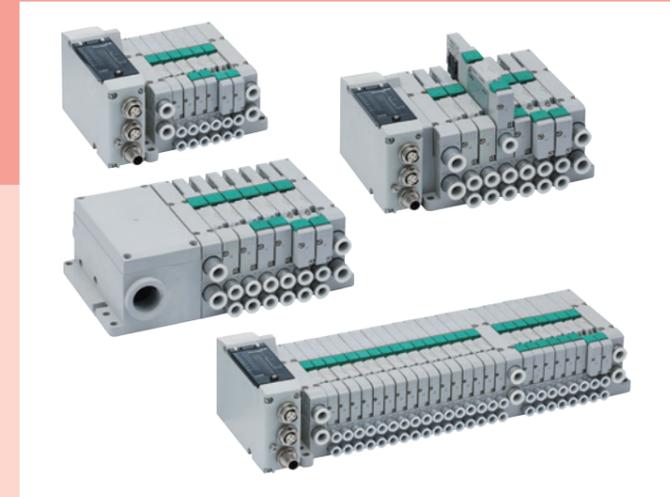


TVG

Pilot operated 3, 5-port valve plug-in block manifold

Compatible with rechargeable battery manufacturing process



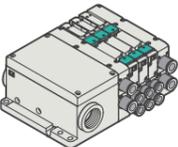
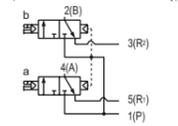
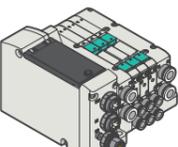
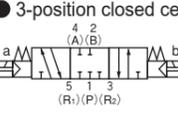
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Series Variation

TVG1/TVG2 Series

Compatible with rechargeable battery manufacturing process

Series appearance	Mounted valve Model No.	Position, Solenoid, Circuit diagram Code	Valve specifications		Switching position							A/B piping port (mm)			Electrical connection			Voltage	Spacer		Page			
			Flow characteristics (dm ³ /(s·bar))	Applicable cylinder bore size (∅) *1	2-position		3-position			∅4	∅6	∅8	Centralized terminal block	Multi-conductor	D-sub connector	Serial transmission	Supply, Exhaust		Perfect spacer (Pilot check valve)					
					Single	Double	Closed center	Exhaust center	Pressure center											Dual 3-port valve built-in type		Mix		
Reduced wiring type 	3-port	TVG1	● Dual 3-port valve built-in type (Example: A side valve: NC, B side valve: NC type)	0.56 to 1.1	to ∅63																			
		TVG2		1.8 to 2.2	to ∅100																			
	5-port	TVG1	● 5-port valve 2-position single	0.59 to 1.3	to ∅63	●	●	●	●	●														
		TVG2	● 2-position double	1.8 to 2.9	to ∅100	●	●	●	●	●														
	Serial transmission 	3-port	TVG1	● 3-position closed center	0.56 to 1.1	to ∅63											●							
			TVG2		1.8 to 2.2	to ∅100													●					
		5-port	TVG1	● 3-position exhaust center	0.59 to 1.3	to ∅63	●	●	●	●	●								●					
			TVG2	● 3-position pressure center	1.8 to 2.9	to ∅100	●	●	●	●	●									●				

*1 : For details, see P. 212.

TVG Base piping
 TVG Direct piping
 TVG Base piping
 TVG Direct piping
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 Manifold specifications
 Technical data
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TVG Base piping
 TVG Direct piping
 TVG Base piping
 TVG Direct piping
 TVG Base piping
 TVG Direct piping
 TVG-P4
 Manifold specifications
 Technical data
 Safety precautions



Plug-in block manifold Compatible with rechargeable battery manufacturing process
Pilot operated 3, 5-port valve Base piping

TVG1-P4/TVG2-P4 Series



Model performance/characteristics

Item	Eye/Item	Switching position	TVG1		TVG2		
			ON	OFF	ON	OFF	
Response time ms		Dual 3-port valve built-in type	15	25	20	37	
		2-position	Single	15	20	22	24
			Double	15	15	26	26
		3-position	20	30	25	35	

Response time is the value at supply pressure 0.5 MPa, 20°C, and no lubrication. It varies depending on the pressure and oil quality.

Manifold common specifications

Item	Content
Manifold type	Block manifold
Mounting method	Direct mount type
Supply/exhaust method	Common supply/Common exhaust (Built-in exhaust malfunction prevention valve)
Pilot exhaust method	Main valve / Pilot valve common exhaust
Internal pilot	(*5) (Built-in pilot exhaust check valve)
Piping direction	Base side direction
Valve type and operation method	Pilot operated soft spool valve
Working fluid	Compressed air, Nitrogen
Max. operating pressure	MPa 0.7
Internal pilot minimum operating pressure	2-position double 0.1 (*7) 2-position single, 3-position 0.2 MPa Dual 3-port valve built-in type 0.2
External pilot min. operating pressure	-100 kPa (Pilot pressure is 0.2 MPa or more)
Proof pressure	MPa 1.05
Ambient temperature	°C(*10) -5 to 55 (no freezing)
Fluid temperature	°C(*10) 5 to 55
Manual override	Non-locking/locking common type (standard)
Lubrication	(*1) Not required
Protection structure	(*2)(*8) IP65, IP67
Vibration resistance	m/s²(*9) 50 or less
Shock resistance	m/s² 300 or less
Atmosphere	Use in corrosive gas atmosphere is prohibited

Electrical specifications

Item	Reduced wiring connection		Serial transmission
	EA1□, FA1□, GA1□	JA□□, JB□□	JA□□, JB□□
Rated voltage V	100 AC	24 DC	24 DC
Voltage variation range *3	±10%	±10%	+10%, -5%
Holding current	Standard	0.019	0.017
	With low heat generation/energy saving circuit	-	0.005
Power consumption	Standard	-	0.4
	With low heat generation/energy saving circuit	-	0.1
Apparent power VA	1.92	-	-
Heat resistance class	B		
Surge suppressor *4	Diode	Zener diode	
Indicator	LED		

- *1 : If lubrication is used, use ISO VG32 turbine oil grade 1. Excessive or intermittent lubrication will cause unstable operation.
- *2 : Test method per IP65, IP67 (IEC 60529 : 2001) standard. For details, see P. 231.
- *3 : Note voltage fluctuation range as serial transmission type has voltage drop due to internal circuit.
- *4 : Diode is used when low heat generation/energy saving circuit or surge suppressor is selected.
- *5 : Pilot exhaust method differs for each supply/exhaust block specification. For details, see P. 47.
- *6 : When used at low vacuum, select external pilot. For details, see P. 233.
- *7 : 0.2 MPa for type with low heat generation/energy saving circuit.
- *8 : D-sub connector(GA1□) protection structure is dustproof (IP40 equivalent). Use to avoid water droplets, oil, etc.
- *9 : For vibration resistance of the DIN rail mount type, limit the vibration applied to the manifold to 20 m/s² or less for 2 to 12 stations, and 10 m/s² or less for 13 to 16 stations.
- *10 : For 100 VAC specifications, keep ambient and fluid temperatures at 50°C or less.

Model specifications

Item	TVG1							
	Centralized terminal block EA1A EA1B	Centralized terminal block EA1C	Multi-connector FA1□	D-sub connector GA1A GA1B	D-sub connector GA1C	Serial transmission JA1A JA1B	Serial transmission JA□C, JA□D JB□C, JB□D	Serial transmission JA□C, JA□D JB□C, JB□D
Max. station No.	10 stations	8 stations	8 stations	12 stations	8 stations	8 stations	16 stations	16 stations
Max. number of solenoids	20 points	16 points	16 points	24 points	16 points	16 points	32 points	32 points
Port size	Metric fitting	Push-in fitting ø1.8, ø4, ø6						
	Inch fitting	Push-in fitting ø1/8 inch, ø5/32 inch						
Port size	Metric fitting	Push-in fitting ø6, ø8						
	Inch fitting	Push-in fitting ø5/16 inch						
Item	TVG2							
	Centralized terminal block EA1A EA1B	Centralized terminal block EA1C	Multi-connector FA1□	D-sub connector GA1A GA1B	D-sub connector GA1C	Serial transmission JA1A JA1B	Serial transmission JA□C, JA□D JB□C, JB□D	Serial transmission JA□C, JA□D JB□C, JB□D
Max. station No.	10 stations	8 stations	8 stations	12 stations	8 stations	8 stations	16 stations	16 stations
Max. number of solenoids	20 points	16 points	16 points	24 points	16 points	16 points	32 points	32 points
Port size	Metric fitting	Push-in fitting ø4, ø6, ø8, ø10						
	Inch fitting	Push-in fitting ø8, ø10						
Port size	Metric fitting	Push-in fitting ø1/4 inch, ø5/16 inch						
	Inch fitting	Push-in fitting ø3/8 inch						

Flow characteristics

Model No.	Switching position	P → A/B			A/B → R			
		C[dm³/(s·bar)]	b	Q[L/min(ANR)]	C[dm³/(s·bar)]	b	Q[L/min(ANR)]	
TVG1	Dual 3-port valve built-in type	0.77	0.37	205	1.1 (0.56)	0.34 (0.37)	287 (149)	
	2-position	1.0	0.29	253	1.2 (0.59)	0.36 (0.41)	317 (162)	
	3-position	Closed center	0.96	0.33	249	1.0 -	0.35 -	263 -
		Exhaust center	0.96	0.32	247	1.3 (0.60)	0.38 (0.40)	349 (163)
		Pressure center	1.1	0.35	289	1.0 -	0.36 -	265 -
	TVG2	Dual 3-port valve built-in type	1.7	0.44	476	2.2 (1.8)	0.43 (0.20)	612 (431)
2-position		2.4	0.32	618	2.8 (2.0)	0.34 (0.19)	731 (476)	
3-position		Closed center	2.2	0.35	578	2.5 -	0.38 -	670 -
		Exhaust center	2.2	0.32	567	2.9 (2.1)	0.40 (0.21)	789 (506)
		Pressure center	2.6	0.34	678	2.5 -	0.37 -	666 -

*1 : Conversion between effective cross-sectional area S and sonic conductance C is S ≈ 5.0 x C.

*2 : Values in () are for the type with exhaust malfunction prevention valve.

Reduced wiring specifications

Item	Eye/Item	EA1A	EA1B	EA1C	FA1A	FA1B	GA1A	GA1B	GA1C
Type		Centralized terminal block M3 screw type			Multi-connector		D-sub connector		
Connecting connector		-			Hiros Electric Co., Ltd. RM21WTP-20S 20-pin		D-sub connector (Female) 25-pin		
Output		NPN (Plus common)	PNP (Minus common)	- (100 VAC only)	NPN (Plus common)	PNP (Minus common)	NPN (Plus common)	PNP (Minus common)	- (100 VAC only)

Serial transmission device station specifications (Compatible PLC table P. 223.)

Item	JA1A	JA1B	JA1C	JA1D	JA2C	JA2D	JA3C	JA3D	JA4C	JA4D	JA5C	JA5D
Communication system name	DeviceNet				CC-Link Ver.1.10		EtherCAT		EtherNet/IP		CC-Link IEF Basic	
Power supply voltage	Unit side 11 to 25 VDC*				Valve side 24 VDC±10%, -5%							
Current consumption	Unit side 40 mA or less (All points ON : at 24 VDC)				Valve side 50 mA or less (All stations ON : at 24 VDC)				90 mA or less (All stations ON : at 24 VDC)			
Points	16 points				32 points							
Occupied points	2 bytes				4 bytes				1 station			
Operation display	LED (Power and communication status)											
Output	NPN (Plus common)	PNP (Minus common)	NPN (Plus common)	PNP (Minus common)	NPN (Plus common)	PNP (Minus common)	NPN (Plus common)	PNP (Minus common)	NPN (Plus common)	PNP (Minus common)	NPN (Plus common)	PNP (Minus common)

* Indicates communication power supply voltage range.

Item	JA6C	JA6D	JA7C	JA7D	JA8C	JA8D	JA9C	JA9D	JA9G	JA9H	JB1C	JB1D
Communication system name	PROFINET		CC-Link IE Field		CC-Link IE TSN		IO-Link		IO-Link Wireless			
Power supply voltage	Unit side 24 VDC±10%				Valve side 24 VDC+10%, -5%				18 to 30 VDC 24 VDC±10%			
Current consumption	Unit side 90 mA or less (All points ON : at 24 VDC)				Valve side 100 mA or less (All stations ON : at 24 VDC)				50 mA or less (All stations ON : at 24 VDC) 35 mA or less (All stations ON : at 24 VDC)			
Points	32 points											
Occupied points	1 station											
Operation display	LED (Power and communication status)											
Output	NPN (Plus common)	PNP (Minus common)	NPN (Plus common)	PNP (Minus common)	NPN (Plus common)	PNP (Minus common)	NPN (Plus common)	PNP (Minus common)	NPN (Plus common)	PNP (Minus common)	NPN (Plus common)	PNP (Minus common)

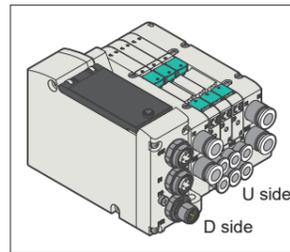
Model No. Notation

Manifold with solenoid valve * P4 series restricts materials for air flow paths and sliding parts.

10 mm width type (valve width)



- 1 Model No.
- 2 Piping direction
- 3 Port size
- 4 Voltage
- 5 Electrical connection
- 6 Station No.
- 7 P/R port position
- 8 Wiring method inside base
- 9 Pilot type
- 10 Electric circuit specifications
- 11 Manual override
- 12 Ozone/cutting oil resistant
- 13 Spacer
- 14 Exhaust malfunction prevention valve
- 15 A/B port filter
- 16 Mount type



1 Switching position

Code	Content
1	2-position single
2	2-position double
3	3-position closed center
4	3-position exhaust center
5	3-position pressure center
X	Mix manifold
A	3-port valve A side valve:Normally closed / B side valve:Normally closed
B	Dual built-in type A side valve:Normally open / B side valve:Normally open
C	*1 A side valve:Normally closed / B side valve:Normally open

*1 : Supports internal pilot only. Dimensions are the same as 2-position double.

2 Piping direction

Code	Content
B	Side piping

3 Port size(A/B port) • Metric fitting

Fitting type	A/B port	Code	
Push-in fitting	ø4	04CS	
	ø6	06CS	
	Mix	99CX	
*1			
Fitting type	One side plug specification		Code
Push-in fitting	A port	B port	
	ø4	Plug	04CA
	ø6	Plug	06CA
	ø4	Plug	04CF
ø6	Plug	06CF	

*1 : Mixed port sizes for 4(A) and 2(B) ports are not supported.
*2 : Single side plug specification for A or B port is supported only for 2-position single.

5 Electrical connection • Reduced wiring connection

Communication system	Output	Code
Centralized terminal block (M3 screw)	NPN	EA1A
	PNP	EA1B
	-	EA1C
Multi-connector	NPN	FA1A
	PNP	FA1B
D-sub connector	NPN	GA1A
	PNP	GA1B
	-	GA1C

• Serial transmission

Communication system	Output	Points	Code
DeviceNet	NPN	16 points	JA1A
	PNP		JA1B
	NPN		JA1C
	PNP		JA1D
CC-Link	NPN	JA2C	
	PNP	JA2D	
EtherCAT	NPN	JA3C	
	PNP	JA3D	
EtherNet/IP	NPN	JA4C	
	PNP	JA4D	
CC-Link IEF Basic	NPN	JA5C	
	PNP	JA5D	
PROFINET	NPN	JA6C	
	PNP	JA6D	
CC-Link IE Field	NPN	JA7C	
	PNP	JA7D	
CC-Link IE TSN	NPN	JA8C	
	PNP	JA8D	
IO-Link	Class A	NPN	JA9C
		PNP	JA9D
	Class B	NPN	JA9G
		PNP	JA9H
IO-Link Wireless	NPN	JB1C	
	PNP	JB1D	

4 Voltage

Code	Content
1	100 VAC
3	24 VDC

*1 : 100 VAC is only compatible with 5 electrical connections "EA1C" and "GA1C".

6 Station No.

Code	Content
02	2 stations
to	to
24	24 stations

*1 *2 : Varies depending on the reduced wiring connection specifications. Check the model specifications (page 160).
*2 : For mount type "R" (DIN rail), maximum number of stations is 16.

7 P/R port position * Multiple selections are not allowed.

Code	Content
U	U side (End block side)
D	D side (Wiring block side)
B	U side, D side
T	U side, D side, with intermediate supply/exhaust block

*1 : Specify the intermediate supply/exhaust block in the manifold specifications.
*2 : Atmospheric release (silencer built-in) type not compatible with P4 specification.

8 Wiring method inside base *1

Code	Content
Blank	Double wiring
S	Single solenoid, double solenoid layout specification

*1 : Blank = Wiring is for double solenoid regardless of the type of valve mounted. If a single solenoid is mounted, there will be an empty number for one solenoid.

9 Pilot type

Code	Content
Blank	Internal pilot
K	External pilot

10 Electric circuit specifications * Multiple selections are not allowed.

Code	Content
Blank	With surge suppressor, lamp
E1	Low heat energy saving circuit (surge-less specification)
E2	Surge-less

*1 : "E2" with PNP specification combination is custom product.
*2 : Only compatible with 4 voltage "3".

11 Manual override * Multiple selections are not allowed.

Code	Content
Blank	Non-locking/locking common, with erroneous operation prevention cover
M1	Non-locking type, with erroneous operation prevention cover
M2	Non-locking/locking common, tool operation type, without cover
M3	Non-locking type, tool operation type, without cover

12 Ozone/Coolant resistant

Code	Content
Blank	Standard specifications
A	Ozone/cutting oil resistant (Main valve fluoro rubber specification)

13 Spacer

Code	Content
Blank	Without spacer
Z	With spacer (Specify type and location in MF specifications)

*1 : Specify spacer type and mounting position in manifold specifications. Stacked spacers are not compatible. Combination with blanking plate is not supported. Spacer type regulator does not support P4 specifications.

14 Exhaust malfunction prevention valve

Code	Content
Blank	None
H	With exhaust malfunction prevention valve

*1 : Switching position classifications "3" and "5" cannot be selected. Refer to page 234 for details on the exhaust malfunction prevention valve. Specify the number of stations to be installed in the manifold specification sheet.

15 A/B port filter

Code	Content
Blank	None
F	Built-in A/B port filter

*1 : P port has a built-in filter.

16 Mount type

Code	Content
Blank	Direct mount type
R	DIN rail mount type

• Regarding dimensions, P.20-28.
• When exhaust malfunction prevention valve is required, see P. 55.

TVG Base piping
TVG Direct piping
TVG Base piping
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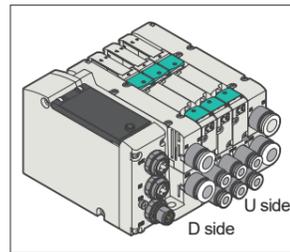
Model No. Notation

Manifold with solenoid valve * P4 series restricts materials for air flow paths and sliding parts.

15 mm width type (valve width)



- 1 Switching position classification
- 2 Piping direction
- 3 Port size
- 4 Voltage
- 5 Electrical connection
- 6 Station No.
- 7 P/R port position
- 8 Wiring method inside base
- 9 Pilot type
- 10 Electric circuit specifications
- 11 Manual override
- 12 Valve mounting screw type
- 13 Ozone/cutting oil resistant
- 14 Spacer
- 15 Exhaust malfunction prevention valve
- 16 A/B port filter
- 17 Mount type



1 Switching position

Code	Content
1	2-position single
2	2-position double
3	3-position closed center
4	3-position exhaust center
5	3-position pressure center
X	Mix manifold
A	3-port valve A side valve:Normally closed / B side valve:Normally closed
B	Dual built-in type A side valve:Normally open / B side valve:Normally open
C	*1 A side valve:Normally closed / B side valve:Normally open

*1 : Supports internal pilot only. Dimensions are the same as 2-position double.

2 Piping direction

Code	Content
B	Side piping

3 Port size(A/B port)
• Metric fitting

Fitting type	A/B port	Code		
Push-in fitting	ø4	04CS		
	ø6	06CS		
	ø8	08CS		
	Mix	99CX		
*1				
Fitting type	One side plug specification	Code		
Push-in fitting	A port	Plug	ø4	04CA
	ø6		06CA	
	ø8		08CA	
	ø4		04CF	
	Plug	ø6	06CF	
		ø8	08CF	

*1 : Mixed port sizes for 4(A) and 2(B) ports are not supported.
*2 : Single side plug specification for A or B port is supported only for 2-position single.

4 Voltage

Code	Content
1	100 VAC
3	24 VDC

*1 : 100 VAC is only compatible with 5 electrical connections "EA1C" and "GA1C".

5 Electrical connection
• Reduced wiring connection

Communication system	Output	Code
Centralized terminal block (M3 screw)	NPN	EA1A
	PNP	EA1B
	-	EA1C
Multi-connector	NPN	FA1A
	PNP	FA1B
	-	FA1C
D-sub connector	NPN	GA1A
	PNP	GA1B
	-	GA1C

• Serial transmission

Communication system	Output	Points	Code
DeviceNet	NPN	16 points	JA1A
	PNP		JA1B
	NPN		JA1C
	PNP		JA1D
	NPN		JA2C
	PNP		JA2D
EtherCAT	NPN	32 points	JA3C
	PNP		JA3D
	NPN		JA4C
	PNP		JA4D
	NPN		JA5C
	PNP		JA5D
CC-Link IEF Basic	NPN	32 points	JA6C
	PNP		JA6D
PROFINET	NPN	32 points	JA7C
	PNP		JA7D
CC-Link IE Field	NPN	32 points	JA8C
	PNP		JA8D
CC-Link IE TSN	NPN	32 points	JA9C
	PNP		JA9D
IO-Link	Class A	NPN	JA9G
		PNP	JA9D
	Class B	NPN	JA9G
		PNP	JA9H
IO-Link Wireless	32 points	NPN	JB1C
		PNP	JB1D

6 Station No.

Code	Content
02	2 stations
to	to
24	24 stations

*1 *2 : Varies depending on the reduced wiring connection specifications. Check the model specifications (P. 160).
*2 : For mount type "R" (DIN rail), maximum number of stations is 16.

7 P/R port position* Multiple selections are not allowed.

Code	Content
U	U side (End block side)
D	D side (Wiring block side)
B	U side, D side
T	U side, D side, with intermediate supply/exhaust block

*1 : Specify the intermediate supply/exhaust block in the manifold specifications.
*2 : Atmospheric release (silencer built-in) type not compatible with P4 specification.

8 Wiring method inside base *1

Code	Content
Blank	Double wiring
S	Single wiring specifying single/double solenoid arrangement

*1 : Blank = Wiring is for double solenoid regardless of the type of valve mounted. If a single solenoid is mounted, there will be an empty number for one solenoid.

9 Pilot type

Code	Content
Blank	Internal pilot
K	External pilot

10 Electric circuit specifications * Multiple selections are not allowed.

Code	Content
Blank	With surge suppressor, lamp
E1	Low heat energy saving circuit (surge-less specification)
E2	Surge-less

*1 : "E2" with PNP specification combination is custom product.
*2 : Only compatible with 4 voltage "3".

11 Manual override * Multiple selections are not allowed.

Code	Content
Blank	Non-locking/locking common, with erroneous operation prevention cover
M1	Non-locking type, with erroneous operation prevention cover
M2	Non-locking/locking common, tool operation type, without cover
M3	Non-locking type, tool operation type, without cover

12 Ozone/Coolant resistant

Code	Content
Blank	Standard specifications
A	Ozone/cutting oil resistant (Main valve fluoro rubber specification)

13 Valve mounting screw type

Code	Content
Blank	Pan head machine screw with plus/minus
J	Hexagon socket head bolt

*1 : When spacer option "Z" is selected, "J" cannot be selected.

14 Spacer

Code	Content
Blank	Without spacer
Z	With spacer (Specify type and location in MF specifications)

*1 : Specify spacer type and mounting position in manifold specifications. Stacked spacers are not compatible. Combination with blanking plate is not supported. Cannot be selected simultaneously with L-type push-in fitting upward. Spacer type regulator does not support P4 specifications.

15 Exhaust malfunction prevention valve

Code	Content
Blank	None
H	With exhaust malfunction prevention valve

*1 : Switching position classifications "3" and "5" cannot be selected. Refer to page 234 for details on the exhaust malfunction prevention valve. Specify the number of stations to be installed in the manifold specification sheet.

16 A/B port filter

Code	Content
Blank	None
F	Built-in A/B port filter

*1 : P port has a built-in filter.

17 Mount type

Code	Content
Blank	Direct mount type
R	DIN rail mount type

• For dimensions, refer to P. 20 to 28.
• When exhaust malfunction prevention valve is required, see P. 55.

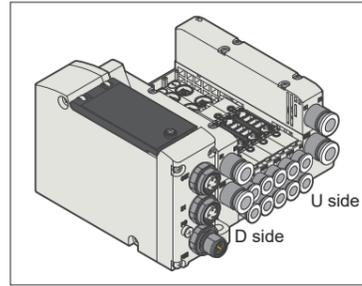
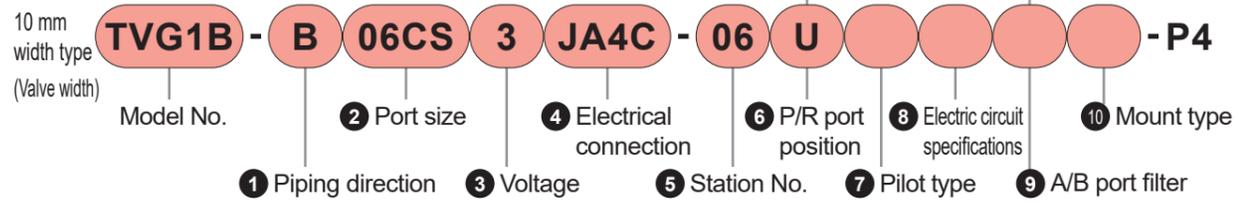
TVG Base piping
TVG Direct piping
TVG Base piping
TVG Direct piping
TVG-P4
Manifold specifications
Technical data
Safety precautions

TVG Base piping
TVG Direct piping
TVG Base piping
TVG Direct piping
TVG-P4
Manifold specifications
Technical data
Safety precautions

Model No. Notation

Manifold base only

* P4 series restricts materials for air flow paths and sliding parts.
* Solenoid valve is not included.



2 Port size(A/B port)
• Metric fitting

Fitting type	A/B port		Code
Push-in fitting	ø4		04CS
	ø6		06CS
Fitting type	One side plug specification		Code
	A port	B port	
Push-in fitting	ø4	Plug	04CA
	ø6		06CA
	Plug	ø4	04CF
		ø6	06CF

*1 : Single side plug specification for A or B port is supported only for 2-position single.

3 Voltage

Code	Content
1	100 VAC
3	24 VDC

*1 : 100 VAC is only compatible with 4 electrical connections "EA1C" and "GA1C".

1 Piping direction

Code	Content
B	Side piping

4 Electrical connection

• Reduced wiring connection

Communication system	Output	Code	
Centralized terminal block (M3 screw)	NPN	EA1A	
	PNP	EA1B	
	-	EA1C	
Multi-connector	NPN	FA1A	
	PNP	FA1B	
D-sub connector	NPN	GA1A	
	PNP	GA1B	
	-	GA1C	

• Serial transmission

Communication system	Output	Points	Code		
DeviceNet	NPN	16 points	JA1A		
	PNP		JA1B		
	NPN		JA1C		
	PNP		JA1D		
CC-Link	NPN	32 points	JA2C		
	PNP		JA2D		
EtherCAT	NPN	32 points	JA3C		
	PNP		JA3D		
EtherNet/IP	NPN	32 points	JA4C		
	PNP		JA4D		
CC-Link IEF Basic	NPN	32 points	JA5C		
	PNP		JA5D		
PROFINET	NPN	32 points	JA6C		
	PNP		JA6D		
CC-Link IE Field	NPN	32 points	JA7C		
	PNP		JA7D		
CC-Link IE TSN	NPN	32 points	JA8C		
	PNP		JA8D		
IO-Link	ClassA	32 points	NPN	JA9C	
			PNP	JA9D	
	ClassB		NPN	JA9G	
			PNP	JA9H	
IO-Link Wireless	32 points	NPN	JB1C		
		PNP	JB1D		

5 Station No.

Code	Content
02	2 stations
to	to
16	16 stations

*1 : Internal base wiring is all for double solenoid regardless of valve type mounted. If a single solenoid is mounted, one solenoid signal will be empty.

6 P/R port position (TVG1B:ø8)

* Multiple selections are not allowed.

Code	Content	
U	U side (End block side)	
D	D side (Wiring block side)	
B	U, D both sides	

*1 : P/R port fitting will be in the same direction as A/B port fitting.

7 Pilot type

Code	Content	
Blank	Internal pilot	
K	External pilot	

8 Electric circuit specifications * Multiple selections are not allowed.

Code	Content
Blank	With surge suppressor, lamp
E1	Low heat energy saving circuit (surge-less specification)
E2	Surge-less

*1 : Combination of "E2" and PNP specification is a custom product.

*2 : Only compatible with 3 voltage "3".

9 A/B port filter

Code	Content	
Blank	None	
F	Built-in A/B port filter	

*1 : P port has a built-in filter.

10 Mount type

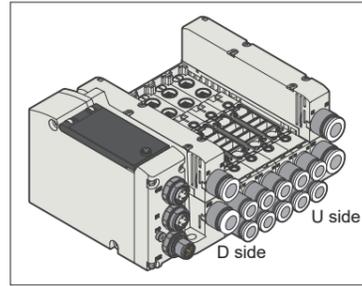
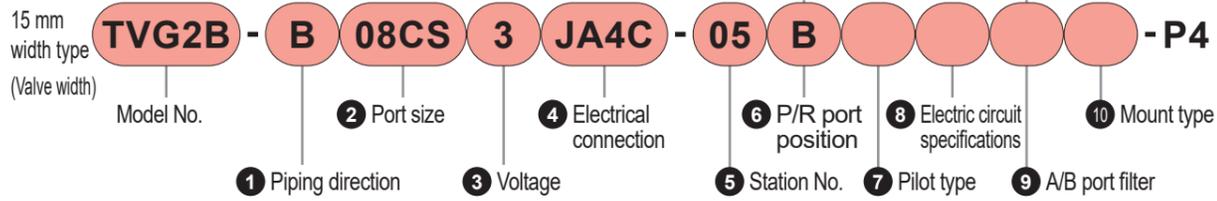
Code	Content
Blank	Direct mount type
R	DIN rail mount type

*1 : A standard length DIN rail is attached. Refer to page 189 for the calculation method of the standard length.

Model No. Notation

Manifold base only

* P4 series restricts materials for air flow paths and sliding parts.
* Solenoid valve is not included.



① Piping direction

Code	Content
B	Side piping

④ Electrical connection

• Reduced wiring connection

Communication system	Output	Code	
Centralized terminal block (M3 screw)	NPN	EA1A	
	PNP	EA1B	
	-	EA1C	
Multi-connector	NPN	FA1A	
	PNP	FA1B	
D-sub connector	NPN	GA1A	
	PNP	GA1B	
	-	GA1C	

• Serial transmission

Communication system	Output	Points	Code	
DeviceNet	NPN	16 points	JA1A	
	PNP		JA1B	
	NPN		JA1C	
	PNP		JA1D	
CC-Link	NPN	32 points	JA2C	
	PNP		JA2D	
EtherCAT	NPN	32 points	JA3C	
	PNP		JA3D	
EtherNet/IP	NPN	32 points	JA4C	
	PNP		JA4D	
CC-Link IEF Basic	NPN	32 points	JA5C	
	PNP		JA5D	
PROFINET	NPN	32 points	JA6C	
	PNP		JA6D	
CC-Link IE Field	NPN	32 points	JA7C	
	PNP		JA7D	
CC-Link IE TSN	NPN	32 points	JA8C	
	PNP		JA8D	
IO-Link	ClassA	32 points	JA9C	
			PNP	
	ClassB		JA9G	
			PNP	
IO-Link Wireless	NPN	32 points	JB1C	
	PNP		JB1D	

② Port size(A/B port)
• Metric fitting

Fitting type	A/B port	Code	
Push-in fitting	ø4	04CS	
	ø6	06CS	
	ø8	08CS	
Fitting type	One side plug specification		Code
	A port	B port	
Push-in fitting	Plug	ø4	04CA
		ø6	06CA
		ø8	08CA
	Plug	ø4	04CF
		ø6	06CF
		ø8	08CF

*1 : Single side plug specification for A or B port is supported only for 2-position single.

③ Voltage

Code	Content
1	100 VAC
3	24 VDC

*1 : For 100 VAC ④ Electrical connection "EA1C" "GA1C"OnlyCompatible.

⑤ Station No.

Code	Content
02	2 stations
to	to
16	16 stations

*1 : Internal base wiring is all for double solenoid regardless of valve type mounted. If a single solenoid is mounted, one solenoid signal will be empty.

⑥ P/R port position(TVG2Bø10)

* Multiple selections are not allowed.

Code	Content	
U	U side (End block side)	
D	D side (Wiring block side)	
B	U, D both sides	

*1 : P/R port fittings are in same direction as A/B port fittings.

*2 : P port has a built-in filter.

⑦ Pilot type

Code	Content	
Blank	Internal pilot	
K	External pilot	

⑧ Electric circuit specifications * Multiple selections are not allowed.

Code	Content
Blank	With surge suppressor, lamp
E1	Low heat energy saving circuit (surge-less specification)
E2	Surge-less

*1 : Combination of "E2" and PNP specification is a custom product.

*2 : ③ Voltage "3"OnlyCompatible.

⑨ A/B port filter

Code	Content	
Blank	None	
F	Built-in A/B port filter	

*1 : P port has a built-in filter.

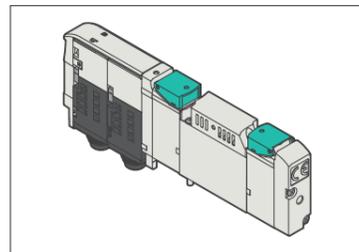
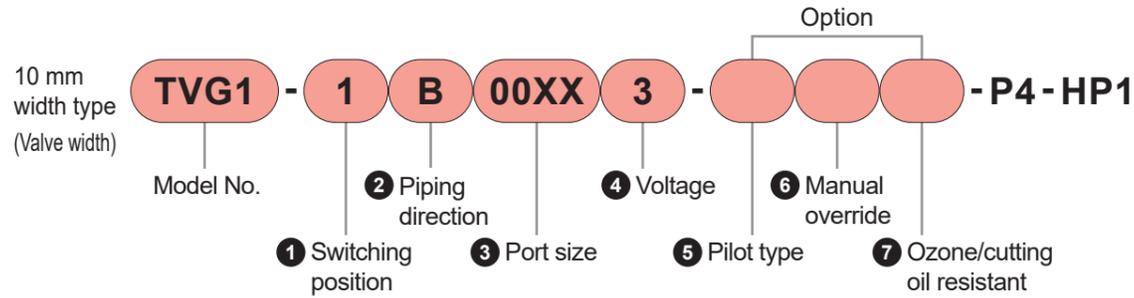
⑩ Mount type

Code	Content
Blank	Direct mount type
R	DIN rail mount type

*1 : A standard length DIN rail is attached. Refer to page 189 for the calculation method of the standard length.

Model No. Notation

Discrete solenoid valve (For base mounting) * P4 series restricts materials for air flow paths and sliding parts.



Accessories

- Valve mounting screws are included.
- Gasket is included with manifold base.

1 Switching position

Code	Content	
1	2-position single	
2	2-position double	
3	3-position closed center	
4	3-position exhaust center	
5	3-position pressure center	
*1 A	Dual 3-port valve built-in type	A side valve: Normally closed B side valve: Normally closed
*1 B		A side valve: Normally open B side valve: Normally open
*1 C		A side valve: Normally closed B side valve: Normally open

*1 : Only internal pilot compatible. Dimensions are identical to 2-position double.

2 Piping direction

Code	Content
B	Side piping

4 Voltage

Code	Content
1	100 VAC
3	24 VDC

6 Manual override

* Multiple selections are not allowed.

Code	Content	
Blank	Non-locking/locking common with erroneous operation prevention cover	
M1	Non-locking type with erroneous operation prevention cover	
M2	Non-locking/locking common tool operation type, without cover	
M3	Non-locking type, tool operation type, without cover	

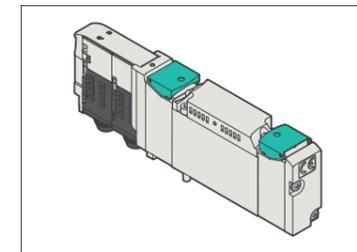
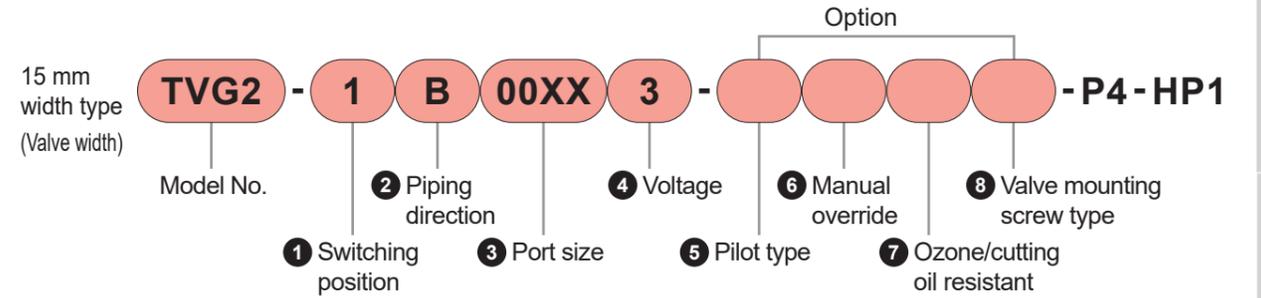
7 Ozone/Coolant resistant

Code	Content
Blank	Standard specifications
A	Ozone/cutting oil resistant (Main valve fluoro rubber specification)

How to order (Discrete valve)

Model No. Notation

Discrete solenoid valve (For base mounting) * P4 series restricts materials for air flow paths and sliding parts.



Accessories

- Valve mounting screws are included.
- Gasket is included with manifold base.

1 Switching position

Code	Content	
1	2-position single	
2	2-position double	
3	3-position closed center	
4	3-position exhaust center	
5	3-position pressure center	
*1 A	3-port valve Dual built-in type	A side valve: Normally closed B side valve: Normally closed
*1 B		A side valve: Normally open B side valve: Normally open
*1 C		A side valve: Normally closed B side valve: Normally open

*1 : Only internal pilot compatible. Dimensions are identical to 2-position double.

2 Piping direction

Code	Content
B	Side piping

4 Voltage

Code	Content
1	100 VAC
3	24 VDC

6 Manual override

* Multiple selections are not allowed.

Code	Content	
Blank	Non-locking/locking common, with erroneous operation prevention cover	
M1	Non-locking type, with erroneous operation prevention cover	
M2	Non-locking/locking common, tool operation type, without cover	
M3	Non-locking type, tool operation type, without cover	

3 Port size

Code	Content
00XX	Discrete solenoid valve for base mounting

5 Pilot type

Code	Content
Blank	Internal pilot
K	External pilot

7 Ozone/Coolant resistant

Code	Content
Blank	Standard specifications
A	Ozone/cutting oil resistant (Main valve fluoro rubber specification)

8 Valve mounting screw type

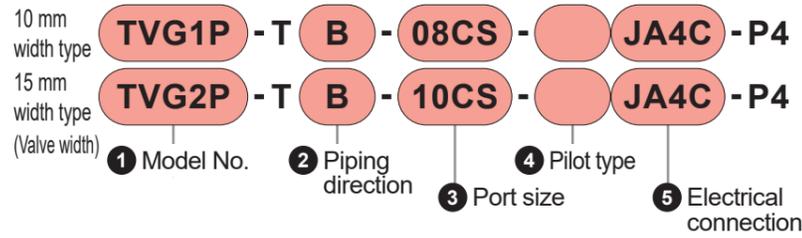
Code	Content
Blank	Pan head machine screw with plus/minus
J	Hexagon socket head bolt

TVG1P/TVG2P Series

Model No. Notation (Wiring block / Serial transmission device station)

Model No. Notation

Wiring block



Accessories
Tie rod fixing nuts are built into the wiring block.

② Piping direction

Code	Content
B	Side piping

③ Port size

Metric fitting		TVG1P	TVG2P
06CS	Push-in fitting ø6	●	●
08CS	Push-in fitting ø8	●	●
10CS	Push-in fitting ø10	●	●
Plug			
00XX	P port, R port plug	●	●

④ Pilot type

Code	Content
Blank	Internal pilot
K	External pilot
KZ	External pilot (PA/PR separated)

*1 : ● Cannot be selected for connection bore size "00XX".
*2 : External pilot port is ø6 Push-in fitting.

⑤ Electrical connection

• Reduced wiring connection

Content	Code
Centralized terminal block (M3 screw)	EA1
	EA1C
Multi-connector	FA1
D-sub connector	GA1
	GA1C

*1 : Both NPN and PNP can be used.
*2 : "EA1C" and "GA1C" are for 100 VAC only.

• Serial transmission

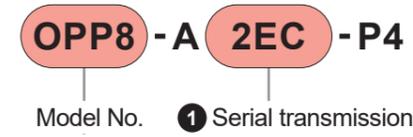
Communication system	Output	Points	Code
DeviceNet	NPN	16 points	JA1A
	PNP		JA1B
	NPN		JA1C
	PNP		JA1D
CC-Link	NPN	32 points	JA2C
	PNP		JA2D
EtherCAT	NPN	32 points	JA3C
	PNP		JA3D
EtherNet/IP	NPN	32 points	JA4C
	PNP		JA4D
CC-Link IEF Basic	NPN	32 points	JA5C
	PNP		JA5D
PROFINET	NPN	32 points	JA6C
	PNP		JA6D
CC-Link IE Field	NPN	32 points	JA7C
	PNP		JA7D
CC-Link IE TSN	NPN	32 points	JA8C
	PNP		JA8D
IO-Link	Class A	32 points	JA9C
			PNP
	Class B		JA9G
			PNP
IO-Link Wireless	NPN	32 points	JB1C
	PNP		JB1D

TVG1P/TVG2P Series

How to order (Serial transmission device station)

Model No. Notation

Serial transmission device station



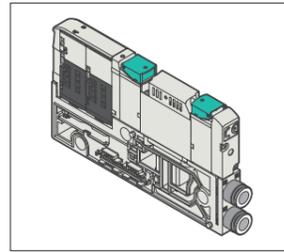
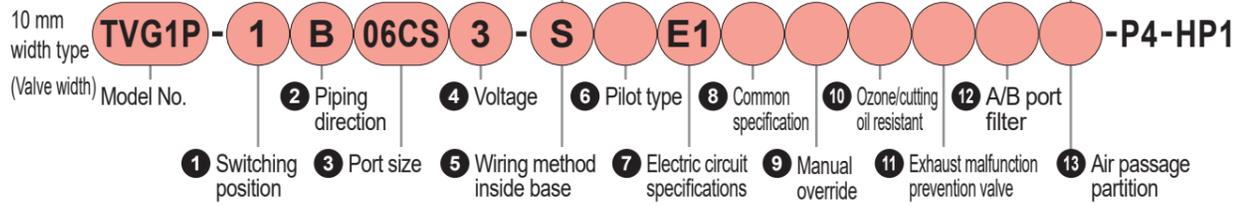
① Serial transmission

Communication system	Output	Points	Code
DeviceNet	NPN	16 points	1D
	PNP		1D-P
	NPN		2D
	PNP		2D-P
CC-Link	NPN	32 points	2G
	PNP		2G-P
EtherCAT	NPN	32 points	2EC
	PNP		2EC-P
EtherNet/IP	NPN	32 points	2EN
	PNP		2EN-P
CC-Link IEF Basic	NPN	32 points	2EB
	PNP		2EB-P
PROFINET	NPN	32 points	2EP
	PNP		2EP-P
CC-Link IE Field	NPN	32 points	2EF
	PNP		2EF-P
CC-Link IE TSN	NPN	32 points	2TG
	PNP		2TG-P
IO-Link	Class A	32 points	2KC-A
			PNP
	Class B		2KC-B
			PNP
IO-Link Wireless	NPN	32 points	2WK
	PNP		2WK-P

Accessories
• OPP fixing bolt 2 pcs.
• Drip-proof gasket 1 pc.

Model No. Notation

Valve block with solenoid valve



1 Switching position

Code	Content
1	2-position single
2	2-position double
3	3-position closed center
4	3-position exhaust center
5	3-position pressure center
*1 A	3-port valve A side valve:Normally closed / B side valve:Normally closed
*1 B	Dual built-in A side valve:Normally open / B side valve:Normally open
*1 C	type A side valve:Normally closed / B side valve:Normally open
Z	With blanking plate

*1 : Supports internal pilot only. Dimensions are the same as 2-position double.

2 Piping direction

Code	Content
B	Side piping

3 Port size(A/B port)
• Metric fitting

Fitting type	A/B port	Code	
Push-in fitting	ø4	04CS	
	ø6	06CS	
Push-in fitting	One side plug specification *1	Code	
			A port
	ø4	Plug	04CA
			06CA
	ø6	Plug	04CF
			06CF

*1 : Single side plug specification for A or B port is supported only for 2-position single.

5 Wiring method inside base*1

Code	Content
Blank	Double wiring
S	Single solenoid dedicated wiring

*1 : Blank = Wiring is for double solenoid regardless of the type of valve mounted. If a single solenoid is mounted, there will be an empty number for one solenoid. S = Dedicated to single solenoid. Cannot be selected for 2-position double, dual 3-port valve, or 3-position.

7 Electric circuit specifications * Multiple selections are not allowed.

Code	Content
Blank	With surge suppressor, lamp
*2 E1	Low heat energy saving circuit (surge-less specification)
*1 *2 E2	Surge-less

*1 : Combination of "E2" and PNP specification is a custom product.

*2 : Only compatible with 4 voltage "3".

4 Voltage

Code	Content
1	100 VAC
3	24 VDC

6 Pilot type

Code	Content
Blank	Internal pilot
K	External pilot

*1 : Switching position category "Z" cannot be selected.

8 Common specification

Code	Content
Blank	NPN/Positive common specification
P	PNP/Negative common specification

*1 : Multiple selections not possible.

*2 : Select the same polarity as the wiring block.

*3 : When 4 voltage is "1", there is no polarity, so "P" cannot be selected. It becomes "Blank".

9 Manual override

Code	Content
Blank	Non-locking/locking common, with erroneous operation prevention cover
M1	Non-locking type, with erroneous operation prevention cover
M2	Non-locking/locking common, tool operation type, without cover
M3	Non-locking type, tool operation type, without cover

*1 : Switching position category "Z" cannot be selected.

11 Exhaust malfunction prevention valve

Code	Content
Blank	None
*1 H	With exhaust malfunction prevention valve

*1 : Switching position classifications "3" and "5" cannot be selected. Refer to page 234 for details on the exhaust malfunction prevention valve.

13 Air passage partition

For details, see P. 41.

Code	Content
Blank	None
T	P/R/PA/PR blocked
U	P/R blocked, PA/PR through
V	P blocked, R/PA/PR through
W	R blocked, P/PA/PR through

*1 : Blocks the flow path on the right side with A/B ports facing forward.

10 Ozone/Coolant resistant

Code	Content
Blank	Standard specifications
A	Ozone/cutting oil resistant (Main valve fluoro rubber specification)

*1 : Switching position category "Z" cannot be selected.

12 A/B port filter

Code	Content
Blank	None
F	Built-in A/B port filter

*1 : P port has a built-in filter.

TVG Base piping

TVG Direct piping

TVG Base piping

TVG Direct piping

TVG-P4

Manifold specifications

Technical data

Safety precautions

TVG Base piping

TVG Direct piping

TVG Base piping

TVG Direct piping

TVG-P4

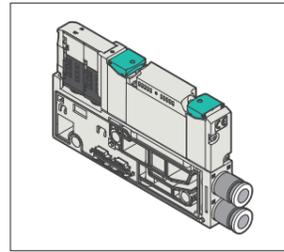
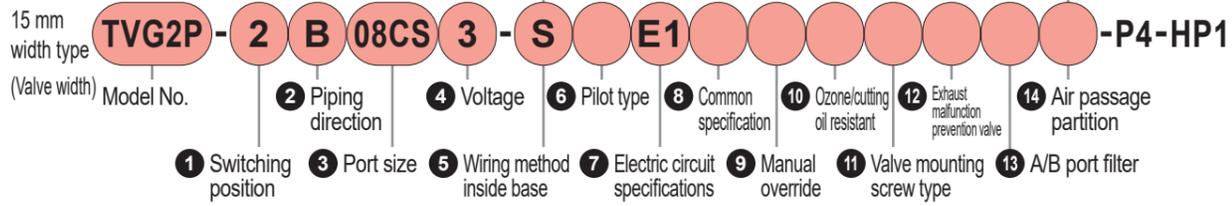
Manifold specifications

Technical data

Safety precautions

Model No. Notation

Valve block with solenoid valve



1 Switching position

Code	Content	
1	2-position single	
2	2-position double	
3	3-position closed center	
4	3-position exhaust center	
5	3-position pressure center	
*1 A	3-port valve A side valve:Normally closed / B side valve:Normally closed	
*1 B	3-port valve A side valve:Normally open / B side valve:Normally open	
*1 C	Dual built-in type A side valve:Normally closed / B side valve:Normally open	
Z	With blanking plate	

*1 : Supports internal pilot only. Dimensions are the same as 2-position double.

2 Piping direction

Code	Content
B	Side piping

3 Port size(A/B port)
• Metric fitting

Fitting type	A/B port	Code				
Push-in fitting	ø4	04CS				
	ø6	06CS				
	ø8	08CS				
Fitting type	One side plug specification *1		Code			
Push-in fitting	A port	B port	Plug	ø4	04CA	
				ø6	06CA	
				ø8	08CA	
	Plug				ø4	04CF
					ø6	06CF
					ø8	08CF

*1 : A or B port one-side plug specification compatible with 2-position single only.

4 Voltage

Code	Content
1	100 VAC
3	24 VDC

5 Wiring method inside base *1

Code	Content
Blank	Double wiring
S	Single solenoid dedicated wiring

*1 : Blank = Wiring is for double solenoid regardless of the type of valve mounted. If a single solenoid is mounted, there will be an empty number for one solenoid. S = Dedicated for single solenoid. Cannot be selected for 2-position double, 3-port valve 2-unit built-in type, or 3-position.

7 Electric circuit specifications * Multiple selections are not allowed.

Code	Content
Blank	With surge suppressor, lamp
*2 E1	Low heat energy saving circuit (surge-less specification)
*1 *2 E2	Surge-less

*1 : Combination of "E2" and PNP specification is a custom product.
*2 : Only compatible with 4 voltage "3".

6 Pilot type *1

Code	Content
Blank	Internal pilot
K	External pilot

*1 : 1 Switching position category "Z" cannot be selected.

8 Common specification

Code	Content
Blank	NPN/Positive common specification
P	PNP/Negative common specification

*1 : Multiple selections not possible.
*2 : Select the same polarity as the wiring block.
*3 : When 4 voltage is "1", there is no polarity, so "P" cannot be selected. It becomes "Blank".

9 Manual override *1

Code	Content	
Blank	Non-locking/locking common, with erroneous operation prevention cover	
M1	Non-locking type, with erroneous operation prevention cover	
M2	Non-locking/locking common, tool operation type, without cover	
M3	Non-locking type, tool operation type, without cover	

*1 : 1 Switching position category "Z" cannot be selected.

11 Valve mounting screw type

Code	Content
Blank	Pan head machine screw with plus/minus
J	Hexagon socket head bolt

13 A/B port filter

Code	Content	
Blank	None	
F	Built-in A/B port filter	

*1 : P port has a built-in filter.

10 Ozone/Coolant resistant *1

Code	Content
Blank	Standard specifications
A	Ozone/cutting oil resistant (Main valve fluoro rubber specification)

*1 : 1 Switching position category "Z" cannot be selected.

12 Exhaust malfunction prevention valve

Code	Content	
Blank	None	
*1 H	With exhaust malfunction prevention valve	

*1 : 1 Switching position classifications "3" and "5" cannot be selected. Refer to page 234 for details on the exhaust malfunction prevention valve.

14 Air passage partition For details, see P. 43.

Code	Content
Blank	None
T	P/R/PA/PR blocked
U	P/R blocked, PA/PR through
V	P blocked, R/PA/PR through
W	R blocked, P/PA/PR through

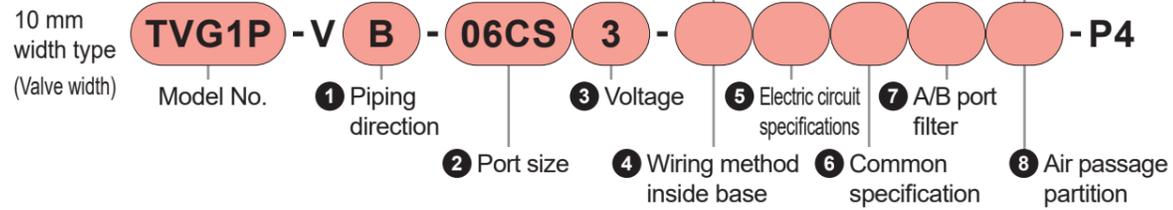
*1 : Blocks the flow path on the right side with A/B ports facing forward.

TVG Base piping
TVG Direct piping
TVG Base piping
TVG Direct piping
TVG Base piping
TVG Direct piping
TVG-P4
Manifold specifications
Technical data
Safety precautions

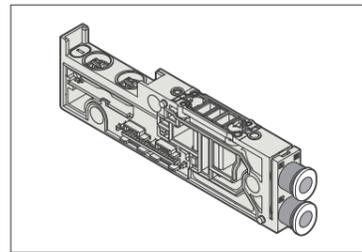
TVG Base piping
TVG Direct piping
TVG Base piping
TVG Direct piping
TVG Base piping
TVG Direct piping
TVG-P4
Manifold specifications
Technical data
Safety precautions

Model No. Notation

Valve block



• Tie rods are not included, so please order separately. For details, see P. 44. Gaskets between blocks are included.



1 Piping direction

Code	Content
B	Side piping

2 Port size(A/B port)
• Metric fitting

Fitting type	A/B port	Code	
Push-in fitting	ø4	04CS	
	ø6	06CS	
Push-in fitting	One side plug specification *1		
	A port		
	ø4	Plug	04CA
	ø6		06CA
	B port		
	ø4	Plug	04CF
ø6	06CF		

*1 : Single side plug specification for A or B port is supported only for 2-position single.

3 Voltage

Code	Content
1	100 VAC
3	24 VDC

4 Wiring method inside base *1

Code	Content
Blank	Double wiring
S	Single solenoid dedicated wiring

*1 : Blank = Wiring is for double solenoid regardless of the type of valve mounted. If a single solenoid is mounted, there will be an empty number for one solenoid. S = Dedicated to single solenoid. Cannot be selected for 2-position double, dual 3-port valve, or 3-position.

5 Electric circuit specifications * Multiple selections are not allowed.

Code	Content
Blank	With surge suppressor, lamp
E1	Low heat energy saving circuit (surge-less specification) *2
E2	Surge-less *1 *2

*1 : Combination of "E2" and PNP specification is a custom product.
*2 : Only compatible with 3 voltage "3".

7 A/B port filter

Code	Content
Blank	None
F	Built-in A/B port filter

*1 : P port has a built-in filter.

6 Common specification

Code	Content
Blank	NPN/Positive common specification
P	PNP/Negative common specification

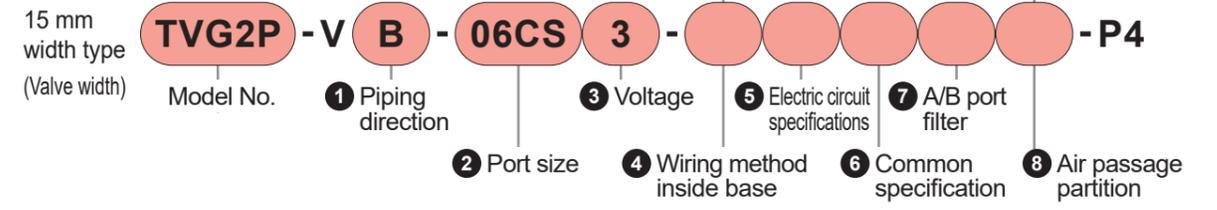
*1 : Multiple selections not possible.
*2 : Select the same polarity as the wiring block.

8 Air passage partition For details, see P. 41.

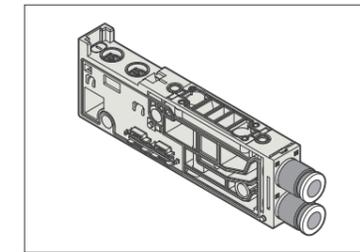
Code	Content
Blank	None
T	P/R/PA/PR blocked
U	P/R blocked, PA/PR through
V	P blocked, R/PA/PR through
W	R blocked, P/PA/PR through

Model No. Notation

Valve block



• Tie rods are not included, so please order them separately. Refer to page 44 for details. Gaskets between blocks are included.



1 Piping direction

Code	Content
B	Side piping

2 Port size(A/B port)
• Metric fitting

Fitting type	A/B port	Code	
Push-in fitting	ø6	06CS	
	ø8	08CS	
Push-in fitting	One side plug specification *1		
	A port		
	ø6	Plug	06CA
	ø8		08CA
	B port		
	ø6	Plug	06CF
ø8	08CF		

*1 : Single side plug specification for A or B port is supported only for 2-position single.

3 Voltage

Code	Content
1	100 VAC
3	24 VDC

4 Wiring method inside base *1

Code	Content
Blank	Double wiring
S	Single solenoid dedicated wiring

*1 : Blank = Wiring is for double solenoid regardless of the type of valve mounted. If a single solenoid is mounted, there will be an empty number for one solenoid. S = Dedicated to single solenoid. Cannot be selected for 2-position double, dual 3-port valve, or 3-position.

5 Electric circuit specifications * Multiple selections are not allowed.

Code	Content
Blank	With surge suppressor, lamp
E1	Low heat energy saving circuit (surge-less specification) *2
E2	Surge-less *1 *2

*1 : Combination of "E2" and PNP specification is a custom product.
*2 : Only compatible with 3 voltage "3".

7 A/B port filter

Code	Content
Blank	None
F	Built-in A/B port filter

*1 : P port has a built-in filter.

6 Common specification

Code	Content
Blank	NPN/Positive common specification
P	PNP/Negative common specification

*1 : Multiple selections not possible.
*2 : Select the same polarity as the wiring block.
*3 : When 3 voltage is "1", there is no polarity, so "P" cannot be selected. It becomes "Blank".

8 Air passage partition For details, see P. 43.

Code	Content
Blank	None
T	P/R/PA/PR blocked
U	P/R blocked, PA/PR through
V	P blocked, R/PA/PR through
W	R blocked, P/PA/PR through

Model No. Notation

Tie rod

● For valve block

● For intermediate supply/exhaust block

10 mm width type **TVG1P** - TR - **02**

10 mm width type **TVG1P-TR-Q**

15 mm width type **TVG2P** - TR - **02**

15 mm width type **TVG2P-TR-Q**

① Model No.

② Station No.

● For valve block expansion

10 mm width type **TVG1P-TR-01**

15 mm width type **TVG2P-TR-01**

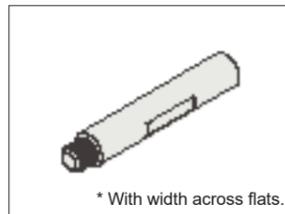
② Station No.

Code	Content	Code	Content
02	For 2 stations	14	For 14 stations
03	For 3 stations	15	For 15 stations
04	For 4 stations	16	For 16 stations
05	For 5 stations	17	For 17 stations
06	For 6 stations	18	For 18 stations
07	For 7 stations	19	For 19 stations
08	For 8 stations	20	For 20 stations
09	For 9 stations	21	For 21 stations
10	For 10 stations	22	For 22 stations
11	For 11 stations	23	For 23 stations
12	For 12 stations	24	For 24 stations
13	For 13 stations		

*1 : Set of 3.

About expansion

- For 2-17 station manifolds, 3 stations can be added. Can add up to total 3 stations of valve blocks and intermediate supply/exhaust blocks. When adding to 18-station or larger manifold, use tie rod matching number of stations after addition.
- Fix expansion tie rod/intermediate supply-exhaust tie rod to wiring block. Installing on end block side may prevent proper assembly.



Model No. Notation

End block (U side)

Hexagon socket head cap screws for tie rod fastening and gaskets between blocks are included.

10 mm width type **TVG1P** - E **B** - **08CS** - **00XX** - **P4**

15 mm width type **TVG2P** - E **B** - **10CS** - **00XX** - **P4**

(Valve width)

① Model No.

② Piping direction

③ Port size

④ Pilot type

② Piping direction

Code	Content
B	Side piping

④ Pilot type

Code	Content
Blank	Internal pilot
K	External pilot
KZ	External pilot (PA/PR separated)

*1*2

*1*2

*1 : ● Cannot be selected for connection bore size "00XX".

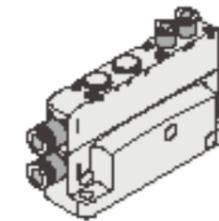
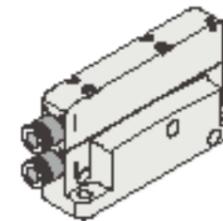
*2 : External pilot port is ø6 Push-in fitting.

③ Port size

Code	Content	① Model No.	
		TVG1P	TVG2P
Metric fitting			
06CS	Push-in fitting ø6	●	●
08CS	Push-in fitting ø8	●	●
10CS	Push-in fitting ø10		●
Plug			
00XX	P port, R port plug	●	●

● TVG1P-EB-08CS-P4

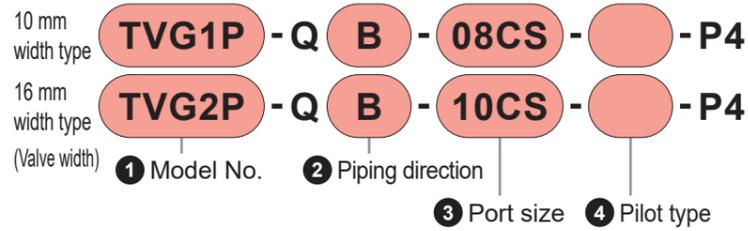
● TVG1P-EB-08CS-KZ-P4



Model No. Notation

Intermediate supply/exhaust block

Intermediate supply/exhaust block can be installed between valve blocks. These blocks cannot be adjacent to each other. Also cannot be adjacent to end block or wiring block. Electrical internal wiring and P, R, PA, PR ports communicate with adjacent blocks.



② Piping direction

Code	Content
B	Side piping

④ Pilot type

Code	Content
Blank	Internal pilot
*1 2 K	External pilot
Z	Different pressure circuit
*1 2 KZ	External pilot (PA/PR separated)

*1 : ③ Cannot be selected for connection bore size "00XX".

*2 : External pilot port is ø6 Push-in fitting.

*3 : Z cannot be used alone. Must be used in combination with other types, Blank, K, or KZ.

③ Port size

		① Model No.	
		TVG1P	TVG2P
Code	Content		
Metric fitting			
06CS	Push-in fitting ø6	●	●
08CS	Push-in fitting ø8	●	●
10CS	Push-in fitting ø10	●	●

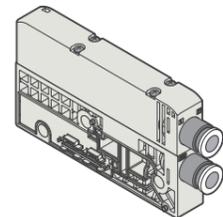
*1 : P port has a built-in filter to prevent foreign matter entry.

Accessories

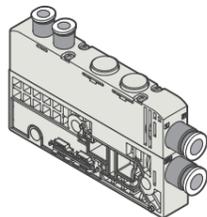
Manifold gasket: 1 pc.

Tie rods are not included, so please order separately. For details, see P. 180. Gaskets between blocks are included.

● TVG1P-QB-08CS-P4

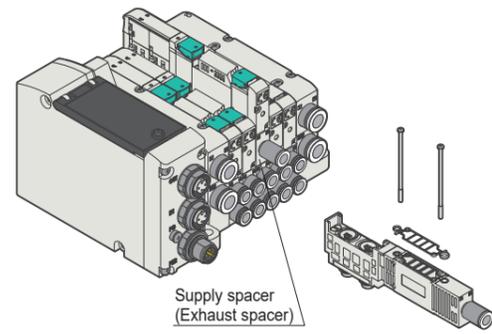


● TVG1P-QB-08CS-KZ-P4



MEMO

Supply spacer/Exhaust spacer



Specifications

●Supply spacer

Model No.	Weight g
TVG1P-P-□	33

●Exhaust spacer

Model No.	Weight g
TVG1P-R-□	33

Single unit Model No.

●Supply spacer
TVG1P - P - 04CS - P4
 ① Port size

Code	Port size	Content
04CS	ø4	Push-in fitting ø4

●Exhaust spacer
TVG1P - R - 04CS - P4
 ① Port size

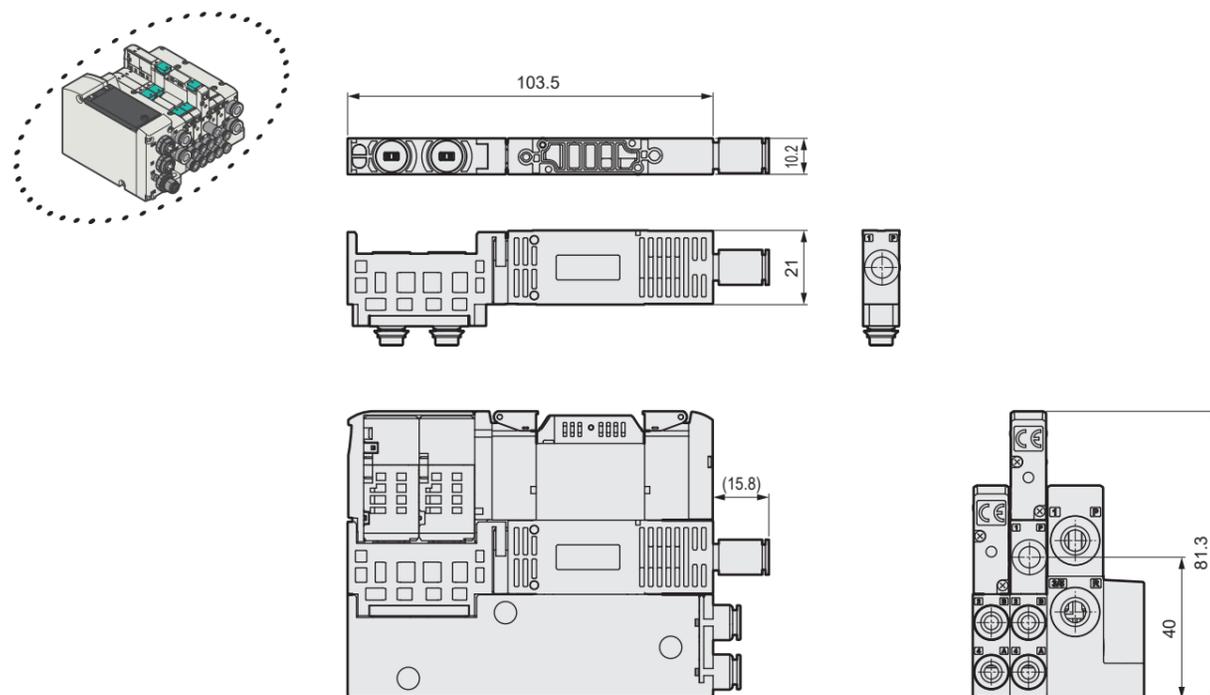
Code	Port size	Content
04CS	ø4	Push-in fitting ø4

⚠ Precautions for Model No. selection

- *1: Specify the mounting position and quantity of spacers for manifolds in the manifold specification sheet (P. 202 to 209)
- *2 : Stacking of spacers is not supported.
- *3 : Spacer cannot be combined with blanking plate.
- *4 : Spacer mounting screws and gasket are included.

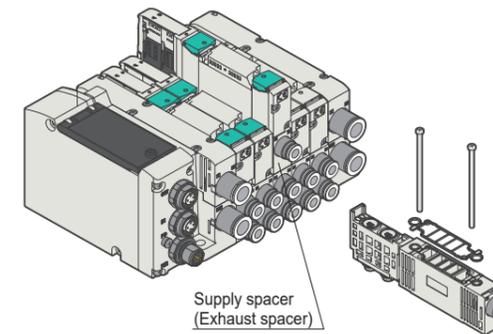
Dimensions

●Supply spacer/Exhaust spacer



Supply spacer/Exhaust spacer

Supply spacer/Exhaust spacer



Specifications

●Supply spacer

Model No.	Weight g
TVG2P-P-□	66

●Exhaust spacer

Model No.	Weight g
TVG2P-R-□	66

Single unit Model No.

●Supply spacer
TVG2P - P - 06CS - P4
 ① Port size

Code	Port size	Content
06CS	ø6	Push-in fitting ø6
08CS	ø8	Push-in fitting ø8

●Exhaust spacer
TVG2P - R - 06CS - P4
 ① Port size

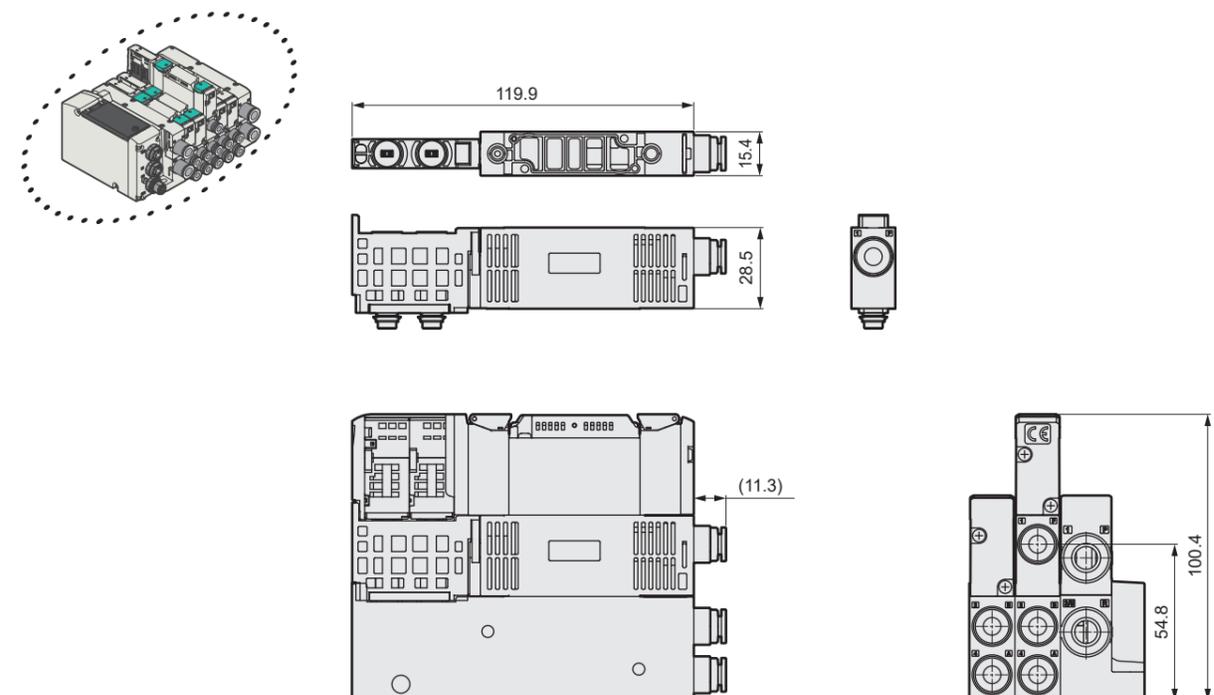
Code	Port size	Content
06CS	ø6	Push-in fitting ø6
08CS	ø8	Push-in fitting ø8

⚠ Precautions for Model No. selection

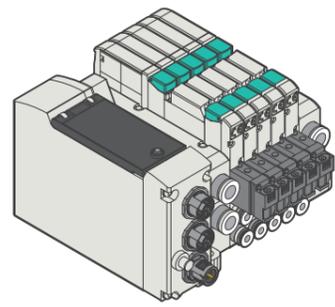
- *1 : Specify the mounting position and quantity of spacers for manifolds in the manifold specification sheet (P. 202 to 209)
- *2 : Stacking of spacers is not supported.
- *3 : Spacer cannot be combined with blanking plate.
- *4 : Spacer mounting screws and gasket are included.

Dimensions

●Supply spacer/Exhaust spacer



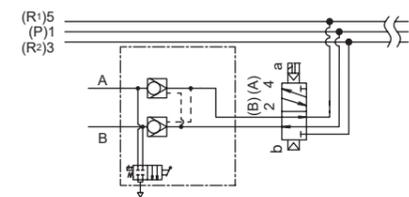
Perfect spacer (Spacer type pilot check valve)



Specifications

Item	TVG1P-PC-P4
Working fluid	Compressed air
Max. operating pressure	MPa 0.7
Min. operating pressure	MPa 0.2
Proof pressure	MPa 1.05
Ambient temperature	°C -5 to 55 (no freezing)
Fluid temperature	°C 5 to 55
Atmosphere	Use in corrosive gas atmosphere is prohibited
Weight	g 34

Circuit diagram Code



Single unit Model No.

TVG1P-PC-P4

Perfect spacer

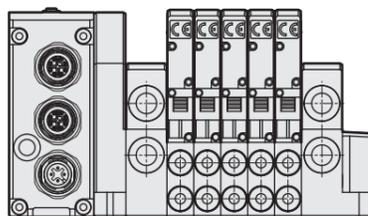
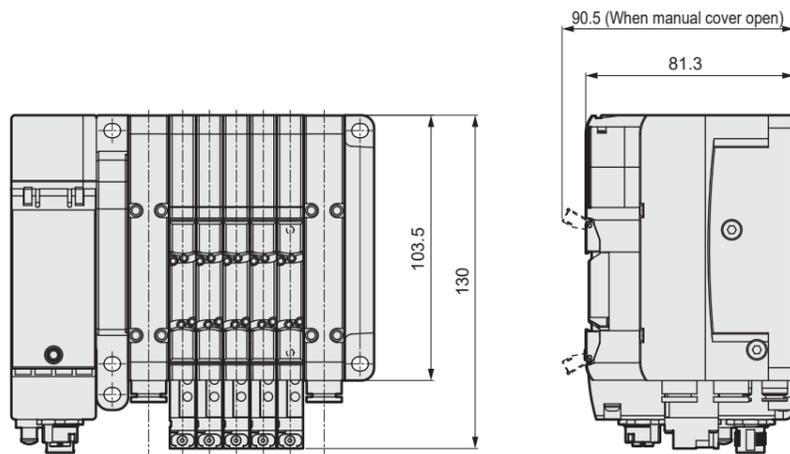
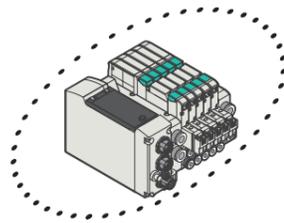
* No residual pressure exhaust function.

⚠ Precautions for Model No. selection

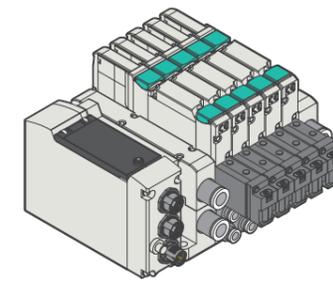
- *1 : Specify spacer mounting position in the manifold specification sheet.
- *2 : Stacking of spacers is not supported.
- *3 : Spacer cannot be combined with blanking plate.
- *4 : Spacer mounting screws and gasket included.

Note) Please note that using a large bore size cylinder (approx. ø50 or larger) with almost no restriction on the exhaust side (e.g., no speed controller, no silencer) may lead to reduced intermediate stopping accuracy and intermediate stopping failure.

Dimensions



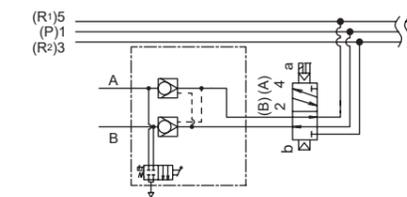
Perfect spacer (Spacer type pilot check valve)



Specifications

Item	TVG2P-PC-P4
Working fluid	Compressed air
Max. operating pressure	MPa 0.7
Min. operating pressure	MPa 0.2
Proof pressure	MPa 1.05
Ambient temperature	°C -5 to 55 (no freezing)
Fluid temperature	°C 5 to 55
Atmosphere	Use in corrosive gas atmosphere is prohibited
Weight	g 73

Circuit diagram Code



Single unit Model No.

TVG2P-PC-P4

Perfect spacer

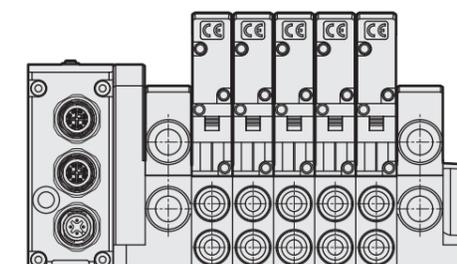
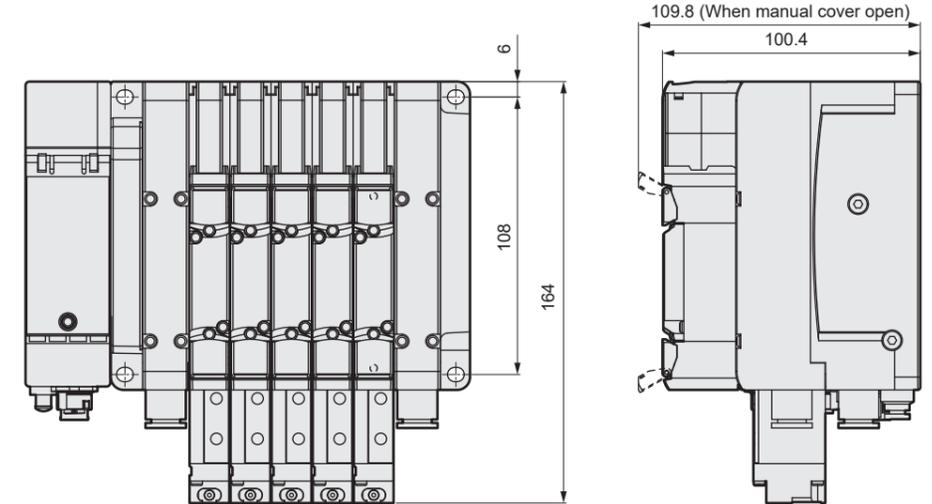
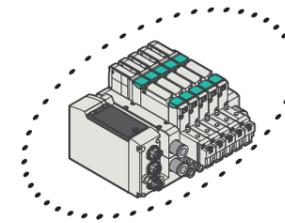
* No residual pressure exhaust function.

⚠ Precautions for Model No. selection

- *1 : Specify spacer mounting position in the manifold specification sheet.
- *2 : Stacking of spacers is not supported.
- *3 : Spacer cannot be combined with blanking plate.
- *4 : Spacer mounting screws and gasket included.

Note) Please note that using a large bore size cylinder (approx. ø50 or larger) with almost no restriction on the exhaust side (e.g., no speed controller, no silencer) may lead to reduced intermediate stopping accuracy and intermediate stopping failure.

Dimensions



TVG Base piping
Reduced wiring with serial transmission slave unit
TVG Direct piping
Reduced wiring with serial transmission slave unit
TVG Base piping
With interface for Remote I/O connection
TVG Direct piping
With interface for Remote I/O connection
TVG Base piping
With interface for Remote I/O connection
TVG Direct piping
With interface for Remote I/O connection
TVG-P4
Compatible with rechargeable battery manufacturing process
Manifold specifications
Technical data
Safety precautions

TVG Base piping
Reduced wiring with serial transmission slave unit
TVG Direct piping
Reduced wiring with serial transmission slave unit
TVG Base piping
With interface for Remote I/O connection
TVG Direct piping
With interface for Remote I/O connection
TVG-P4
Compatible with rechargeable battery manufacturing process
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