products presented in this catalog are designed only for use in compressed air systems (including vacuum). Do not operate at pressures or temperatures, etc. beyond the range of specifications, as this can cause damage or malfunction. (Refer to specifications.) Contact SMC when using a fluid other than compressed air (including vacuum).

2. Extended periods of continuous energization

Contact SMC if valves will be continuously energized for extended periods of time.

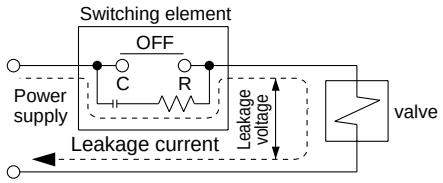
⚠Caution

1. Momentary energization

If a double solenoid valve will be operated with momentary energization, it should be energized for at least 0.1 second.

2. Leakage voltage

Particularly when using a C-R element (surge voltage suppressor) for protection of the switching element, take note that leakage voltage will increase due to leakage current flowing through the C-R element, etc.



Limit the amount of residual leakage voltage to the following values:

With DC coil — 2% or less of rated voltage

With AC coil — 12.5% or less of rated voltage

3. Low temperature operation

Avoid ambient temperatures outside the range of –10 to 60°C (–5°C minimum for rubber seals). At low temperatures, appropriate measures should be taken to avoid solidification or freezing of drainage and moisture, etc.

4. Operation for air blowing

When using solenoid valves for air blowing, an external pilot type or direct solenoid operated type should be used.

Also, supply to the external pilot port compressed air within the pressure range prescribed in the specifications.

5. Mounting orientation

In the case of a single solenoid, the mounting orientation is unrestricted. In the case of double solenoid or 3 position valves, mount so that the spool valve is horizontal.

Also, when mounting in a location with vibration or impact, mount so that the spool valve is at a right angle to the direction of vibration.

Do not use in locations where vibration or impact exceeds the product's specifications.

Series VQ7-6/7-8
5 Port Solenoid Valve Precautions 2

Be sure to read before handling.

Mounting

⚠Warning

1. If air leakage increases or equipment does not operate properly, stop operation.

After mounting or maintenance, etc., connect the compressed air and power supplies, and perform appropriate function and leakage inspections to confirm that the unit is mounted properly.

2. Instruction manual

Mount and operate the product after reading the manual carefully and understanding its contents. Also keep the manual where it can be referred to as necessary.

3. Painting and coating

Warnings or specifications printed or pasted on the product should not be erased, removed or covered up.

Piping

⚠Caution

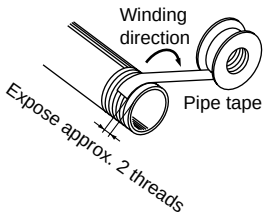
1. Preparation before piping

Before piping is connected, it should be thoroughly blown out with air (flushing) or washed to remove chips, cutting oil and other debris from inside the pipe.

2. Wrapping of pipe tape

When connecting pipes and fittings, etc., be sure that chips from the pipe threads and sealing material do not get inside the valve.

Further, when pipe tape is used, leave 1.5 to 2 thread ridges exposed at the end of the pipe/fitting.



3. When using closed center valves

When using closed center type valves, check carefully to be sure there are no air leaks from the piping between the valves and cylinders.

4. Tighten threads with the proper tightening torque.

When screwing fittings into valves, tighten with the torques given below.

Tightening torque for piping

Connection threads	Proper tightening torque N·m
Rc1/8	7 to 9
Rc1/4	12 to 14
Rc3/8	22 to 24
Rc1/2	28 to 30
Rc3/4	28 to 30

5. Connection of piping to products

When connecting piping to a product, refer to its instruction manual to avoid mistakes regarding the supply port, etc.

Wiring

⚠Caution

1. Polarity

None of the series have polarity. (non-polar type)

2. Applied voltage

When electric power is connected to the solenoid valve, be careful to apply the proper voltage. Improper voltage may cause malfunction or coil damage.

3. Confirm the connections.

After completing the wiring, confirm that the connections are correct.

Lubrication

⚠Caution

1. Lubrication

1) The valve has been lubricated for life at the factory, and does not require any further lubrication.

2) In the event that it is lubricated, use Class 1 turbine oil (without additives), ISO VG32.

However, once lubrication is applied it must be continued, as the original lubricant may be eliminated leading to malfunction.

Series VQ7-6/7-8
5 Port Solenoid Valve Precautions 3

Be sure to read before handling.

Air Supply

⚠Warning

1. Use clean air.

Do not use compressed air which contains chemicals, synthetic oils containing organic solvents, salts or corrosive gases, etc., as this can cause damage or malfunction.

⚠Caution

1. Install air filters.

Install air filters close to valves at their upstream side. A filtration degree of 5μm or less should be selected.

2. Install an air dryer or after cooler, etc.

Air that includes excessive drainage may cause malfunction of valves and other pneumatic equipment. To prevent this, install an air dryer or after cooler, etc.

3. If excessive carbon powder is generated, eliminate it by installing mist separators at the upstream side of valves.

If excessive carbon powder is generated by the compressor, it may adhere to the inside of valves and cause malfunction.

Refer to SMC's "Air Cleaning Equipment" catalog for further details on compressed air quality.

Operating Environment

⚠Warning

1. Do not use valves in atmospheres of corrosive gases, chemicals, salt water, water or steam, or where there is direct contact with same.

2. Do not use in an explosive atmosphere.

3. Do not use in locations subject to vibration or impact. Confirm the specifications for each series.

4. A protective cover, etc., should be used to shield valves from direct sunlight.

5. Shield valves from radiated heat generated by nearby heat sources.

6. Employ suitable protective measures in locations where there is contact with water droplets, oil or welding spatter, etc.

7. When solenoid valves are mounted in a control panel or are energized for extended periods of time, employ measures to radiate excess heat so that temperatures remain within the valve specification range.

Maintenance

⚠Warning

1. Perform maintenance procedures as shown in the instruction manual.

If handled improperly, malfunction or damage of machinery or equipment may occur.

2. Equipment removal and supply/exhaust of compressed air

When equipment is removed, first confirm that measures are in place to prevent dropping of work pieces and run-away of equipment, etc. Then cut the supply pressure and power, and exhaust all compressed air from the system using its residual pressure release function.

When the equipment is to be started again after remounting or replacement, first confirm that measures are in place to prevent lurching of actuators, etc., and then confirm that the equipment is operating normally.

3. Low frequency operation

Valves should be switched at least once every 30 days to prevent malfunction. (Use caution regarding the air supply.)

4. Manual override operation

When the manual override is operated, connected equipment will be actuated. Confirm safety before operating.

⚠Caution

1. Drainage removal

Remove drainage from air filters regularly. (Refer to specifications.)

2. Lubrication

In the case of rubber seals, once lubrication has been started, it must be continued.

Use Class 1 turbine oil (without additives) VG32. Other lubricating oils will cause malfunction or other trouble.

Contact SMC regarding Class 2 turbine oil (with additives) VG32.

How to Find the Flow Rate (at air temperature of 20°C)

Subsonic flow when $P_1 + 0.1013 < 1.89 (P_2 + 0.1013)$

$$Q = 226S\sqrt{\triangle P(P_2 + 0.1013)}$$

Sonic flow when $P_1 + 0.1013 \geq 1.89 (P_2 + 0.1013)$

$$Q = 113S (P_1 + 0.1013)$$

Q: Air flow rate [l/min (ANR)]

S: Effective area (mm^2)

△P: Differential pressure (P1-P2) [MPa]

P_1: Upstream pressure [MPa]

P_2: Downstream pressure [MPa]

∗ Correction for different air temperatures

Multiply the flow rate calculated with the above formulas by a coefficient from the table below.

Air temperature (°C)	–20	–10	0	10	30	40	50	60
Correction coefficient	1.08	1.06	1.04	1.02	0.98	0.97	0.95	0.94

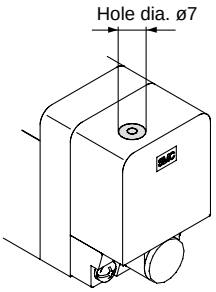
Series VQ7-6/7-8
Specific Product Precautions 1

Be sure to read before handling.
Refer to pages 37 through 40 for safety instructions and common precautions.

⚠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)

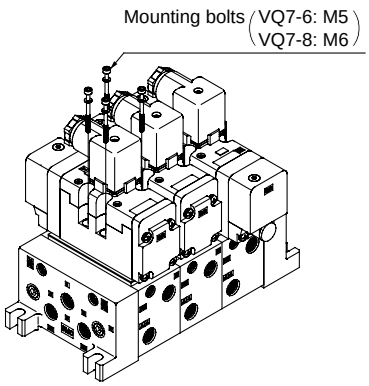


Press the manual override all the way down with a small screw driver, etc.
The manual override resets when released.

⚠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

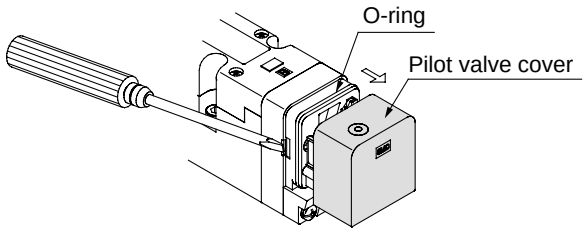
• Removal

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

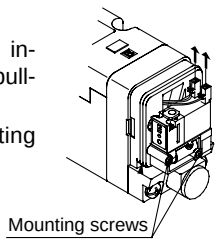
Put the cover back on straight without touching the pilot valve, and push it all the way until the cover's hook locks, without twisting the protective O-ring. (When pushed in, the hook opens and locks automatically.)



⚠Caution
Replacement of Pilot Valve

• Removal

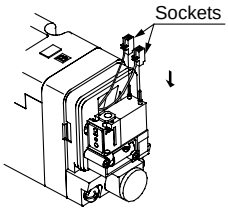
1) Take off the sockets which are installed on the pilot valve pins by pulling them straight upward.
2) Remove the pilot valve mounting screws with a small screw driver.



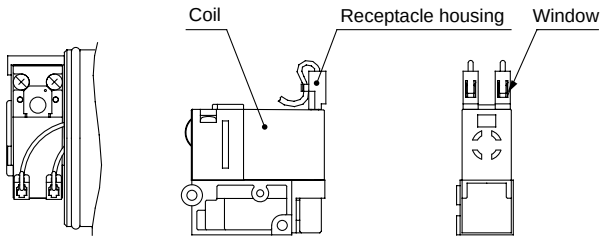
• Installation

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 before handling.
Refer to pages 37 through 40 for safety instructions and common precautions.

⚠ Caution
Using a DIN Connector

ISO# : DIN 43650 A compatible

Connections

1. Loosen the holding screw and pull the connector off of the solenoid valve terminal block.
2. After removing the holding screw, insert a flat head screw driver, etc., into the notch at the bottom of the terminal block and pry it up, separating the terminal block and housing.
3. Loosen the terminal screws on the terminal block, insert the cores of the lead wires into the terminals in accordance with the connection method, and fix securely with the terminal screws.
4. Secure the cord by screwing in the ground nut.

Changing the cord entry

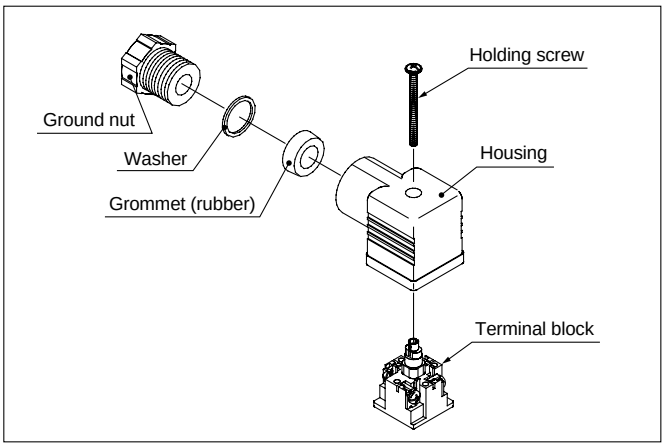
After separating the terminal block and housing, the cord entry direction can be changed by attaching the housing in the desired direction (4 directions at 90° intervals).

Precautions

Insert and pull out the connector in a straight line so that it does not tilt at an angle.

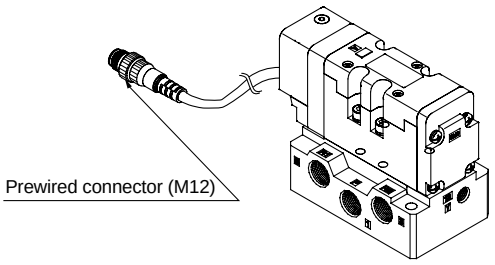
Compatible cable

Cord outside diameter: ø6.8 to ø10

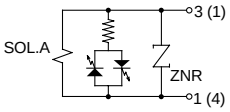


Using a Prewired Connector

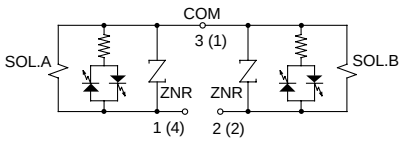
4 wire round type connector (M12) conforming to NECA (Nippon Electric Control Equipment Industries Association) standard 4202



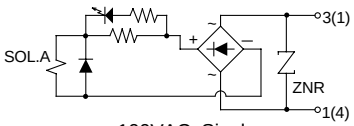
⚠ Caution
Internal Wiring Specifications



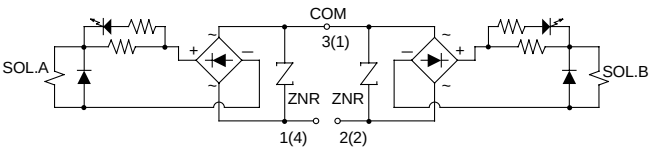
DC: Single



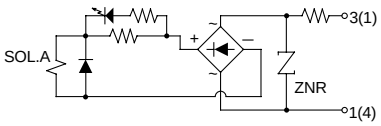
DC: Double



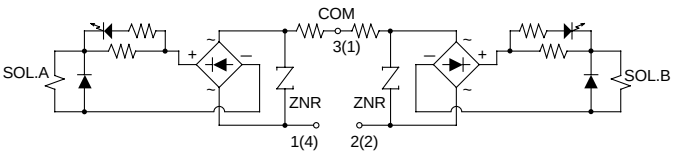
100VAC: Single



100VAC: Double



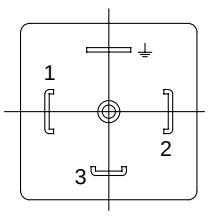
200VAC or more: Double



200VAC or more: Double

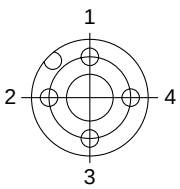
Terminal numbers in the circuits are for a DIN connector.
Numbers inside ( ) are prewired connector pin numbers.

DIN connector wiring specification



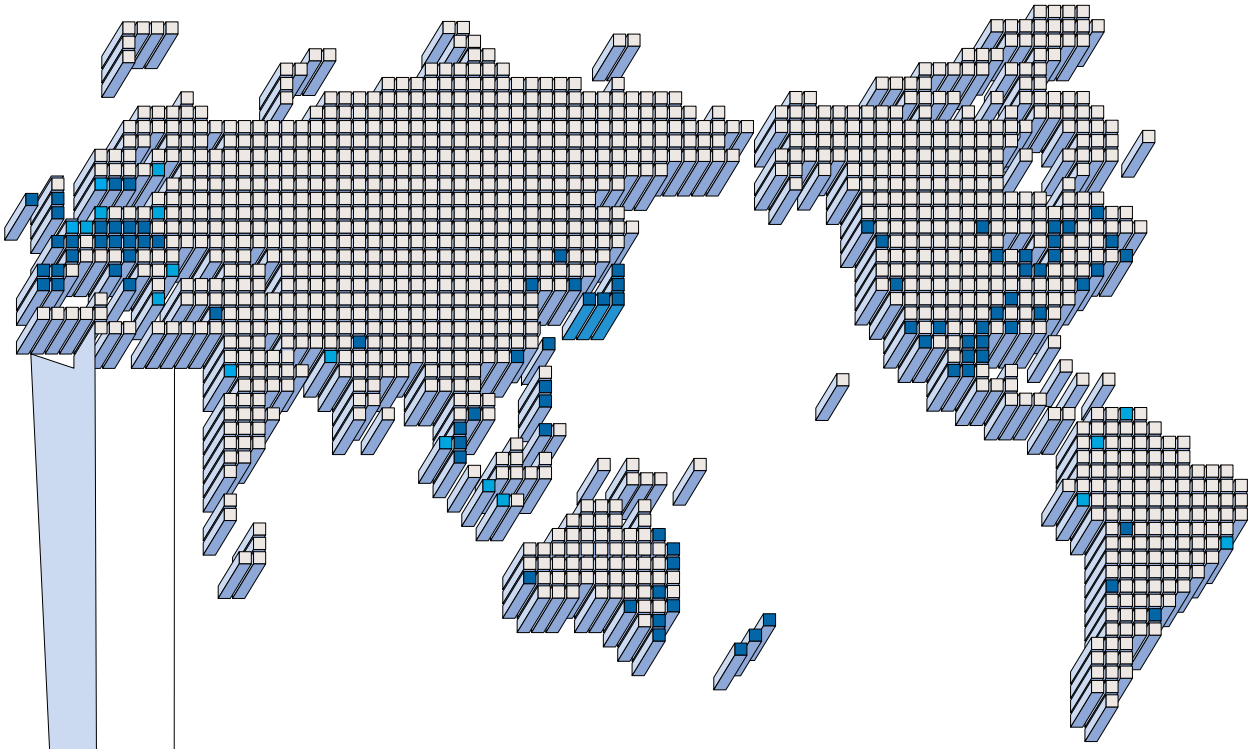
Terminal Nos.
1: A side SOL.
2: B side SOL.
3: COM terminal

Prewired connector wiring specification



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

SMC'S GLOBAL MANUFACTURING, DISTRIBUTION AND SERVICE NETWORK



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