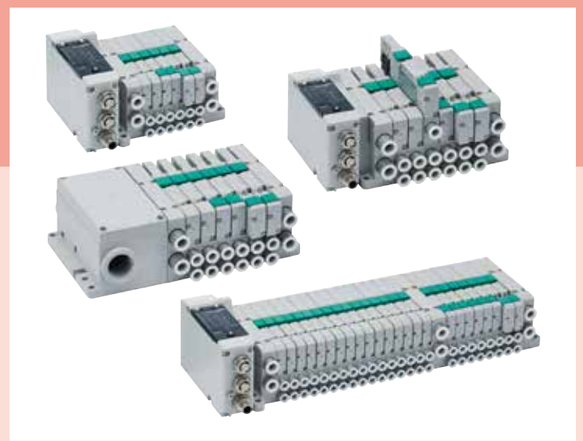
TVG

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



CONTENTS

How to order solenoid valve manifold with reduced wiring/serial transmission device unit

The following 3 ordering methods are available.

Ordering method	Manifold specifications sheet	Customer assembly processes	Product delivery date
A Manifold assembly	Required	☆	○
B Easy assembly	Not required	◎	◎
C Discrete block	Not required	○	☆

☆: Excellent, ◎: Very good, ○: Good

Applicable solenoid valve

Reduced wiring

Serial transmission (output only)

A Manifold assembly

The units will be delivered with the specifications specified in the manifold specifications sheet.
Can be ordered with model No. starting with TVG□M and a manifold specifications sheet.

TVG□M

□: Valve size

Page 9

+

Manifold specifications sheet

Page 117

B Easy assembly

The single solenoid valve and assembled manifold base will be delivered separately. The following parts model No. can be ordered. The customer is required to assemble a single solenoid valve and a manifold base.

Single solenoid valve (For mounting base)
Specs not required
TVG□-
□: Valve size

Page 17

+

Assembled Manifold Base
Specs not required
TVG□B-
□: Valve size

Page 13

+

Spacer
Specs not required
TVG□P-
□: Valve size

Page 19

+

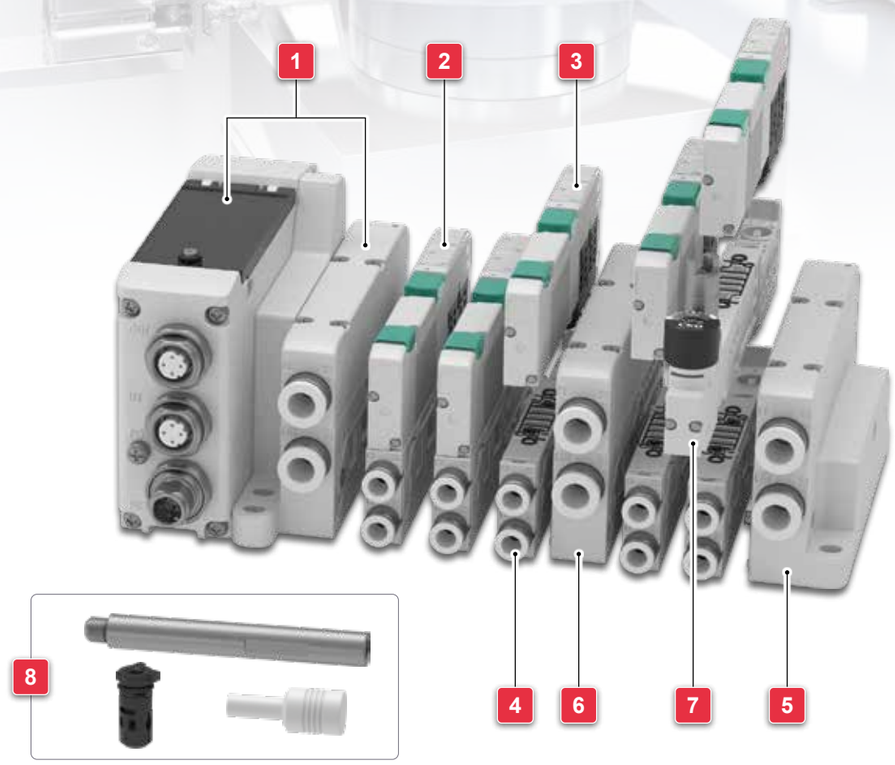
Exhaust malfunction Prevention valve
Specs not required
TVG□P-
□: Valve size

Page 54

*1. The manifold base is limited to options that can be manufactured without the need for specifications, such as double wiring and no malfunction prevention valve assembly.

C Discrete block

Each part is delivered separately. The customer must assemble the manifold by combining the parts. You can order the parts below with their model Nos.



No.	Name	Head model No.	Listed page
1	Wiring supply and exhaust block	TVG□P- □: Valve size	P. 39
2	Valve block with solenoid valve		P. 41
3	Solenoid valve discrete (for base mounting)		P. 17
4	Valve block		P. 45
5	End supply and exhaust block		P. 50
6	Intermediate supply and exhaust block		P. 51
7	Spacer		P. 19
8	Tie rod, silencer, exhaust check valve		P. 49, 54
	Other related parts		P. 53

Plug-in Block Manifold
Pilot Operated 3, 5-Port Valve

TVG1 / TVG2 Series

Manifold common specifications

Item		Content
Manifold		Block manifolds
Mounting Method		Direct mounting
Air supply and exhaust method		Common supply/common exhaust (With internal exhaust check valve)
Pilot exhaust method Internal pilot (*5)		Main valve/pilot valve common exhaust (Pilot exhaust check valve built-in)
Piping direction		Side direction of base
Valve Type and Operation Method		Pilot operated soft spool valve
Operating Fluid		Compressed Air
Max. working pressure MPa		0.7
Internal pilot Min. working pressure MPa	2-position double	0.1 (*7)
	2-position single 3-position	0.2
	3-port valve Two valves integrated	0.2
Min. working pressure of external pilot kPa		-100 (Pilot pressure at 0.2MPa or more)
Proof Pressure MPa		1.05
Ambient Temperature °C		−5 to 55 (no freezing)
Fluid temperature °C		5 to 55
Manual Override		Non-locking/locking common (standard)
Lubrication (*1)		Not required
Degree of protection (*2) (*8)		IP65, IP67
Vibration resistance m/s² (*9)		50 or less
Shock resistance m/s²		≤ 300
Atmosphere		Cannot be used in corrosive gas environments

Electrical specifications

Item		Reduced wiring connection EA1□, FA1□, GA1□	Serial transmission JA□□, JB□□
Rated Voltage (V)		24 VDC	24 VDC
Voltage fluctuation range (*3)		±10%	+10%, -5%
Holding current A	Standard	0.017	
	With low exoergic/ With low exoergic	0.005	
Power Consumption W	Standard	0.4	
	With low exoergic/ With low exoergic	0.1	
Thermal class		B	
Surge suppressor (*4)		Zener diode	
Indicator		LED	

*1: Use turbine oil Class 1 ISO VG32 for lubrication. Excessive or intermittent lubrication results in unstable operation.
*2: Tested according to the test method for IP65 and IP67 (IEC 60529: 2001) standards. Refer to page 160 for details.
*3: As the voltage drop occurs depending on the internal circuit of theserial transmission, be careful of the voltage fluctuation range.
*4: If low exoergic/energy circuit or surgeless types are selected then there will be a diode.
*5:The pilot exhaust method differs with the supply and exhaust block specification. Refer to page 52 for details.
*6: When using at low vacuum, select the external pilot. Refer to page 162 for details.
*7: 0.2MPa for low exoergic/energy circuit.
*8: The degree of protection of the D-sub-connector (GA1□) is dust-proof IP40 or equivalent. Avoid water drops or oil, etc., during use.
*9: For DIN rail mount vibration resistance, keep the vibration applied to the manifold to 20m/s² or less for 2 to 12 stations, and to 10m/s² or less for 13 to 16 stations.

Individual specifications

Item			TVG1 Common terminal block EA1□	TVG1 Multi-connector FA1□	TVG1 D-sub Connector GA1□	TVG1 Serial transmission JA□□, JB□□	TVG2 Common terminal block EA1□	TVG2 Multi-connector FA1□	TVG2 D-sub Connector GA1□	TVG2 Serial transmission JA□□, JB□□
Max. station No.	Standard wiring (double wiring)		10 stations	8 stations	12 stations	16 stations	10 stations	8 stations	12 stations	16 stations
	Single solenoid, Double solenoid layout specification (Single wiring)		20 stations	16 stations	24 stations	24 stations	20 stations	16 stations	24 stations	24 stations
Max. number of solenoids			20 points	16 points	24 points	32 points	20 points	16 points	24 points	32 points
Connection Port Size	Metric fitting	Port A/B	Push-in fitting ø1.8, ø4, ø6				Push-in fitting ø4, ø6, ø8, ø10			
		P/R Port	Push-in fitting ø6, ø8				Push-in fitting ø8, ø10			
	Inch fitting	Port A/B	Push-in fitting ø1/8", ø5/32"				Push-in fitting ø1/4", ø5/16"			
		P/R Port	Push-in fitting ø5/16"				Push-in fitting ø3/8"			

Performance/characteristics by model

Item			TVG1 at ON	TVG1 at OFF	TVG2 at ON	TVG2 at OFF
Response time ms	Two 3-port valves integrated		15	25	20	37
	2-position	Single	15	20	22	24
		Double	15	15	26	26
	3-position		20	30	25	35

The response times are values with supply pressure of 0.5 MPa at 20°C and without lubrication. They depend on the pressure and the lubricant quality.

Flow Characteristics

Model No.	Switching position class		P ➡ A/B C [dm³/(s·bar)]	P ➡ A/B b	P ➡ A/B Q[L/min(ANR)]	A/B ➡ R C [dm³/(s·bar)]		A/B ➡ R b		A/B ➡ R Q[L/min(ANR)]	
TVG1	Two 3-port valves integrated		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	Two 3-port valves integrated		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: Effective cross-sectional area S and sonic conductance C are converted as S ≈ 5.0 × C.
*2: Values in ( ) are with the exhaust check valve.

Reduced wiring specifications

Item	EA1A	EA1B	FA1A	FA1B	GA1A	GA1B
Type	Common terminal block M3 thread		Multi-connector		D-sub Connector	
Connection Connector	-		HIROSE ELECTRIC CO. LTD. RM21WTP-20S 20-pin		D-sub-connector (female) 25-pin	
Output Format	NPN: (Plus common)	PNP: (Minus common)	NPN: (Plus common)	PNP: (Minus common)	NPN: (Plus common)	PNP: (Minus common)

Serial Transmission Device Unit specifications (Refer to page 152 for the PLC compatibility table.)

Item		JA1C	JA1D	JA2C	JA2D	JA3C	JA3D	JA4C	JA4D	JA5C	JA5D	JA6C	JA6D
Communication protocol		DeviceNet		CC-Link Ver.1.10		EtherCAT		EtherNet/IP		CC-Link IEF Basic		PROFINET	
Power Supply Voltage	Unit side	11 to 25 VDC*		24 VDC ±10%									
	Valve side	24 VDC +10%, -5%											
Current Consumption	Unit side	50 mA or less (all points ON: 24 VDC)		90 mA or less (all points ON: 24 VDC)									
	Valve side	15 mA or less (excluding load current)											
Number of Output Points		32 points											
Occupied number		4bytes		1 station									
Operation Indicator		LED (power supply and communication status)											
Output Format		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 the range of voltage communication power supply.

Item		JA7C	JA7D	JA8C	JA8D	JA9C	JA9D	JA9G	JA9H	JB1C	JB1D
Communication protocol		CC-Link IE Field		CC-Link IE TSN		IO-Link				IO-Link Wireless	
Power Supply Voltage	Unit side	24 VDC ±10%				18 to 30 VDC				24 VDC ±10%	
	Valve side	24VDC +10%, -5%									
Current Consumption	Unit side	100 mA or less (all points ON: 24 VDC)				50 mA or less (all points ON: 24 VDC)				35 mA or less (All points ON: 24 VDC)	
	Valve side	15 mA or less (excluding load current)									
Number of Output Points		32 points									
Occupied number		1 station									
Operation Indicator		LED (power supply and communication status)									
Output Format		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 Method

Manifold with solenoid valve

10 mm width (valve width)

Option

TVG1M - 1 B 06CS 3 JA4C - 6 U - HP1

Model No.

❷ Piping direction

❹ Voltage

❻ Station No.

❽ Base internal wiring system

❿ Electric circuit specifications

⓬ Ozone/ Coolant proof

⓮ With/Without spacer

⓰ Port A/B Filter

❶ Switching position class

❸ Connection Port Size

❺ Electrical connections

❼ Port P/R position

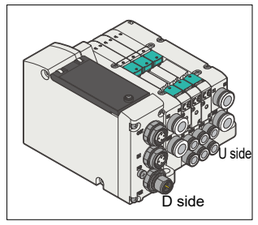
❾ Pilot operated

⓫ Manual Override

⓭ Residual pressure exhaust valve

⓯ Exhaust check valve

⓱ Mount type



❶ Switching position class

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 valve side: Normally closed/B valve side: Normally Closed
B	Two valves integrated *1	A valve side: Normally open/B valve side: Normally Open
C		A valve side: Normally closed/B valve side: Normally Open

*1: Only compatible with internal pilot. Dimensions is the same as the 2-position double.

❷ Piping direction

Code	Content
B	Side piping

❸ Port size (port A/B)

• Metric fitting

Fitting	Port A/B	Code	
Push-in	ø1.8	0ACS	*4
	ø4	04CS	
	ø6	06CS	
Push-in L-type upward *2	ø1.8	0ACU	*4
	ø4	04CU	
	ø6	06CU	
Push-in L type downward	ø1.8	0ACD	*4
	ø4	04CD	
	ø6	06CD	
Push-in	Mix	99CX	*3

Fitting	Single side plug specifications *1		Code	
	Port A	Port B		
Push-in	ø1.8	Plug	0ACA	*4
	ø4		04CA	
	ø6		06CA	
	Plug	ø1.8	0ACF	*4
		ø4	04CF	
		ø6	06CF	
Push-in L-type upward *2	ø1.8	Plug	0ACB	*4
	ø4		04CB	
	ø6		06CB	
	Plug	ø1.8	0ACG	*4
		ø4	04CG	
		ø6	06CG	
Push-in L type downward	ø1.8	Plug	0ACC	*4
	ø4		04CC	
	ø6		06CC	
	Plug	ø1.8	0ACH	*4
		ø4	04CH	
		ø6	06CH	

• Inch fitting

Fitting	Port A/B	Code	
Push-in	ø1/8"	03LS	
	ø5/32"	04LS	
Push-in L-type upward *2	ø1/8"	C3LU	*5
	ø5/32"	04LU	*5
Push-in	Mix	99LX	*3

Fitting	Single side plug specifications *1		Code	
	Port A	Port B		
Push-in	ø1/8"	Plug	03LA	
	ø5/32"		04LA	
	Plug	ø1/8"	03LF	
		ø5/32"	04LF	
Push-in L-type upward *2	ø1/8"	Plug	03LB	*5
	ø5/32"		04LB	*5
	Plug	ø1/8"	03LG	*5
		ø5/32"	04LG	*5

❹ Voltage

Code	Content
3	24 VDC

❺ Electrical connections

• Reduced wiring connection

Content	Output Format	Code	
Common terminal block (M3 thread)	NPN	EA1A	
	PNP	EA1B	
Multi-connector	NPN	FA1A	
	PNP	FA1B	
D-sub Connector	NPN	GA1A	
	PNP	GA1B	

• Serial transmission

Communication protocol		Output Format	# of Output Points	Code	
DeviceNet		NPN	32 points	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	

*1: Ports A and B are available with one-sided plug specifications for 2-position single only.
*2: 3-position is not available for L-type upward push-in fittings.
*3: Port size mixtures of ports 4(A) and 2(B) are not available.
*4: The compatible ø for tube 1.8 push-in fitting is "UP-9402- * *".
*5: Custom Product.

How to order (manifold with solenoid valve)

Rechargeable Battery Compatible Specification For details, please refer to P. 90.

● For use in the rechargeable battery manufacturing process, materials used for air path and sliding section are limited

✱✱ - ✱✱ - ✱✱ - P4

❻ Station No.

Code	Content	
02	2 stations	
L	L	*1, *2
24	24 stations	

*1: Differs depending on the reduced wiring specifications. Refer to the individual specifications (on page 7).
*2: ❼For mount "R" (DIN rail), the max. station No. is 16.

❼ Port P/R position

* Multiple selection is not possible.

Code	Content	
U	U side	
D	D side	
B	U side, D side	
T *1	U side, D side, With intermediate supply and exhaust block	

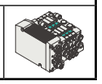
*1: Specify the specifications of the intermediate supply and exhaust block in the manifold specifications sheet.

❽ Base internal wiring system*1

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

*1: Blank = Double solenoid wiring regardless of the type of valve used. If a single solenoid is mounted, an empty number for one solenoid will be generated. Refer to page 157 for details.

❾ Pilot operated

Code	Content	
Blank	Internal pilot	
K	External pilot	

❿ Electrical circuit specification

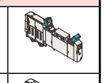
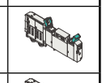
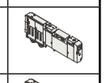
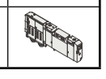
* Multiple selection is not possible.

Code	Content
Blank	With surge suppressor and indicator lamp
E1	Low exoergic/energy saving circuit (surgeless specifications)
E2	Surgeless

*1:Combination of "E2" and PNP specifications is Custom Product.

⓫ Multiple manual override

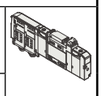
* cannot be selected.

Code	Content	
Blank	With locking, non-locking common, misoperation prevention cover	
M1	Non-locking, with misoperation prevention cover	
M2	Locking/non-locking common, tool operation, without cover	
M3	Non-locking, tool operation, without cover	

⓬ Ozone/Coolant proof

Code	Content
Blank	Standard specifications
A	Ozone/Coolant proof (Main valve fluorine specification)

⓭ Residual pressure exhaust valve

Code	Content	
Blank	Without residual pressure exhaust valve	
Y1 *1, *2	With non-locking residual pressure exhaust valve	
Y2 *1, *2	With locking residual pressure exhaust valve	

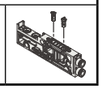
*1: ❶Solenoid position "3" and "4" only are supported.
*2: ⓫Only the manual override "M2" and "M3" are supported.

⓮ With/Without spacer

Code	Content
Blank	Without spacer
Z	With spacer (Type and location are specified in the MF specifications sheet)

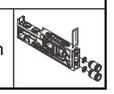
*1: Specify the spacer type and mounting position in the manifold specifications sheet. Stacking of spacers is not possible. Combination with the blanking plate is not supported. Cannot be selected together with L-type push-in fitting (upward).

⓯ Exhaust check valve

Code	Content	
Blank	None	
H *1	With exhaust check valve	

*1: ❶Solenoid positions "3" and "5" cannot be selected. Refer to page 163 for details on the type with exhaust check valve. Specify the number of stations to install in the manifold specifications sheet.

⓰ Port A/B filter

Code	Content	
Blank	None	
F	Port A/B filter built in	

*1: A filter is built into port P.

⓱ Mount type

Code	Content
Blank	Direct mount
R	DIN rail mount

model No. Notation Method

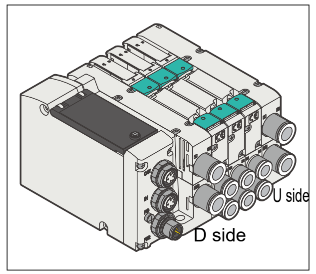
Manifold with solenoid valve

15 mm width (valve width)

Option

TVG2M - 2 B 06CS 3 JA4C - 05 B ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ -HP1

Model No. | ❶ Switching position class | ❷ Piping direction | ❸ Connection Port Size | ❹ Voltage | ❺ Electrical connections | ❻ Station No. | ❼ Port P/R position | ❽ Base internal wiring system | ❾ Pilot operated | ❿ Electric circuit specifications | ⓫ Manual Override | ⓬ Ozone/Coolant proof | ⓭ Residual pressure exhaust valve | ⓮ Valve mounting screw | ⓯ With/Without spacer | ⓰ Exhaust check valve | ⓱ Port A/B filter | ⓲ Mount type



❶ Switching position class

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 Two valves integrated *1	A valve side: Normally closed/B valve side: Normally Closed
B		A valve side: Normally open/B valve side: Normally Open
C		A valve side: Normally closed/B valve side: Normally Open

*1: Only compatible with internal pilot. Dimensions is the same as the 2-position double.

❷ Piping direction

Code	Content
B	Side piping

❸ Port size (port A/B)

• Metric fitting

Fitting	Port A/B		Code	
Push-in	ø4		04CS	
	ø6		06CS	
	ø8		08CS	
	ø10		10CS	
Push-in L-type upward *2	ø6		06CU	
	ø8		08CU	
Push-in L type downward	ø6		06CD	
	ø8		08CD	
Push-in	Mix		99CX	*3
Fitting	**Single side plug specifications *1 Port A**	**Port B**	**Code**	
Push-in	ø4	Plug	04CA	
	ø6	Plug	06CA	
	ø8	Plug	08CA	
	ø10	Plug	10CA	
	Plug	ø4	04CF	
	Plug	ø6	06CF	
	Plug	ø8	08CF	
	Plug	ø10	10CF	
Push-in L-type upward *2	ø6	Plug	06CB	
	ø8	Plug	08CB	
	Plug	ø6	06CG	
	Plug	ø8	08CG	
Push-in L type downward	ø6	Plug	06CC	
	ø8	Plug	08CC	
	Plug	ø6	06CH	
	Plug	ø8	08CH	

• Inch fitting

Fitting	Port A/B		Code	
Push-in	ø1/4"		06LS	
	ø5/16"		08LS	
Push-in L-type upward *2	ø1/4"		06LU	*4
	ø5/16"		08LU	*4
Push-in	Mix *3		99LX	*3
Fitting	**Single side plug specifications *1 Port A**	**Port B**	**Code**	
Push-in	ø1/4"	Plug	06LA	
	ø5/16"	Plug	08LA	
	Plug	ø1/4"	06LF	
	Plug	ø5/16"	08LF	
Push-in L-type upward *2	ø1/4"	Plug	06LB	*4
	ø5/16"	Plug	08LB	*4
	Plug	ø1/4"	06LG	*4
	Plug	ø5/16"	08LG	*4

*1: Ports A and B are available with one-sided plug specifications for 2-position single only.
*2: 3-position is not available for L-type upward push-in fittings.
*3: Port size mixtures of ports 4(A) and 2(B) are not available.
*4: Custom Product.

❹ Voltage

Code	Content
3	24 VDC

❺ Electrical connections

• Reduced wiring connection

Content	Output Format	Code
Common terminal block (M3 thread)	NPN	EA1A
	PNP	EA1B
Multi-connector	NPN	FA1A
	PNP	FA1B
D-sub Connector	NPN	GA1A
	PNP	GA1B

• Serial transmission

Communication protocol		Output Format	Number of Output Points	Code
DeviceNet		NPN	32 points	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

Rechargeable Battery Compatible Specification For details, please refer to P. 90.

● For use in the rechargeable battery manufacturing process, materials used for air path and sliding section are limited

✳✳ - ✳✳ - ✳✳ - P4

❻ Station No.

Code	Content
02	2 stations
to	to
24 *1, *2	24 stations

*1: Differs depending on the reduced wiring specifications. Refer to the individual specifications (on page 7).
*2: ⓲For mount "R" (DIN rail), the max. station No. is 16.

❼ Port P/R position

* Multiple selection is not possible.

Code	Content
U	U side
D	D side
B	U side, D side
T *1	U side, D side, With intermediate supply and exhaust block

*1: Specify the specifications of the intermediate supply and exhaust block in the manifold specifications sheet.

❽ Base internal wiring system*1

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

*1:Blank = Double solenoid wiring regardless of the type of valve used. If a single solenoid is mounted, an empty number for one solenoid will be generated.

❾ Pilot operated

Code	Content
Blank	Internal pilot
K	External pilot

❿ Electrical circuit specification

* Multiple selection is not possible.

Code	Content
Blank	With surge suppressor and indicator lamp
E1	Low exoergic/energy saving circuit (surgeless specifications)
E2	Surgeless

*1:Combination of "E2" and PNP specifications is Custom Product.

⓫ Manual device

* Multiple selections are not possible.

Code	Content
Blank	With locking, non-locking common, misoperation prevention cover
M1	Non-locking, with misoperation prevention cover
M2	Locking/non-locking common, tool operation, without cover
M3	Non-locking, tool operation, without cover

⓬ Ozone/Coolant proof

Code	Content
Blank	Standard specifications
A	Ozone/Coolant proof (main valve fluorine specification)

⓭ Residual pressure exhaust valve

Code	Content
Blank	Without residual pressure exhaust valve
Y1 *1, *2	With non-locking residual pressure exhaust valve
Y2 *1, *2	With locking residual pressure exhaust valve

*1: ❶Solenoid position "3" and "4" only are supported.
*2: Only the ⓫manual override "M2" and "M3" are supported.

⓮ Valve mounting screw

Code	Content
Blank	Pan head machine screw with Phillips head/flathead
J	Hexagon Socket Head Cap Screw

*1: ⓯With/without spacer "Z" cannot be selected with "J".

⓯ With/Without spacer

Code	Content
Blank	Without spacer
Z	With spacer (Type and location are specified in the MF specifications sheet)

*1: Specify the spacer type and mounting position in the manifold specifications sheet. Stacking of spacers is not possible. Combination with the blanking plate is not supported. Cannot be selected together with L-type push-in fitting (upward).

⓰ Exhaust check valve

Code	Content
Blank	None
H	With exhaust check valve

*1: ❶Solenoid positions "3" and "5" cannot be selected. Refer to page 163 for details on the type with exhaust check valve.
*2: Specify the number of stations to install in the manifold specifications sheet.

⓱ Port A/B filter

Code	Content
Blank	None
F	Port A/B filter built in

*1: A filter is built into port P.

⓲ Mount type

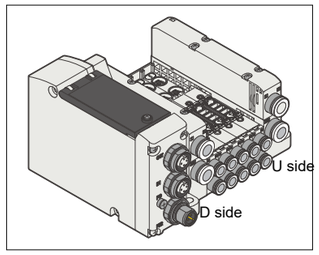
Code	Content
Blank	Direct mount
R	DIN rail mount

model No. Notation Method

Manifold base only * Solenoid valve is not included.

10 mm Width (Valve width)	Model No.	❷ Connection Port Size	❹ Electrical connections	❻ Port P/R position	❽ Pilot operated	❿ Port A/B filter	
TVG1B -	B	06CS	3	JA4C -	06	U	X
	❶ Piping direction		❸ Voltage	❺ Station No.	❼ Exhaust method	❾ Electric circuit specifications	⓫ Mount type

Option



❷ Port size (port A/B)

• Metric fitting

Fitting		Port A/B	Code	
Push-in		ø1.8	0ACS	*2
		ø4	04CS	
		ø6	06CS	
Push-in L-type upward	*1	ø1.8	0ACU	*2
		ø4	04CU	
		ø6	06CU	
Push-in L type downward		ø1.8	0ACD	*2
		ø4	04CD	
		ø6	06CD	

• Inch fitting

Fitting		Port A/B	Code	
Push-in		ø1/8"	03LS	
		ø5/32"	04LS	
Push-in L-type upward	*1	ø1/8"	C3LU	*3
		ø5/32"	04LU	*3

*1: 3-position is not available for L-type upward push-in fittings.
*2: The compatible tubing for ø1.8 One-touch Fitting is "UP-9402-**".
*3: Custom Product.

❶ Piping direction

Code	Content
B	Side piping

❸ Voltage

Code	Content
3	24 VDC

❹ Electrical connections

• Reduced wiring connection

Content	Output Format	Code	
Common terminal block (M3 thread)	NPN	EA1A	
	PNP	EA1B	
Multi-connector	NPN	FA1A	
	PNP	FA1B	
D-sub Connector	NPN	GA1A	
	PNP	GA1B	

• Serial transmission

Communication protocol		Output Format	Number of points	Code	
DeviceNet		NPN	32 points Output	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	ClassA	NPN		JA9C	
		PNP		JA9D	
	ClassB	NPN		JA9G	
		PNP		JA9H	
IO-Link Wireless		NPN		JB1C	
		PNP		JB1D	

How to order (manifold base only)

Rechargeable Battery Compatible Specification For details, please refer to P. 90.

● For use in the rechargeable battery manufacturing process, materials used for air path and sliding section are limited

✱✱ - ✱✱ - ✱✱ - **P4**

• If an exhaust check valve is necessary, refer to page 54.

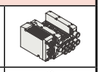
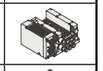
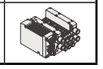
❺ Station No.

Code	Content	
02	2 stations	
to	to	
16	16 stations	*2

*1: The wiring inside the base is all for double solenoid regardless of the type of valve used. The blank number for one solenoid is generated in the section where a single solenoid is mounted.
*2: Differs depending on the reduced wiring specifications. Refer to the individual specifications (on page 7).

❻ Port P/R position

(TVG1B: ø 8)
* Multiple selection is not possible.

Code	Content	
U	U side	
D	D side	
B	U, D both sides	

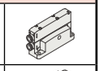
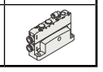
*1: The port P/R tube has the same direction as the port A/B tube.
*2: A filter is built into port P.

❼ Exhaust method

Code	Content		
Blank	Centralized Exhaust (port R is a push-in fitting)		
X	Silencer integrated (port R is a plug, exhaust is released to atmosphere)		*1

*1: ❻A silencer is integrated at the position selected with port P/R position.

❽ Pilot operated

Code	Content	
Blank	Internal pilot	
K	External pilot	

❾ Electrical circuit specification

* Multiple selection is not possible.

Code	Content
Blank	With surge suppressor and indicator lamp
E1	Low exoergic/energy saving circuit (surgeless specifications)
E2	Surgeless

*1: The combination of "E2" and PNP specifications is Custom Product.

❿ Port A/B filter

Code	Content	
Blank	None	
F	Port A/B filter built in	

*1: A filter is built into port P.

⓫ Mount type

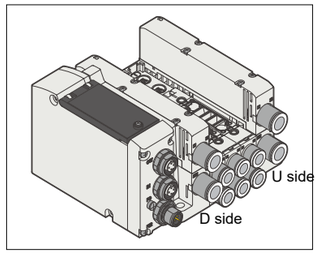
Code	Content	
Blank	Direct mount	
R	DIN rail mount	*1

*1: A DIN rail with standard length is attached. For how to calculate the standard length, refer to page 118.

model No. Notation Method

Manifold base only * Solenoid valve is not included.

15 mm Width (Valve width)							Option				
TVG2B -	B	08CS	3	JA4C -	05	B					
Model No.	❶ Piping direction	❷ Connection Port Size	❸ Voltage	❹ Electrical connections	❺ Station No.	❻ Port P/R position	❼ Exhaust method	❽ Pilot operated	❾ Electric circuit specifications	❿ Port A/B filter	⓫ Mount type



❷ Port size (port A/B)

• Metric fitting

Fitting	Port A/B	Code	
Push-in	ø4	04CS	
	ø6	06CS	
	ø8	08CS	
	ø10	10CS	
Push-in L-type upward *1	ø6	06CU	
	ø8	08CU	
Push-in L type downward	ø6	06CD	
	ø8	08CD	

• Inch fitting

Fitting	Port A/B	Code	
Push-in	ø1/4"	06LS	
	ø5/16"	08LS	
Push-in L-type upward *1	ø1/4"	06LU	*2
	ø5/16"	08LU	*2

*1: 3-position is not available for L-type upward push-in fittings.
*2: Custom Product.

❶ Piping direction

Code	Content
B	Side piping

❸ Voltage

Code	Content
3	24 VDC

❹ Electrical connections

• Reduced wiring connection

Content	Output Format	Code	
Common terminal block (M3 thread)	NPN	EA1A	
	PNP	EA1B	
Multi-connector	NPN	FA1A	
	PNP	FA1B	
D-sub Connector	NPN	GA1A	
	PNP	GA1B	

• Serial transmission

Communication protocol		Output Format	Number of points	Code	
DeviceNet		NPN	32 point output	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	ClassA	NPN		JA9C	
		PNP		JA9D	
	ClassB	NPN		JA9G	
		PNP		JA9H	
IO-Link Wireless		NPN		JB1C	
		PNP		JB1D	

How to order (manifold base only)

Rechargeable Battery Compatible Specification For details, please refer to P. 90.

● For use in the rechargeable battery manufacturing process, materials used for air path and sliding section are limited

✱✱ - ✱✱ - ✱✱ - **P4**

• If an exhaust check valve is necessary, refer to page 54.

❺ Station No.

Code	Content	
02	2 stations	
to	to	
*2 16	16 stations	

*1: The wiring inside the base is all for double solenoid regardless of the type of valve used. The blank number for one solenoid is generated in the section where a single solenoid is mounted.
*2: Differs depending on the reduced wiring specifications. Refer to the individual specifications (on page 7).

❻ Port P/R position

(TVG2B: ø 10)
* Multiple selection is not possible.

Code	Content	
U	U side	
D	D side	
B	U, D both sides	

*1: The Port P/R tube has the same direction as the Port A/B tube.
*2: A filter is built into port P.

❼ Exhaust method

Code	Content	
Blank	Centralized Exhaust (port R is a push-in fitting)	
*1 X	Silencer integrated (port R is a plug, exhaust is released to atmosphere)	

*1: ❻The silencer is built into the unit at the location selected with port P/R position.

❽ Pilot operated

Code	Content	
Blank	Internal pilot	
K	External pilot	

❾ Electrical circuit specification

* Multiple selection is not possible.

Code	Content
Blank	With surge suppressor and indicator lamp
E1	Low exoergic/energy saving circuit (surgeless specifications)
E2	Surgeless

*1: The combination of "E2" and PNP specifications is Custom Product.

❿ Port A/B filter

Code	Content	
Blank	None	
F	Port A/B filter built in	

*1: A filter is built into port P.

⓫ Mount type

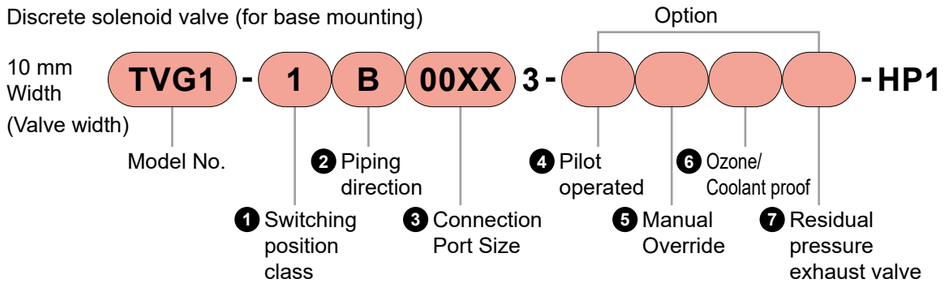
Code	Content
Blank	Direct mount
*1 R	DIN rail mount

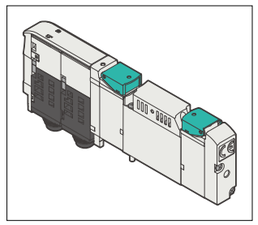
*1: A DIN rail with standard length is attached. For how to calculate the standard length, refer to page 118.

TVG1 Series

model No. Notation Method

Discrete solenoid valve (for base mounting)





Attached Parts
- The valve mounting screws are included.
- The gasket is attached to the manifold base.

❶ Switching position class

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 Two valves integrated	A valve side: Normally Closed B valve side: Normally Closed
*1 B		A valve side: Normally Open B valve side: Normally Open
*1 C		A valve side: Normally Closed B valve side: Normally Open

*1: Only compatible with internal pilot. Dimensions of the Dimensions diagram are the same as those of 2-position double.

❷ Piping direction

Code	Content
B	Side piping

❸ Connection Port Size

Code	Content
00XX	Discrete solenoid valve for base

❹ Pilot operated

Code	Content
Blank	Internal pilot
K	External pilot

❺ Manual device * Multiple selections are not possible.

Code	Content	
Blank	With locking, non-locking common, misoperation prevention cover	
M1	Non-locking, with misoperation prevention cover	
M2	Locking/non-locking common, tool operation, Without cover	
M3	Non-locking, tool operation, without cover	

❻ Ozone/Coolant proof

Code	Content
Blank	Standard specifications
A	Ozone/Coolant proof (main valve fluorine specification)

❼ Residual pressure exhaust valve

Code	Content	
Blank	Without residual pressure exhaust valve	
*1, *2 Y1	With non-locking residual pressure exhaust valve	
*1, *2 Y2	With locking residual pressure exhaust valve	

*1: ❶Solenoid position "3" and "4" only are supported.
*2: ❺Only the manual override "M2" and "M3" are supported.

Rechargeable Battery Compatible Specification For details, please refer to P. 90.

● For use in the rechargeable battery manufacturing process, materials used for air path and sliding section are limited

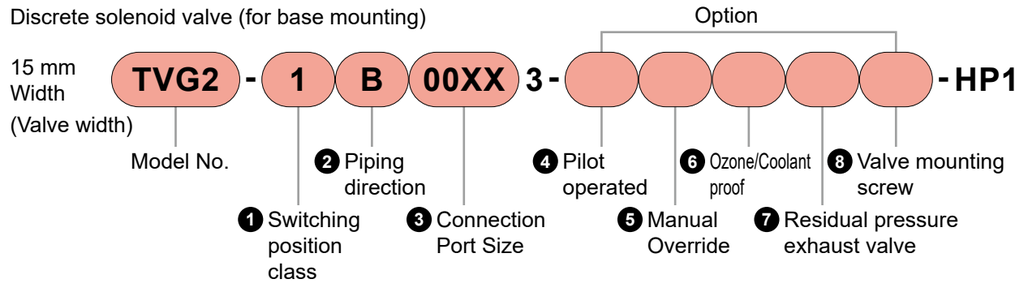
✱✱ - ✱✱ - ✱✱ - P4

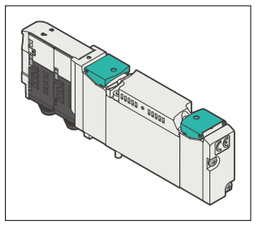
TVG2 Series

How to order (solenoid valve single unit)

model No. Notation Method

Discrete solenoid valve (for base mounting)





Attached Parts
- The valve mounting screws are included.
- The gasket is attached to the manifold base.

❶ Switching position class

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 Two valves integrated	A valve side: Normally Closed B valve side: Normally Closed
*1 B		A valve side: Normally Open B valve side: Normally Open
*1 C		A valve side: Normally Closed B valve side: Normally Open

*1: Only compatible with internal pilot. Dimensions of the Dimensions diagram are the same as those of 2-position double.

❷ Piping direction

Code	Content
B	Side piping

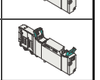
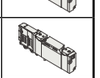
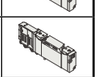
❸ Connection Port Size

Code	Content
00XX	Discrete solenoid valve for base

❹ Pilot operated

Code	Content
Blank	Internal pilot
K	External pilot

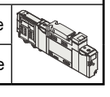
❺ Manual device * Multiple selections are not possible.

Code	Content	
Blank	With locking, non-locking common, misoperation prevention cover	
M1	Non-locking, with misoperation prevention cover	
M2	Locking/non-locking common, tool operation, without cover	
M3	Non-locking, tool operation, without cover	

❻ Ozone/Coolant proof

Code	Content
Blank	Standard specifications
A	Ozone/Coolant proof (main valve fluorine specification)

❼ Residual pressure exhaust valve

Code	Content	
Blank	Without residual pressure exhaust valve	
*1, *2 Y1	With non-locking residual pressure exhaust valve	
*1, *2 Y2	With locking residual pressure exhaust valve	

*1: ❶Solenoid position "3" and "4" only are supported.
*2: ❺Only the manual override "M2" and "M3" are supported.

❽ Valve mounting screw

Code	Content
Blank	Pan head machine screw with Phillips head/flathead
J	Hexagon Socket Head Cap Screw

Attached Parts

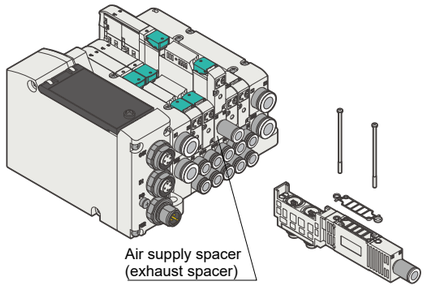
Rechargeable Battery Compatible Specification For details, please refer to P. 90.

● For use in the rechargeable battery manufacturing process, materials used for air path and sliding section are limited

✱✱ - ✱✱ - ✱✱ - P4

• If an exhaust check valve is necessary, refer to page 54.

Air supply spacer/exhaust spacer



Specifications

● Air supply spacer

Model No.	Weight g
TVG1P-P-□	31

● Exhaust spacer

Model No.	Weight g
TVG1P-R-□	31

Discrete model No.

● Air supply spacer

TVG1P – P – 04CS

❶ Connection Port Size

❶ Connection Port Size

Code	Bore size	Content
04CS	ø4	ø4 Push-in fitting
06CS	ø6	ø6 Push-in fitting

● Exhaust spacer

TVG1P – R – 04CS

❶ Connection Port Size

❶ Connection Port Size

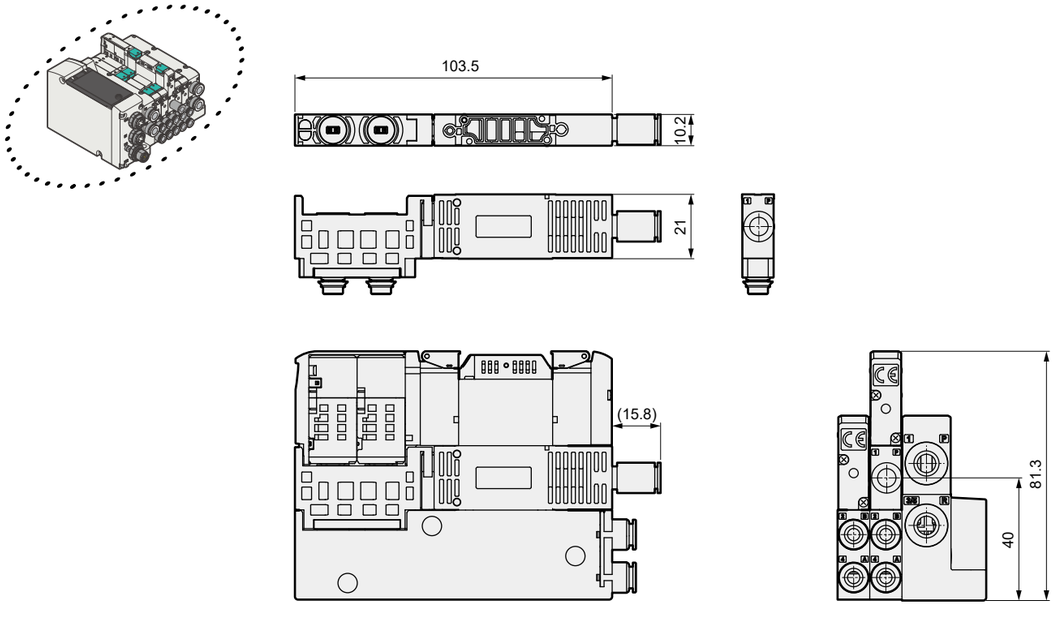
Code	Bore size	Content
04CS	ø4	ø4 Push-in fitting
06CS	ø6	ø6 Push-in fitting

Notes for model No. Selection

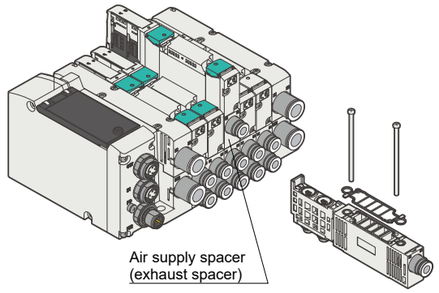
*1: Specify the positions and quantity of spacers for manifold in the manifold specifications sheet (**Refer to pages 119 to 126 Please provide instructions.**
*2: Stacking of spacers is not possible.
*3: A spacer cannot be combined with a blanking plate.
*4: A spacer mounting screw and gasket are included.
*5: If the port A/B Fittings is elbow (upward), a spacer cannot be selected.

External Dimension Drawings

● Air supply spacer/exhaust spacer



Air supply spacer/exhaust spacer



Specifications

● Air supply spacer

Model No.	Weight g
TVG2P-P-□	56

● Exhaust spacer

Model No.	Weight g
TVG2P-R-□	56

Discrete model No.

● Air supply spacer

TVG2P – P – 06CS

❶ Connection Port Size

❶ Connection Port Size

Code	Bore size	Content
06CS	ø6	ø6 Push-in fitting
08CS	ø8	ø8 Push-in fitting
10CS	ø10	ø10 Push-in fitting

● Exhaust spacer

TVG2P – R – 06CS

❶ Connection Port Size

❶ Connection Port Size

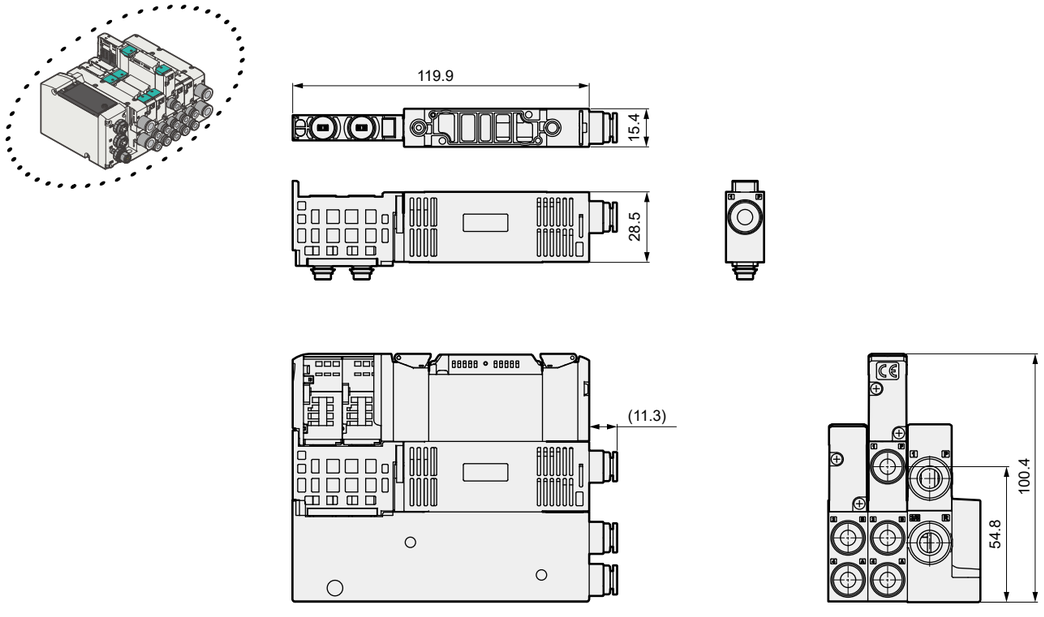
Code	Bore size	Content
06CS	ø6	ø6 Push-in fitting
08CS	ø8	ø8 Push-in fitting
10CS	ø10	ø10 Push-in fitting

Notes for model No. Selection

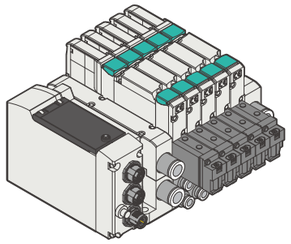
*1: Specify the positions and quantity of spacers for manifold in the manifold specifications sheet (**Refer to pages 119 to 126.**
*2: Stacking of spacers is not possible.
*3: A spacer cannot be combined with a blanking plate.
*4: A spacer mounting screw and gasket are included.
*5: If the port A/B Fittings is elbow (upward), a spacer cannot be selected.

External Dimension Drawings

● Air supply spacer/exhaust spacer



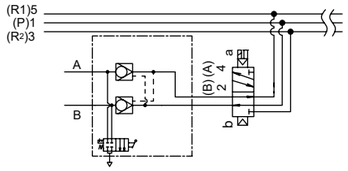
Spacer Pilot Check Valve (spacer pilot check valve)



Specifications

Item		TVG1P-PC-□	TVG2P-PC-□
Operating Fluid		Compressed Air	
Maximum Operating Pressure	MPa	0.7	
Min. working pressure	MPa	0.2	
Proof Pressure	MPa	1.05	
Ambient Temperature	°C	−5 to 55 (no freezing)	
Working fluid temperature	°C	5 to 55	
Atmosphere		Cannot be used in corrosive gas environment.	
Weight	g	34	73

Circuit Diagram Symbol



*: Please note that if you use cylinders with a large bore (guideline ø50 or more) in a state with almost no throttling on the exhaust side (e.g., without a speed controller or silencer), this may lead to a decrease in intermediate stop accuracy and intermediate stop failure.

Discrete model No.

TVG1 P − PC − M

❶ Model No. Spacer Pilot Check Valve

❷ Residual pressure exhaust function

❶ Model No.

Code	Content
TVG1	10 mm width (valve width)
TVG2	15 mm width (valve width)

❷ Residual pressure exhaust function

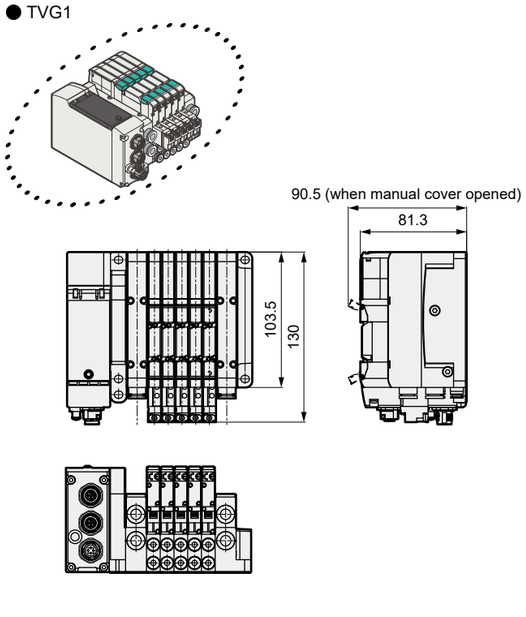
Code	Content
M	Manual override of non-locking
M1	Locking manual device
Blank	Without residual pressure exhaust function

Notes for model No. Selection

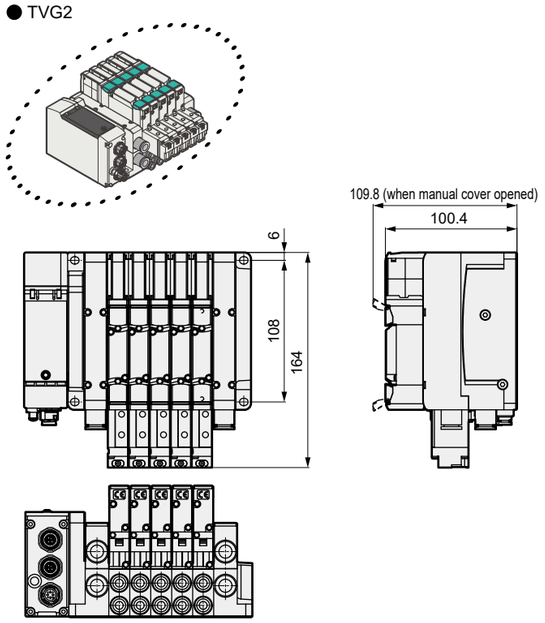
*1: Specify the spacer mounting position and residual pressure exhaust function selection in manifold specifications sheet.
*2: If the port A/B Fittings is elbow (upward), a spacer cannot be selected.
*3: Stacking of spacers is not possible.
*4: A spacer cannot be combined with a blanking plate.
*5: A spacer mounting screw and gasket are included.

External Dimension Drawings

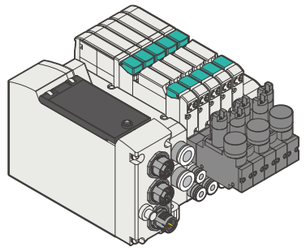
● TVG1



● TVG2



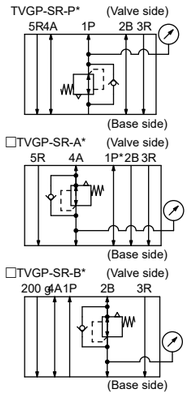
Spacer regulator



Specifications

Item		TVG1P-SR-□	TVG2P-SR-□
Pressure reduction port		P / A / B	
Operating Fluid		Compressed Air	
Maximum Operating Pressure	MPa	0.7	
Min. working pressure	MPa	0.1	
Proof Pressure	MPa	1.05	
Ambient Temperature	°C	−5 to 55 (no freezing)	
Working fluid temperature	°C	5 to 55	
Atmosphere		Cannot be used in corrosive gas environment.	
Weight	g	48	110

Circuit Diagram Symbol



Discrete model No.

TVG1 P − SR − P − G0

❶ Model No. Spacer regulator

❷ Pressure reduction specification

❸ Pressure Gauge

❷ Pressure reduction specification

Code	Content
P	P port pressure reduction
A	A port pressure reduction
B	B port pressure reduction

❸ Pressure Gauge

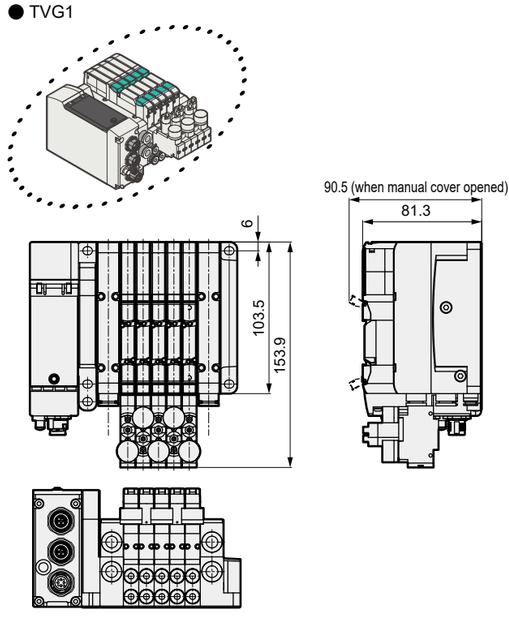
Code	Content	❶ Model No. TVG1	❶ Model No. TVG2
G0	Without Pressure Gauge	●	●
G1	With pressure gauge for odd numbers	●	
G2	With pressure gauge for even stations	●	
G3	Odd/even stations with common pressure gauge		●

Notes for model No. Selection

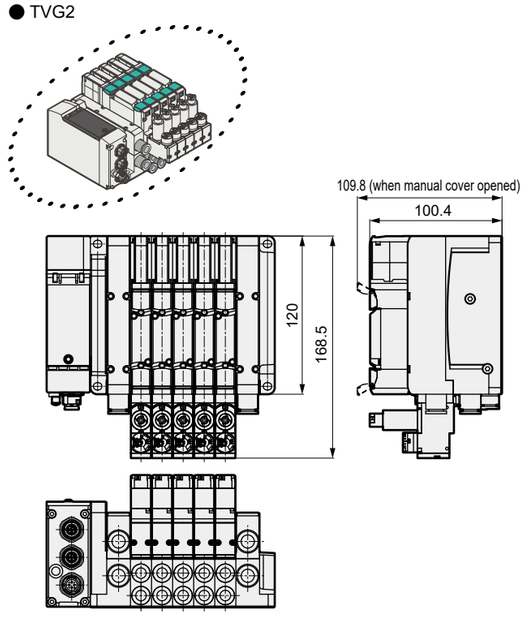
*1: Specify the spacer positions in the manifold specifications sheet.
*2: If the port A/B Fittings is elbow (upward), a spacer cannot be selected.
*3: Stacking of spacers is not possible.
*4: A spacer cannot be combined with a blanking plate.
*5: A spacer mounting screw and gasket are included.

External Dimension Drawings

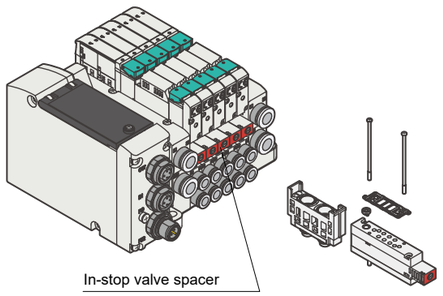
● TVG1



● TVG2



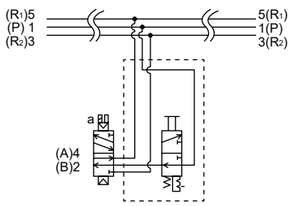
In-stop valve spacer



Specifications

Item		TVG1P-IS	TVG2P-IS
Operating Fluid		Compressed Air	
Maximum Operating Pressure	MPa	0.7	
Min. working pressure	MPa	0.1	
Proof Pressure	MPa	1.05	
Ambient Temperature	°C	−5 to 55 (no freezing)	
Working fluid temperature	°C	5 to 55	
Atmosphere		Cannot be used in corrosive gas environment.	
Weight	g	35	71

Circuit Diagram Symbol



Discrete model No.

TVG1 P − IS

❶ Model No. In-stop valve spacer

❶ Model No.

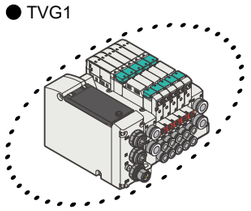
Code	Content
TVG1	10 mm width (valve width)
TVG2	15 mm width (valve width)

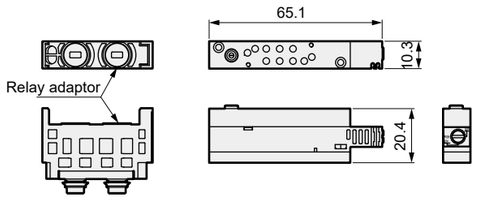
⚠ Notes for model No. Selection

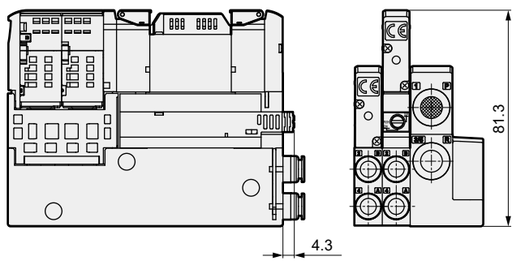
*1: Specify the spacer positions in the manifold specifications sheet.
*2: If the A/B port fitting is elbow type facing upward, a spacer cannot be selected.
*3: Stacking of spacers is not possible.
*4: A spacer cannot be combined with a blanking plate.
*5: Not compatible in combination with external pilot (K).

External Dimension Drawings

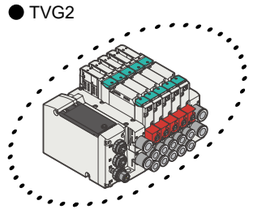
● TVG1

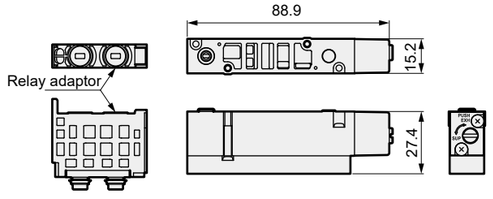


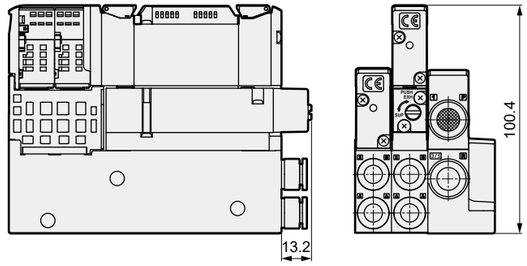




● TVG2



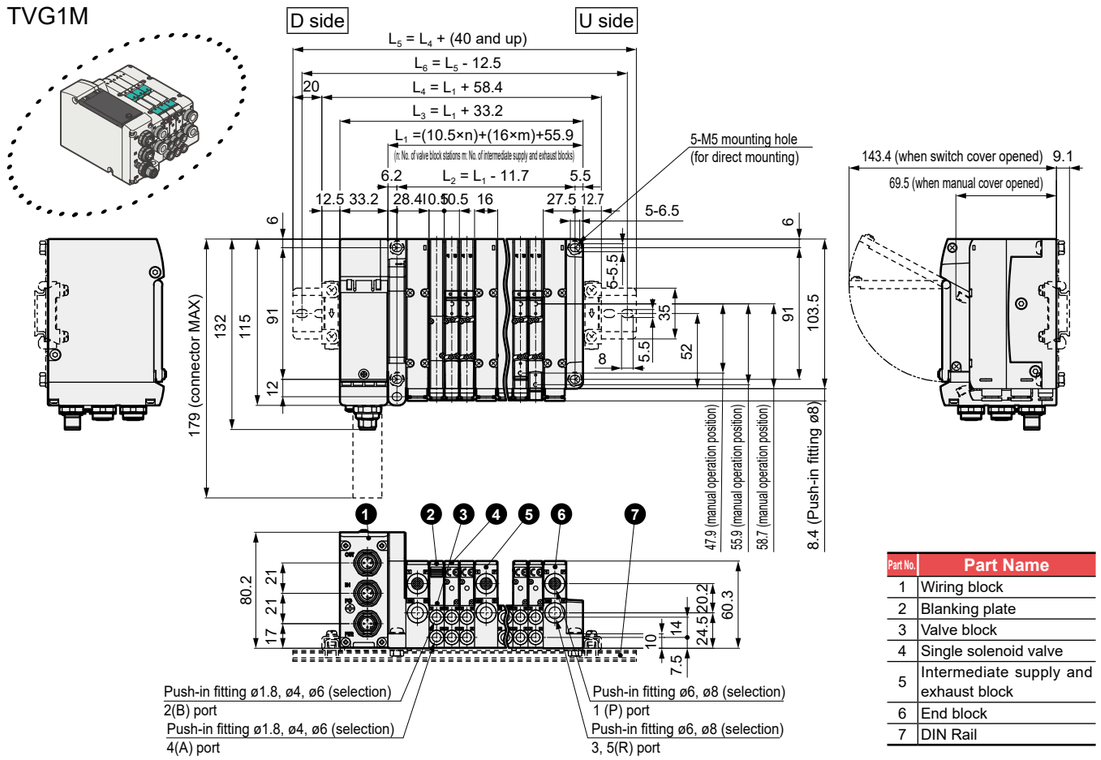




MEMO

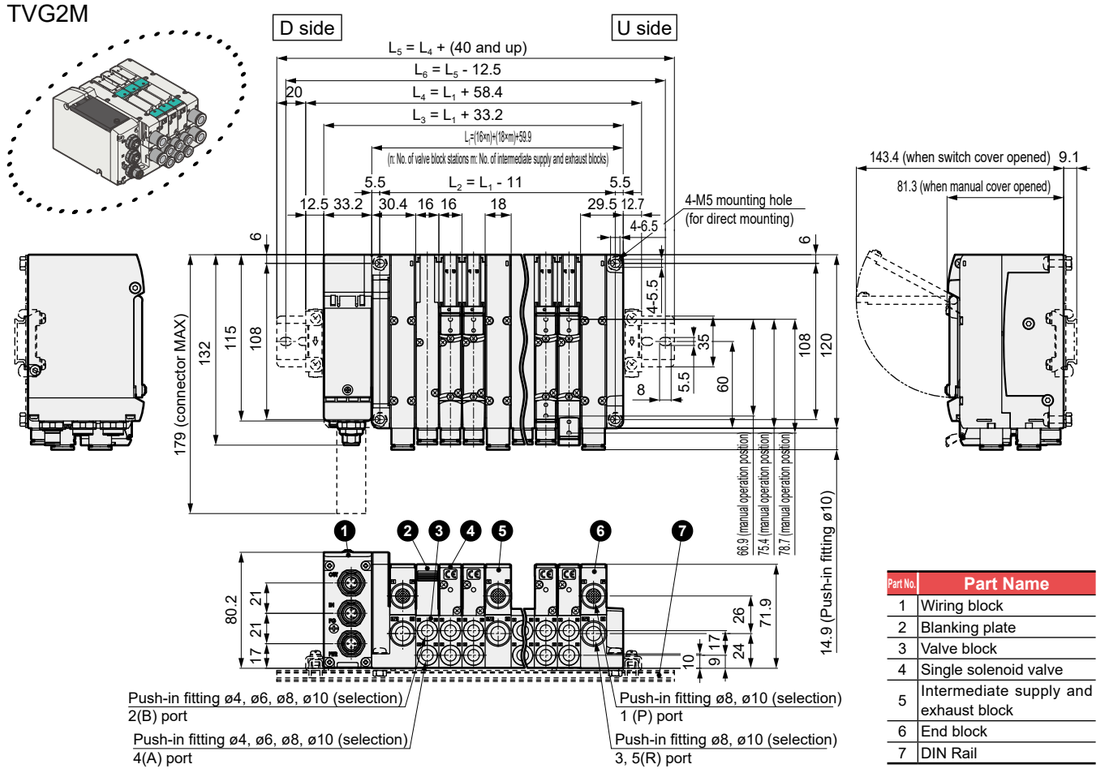
Dimensions diagram (Serial Transmission Device Unit JA□ JB□)

TVG1M



Part No.	Part Name
1	Wiring block
2	Blanking plate
3	Valve block
4	Single solenoid valve
5	Intermediate supply and exhaust block
6	End block
7	DIN Rail

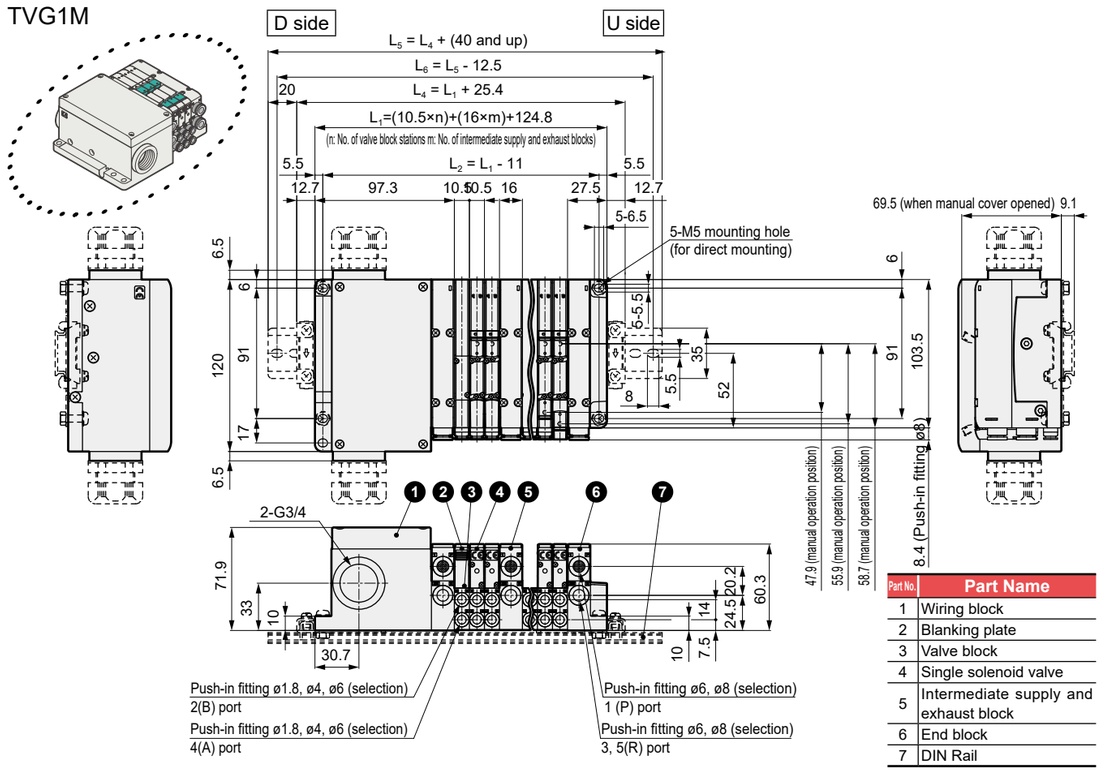
TVG2M



Part No.	Part Name
1	Wiring block
2	Blanking plate
3	Valve block
4	Single solenoid valve
5	Intermediate supply and exhaust block
6	End block
7	DIN Rail

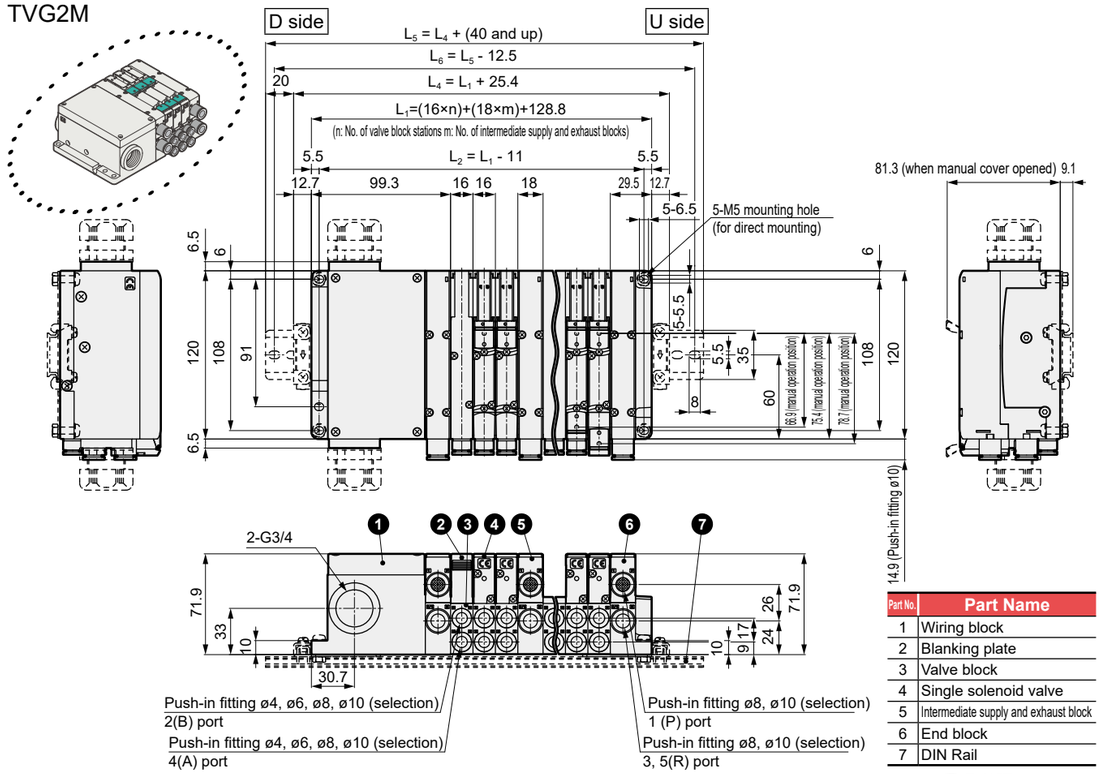
Dimensions diagram (common terminal block EA1□)

TVG1M



Part No.	Part Name
1	Wiring block
2	Blanking plate
3	Valve block
4	Single solenoid valve
5	Intermediate supply and exhaust block
6	End block
7	DIN Rail

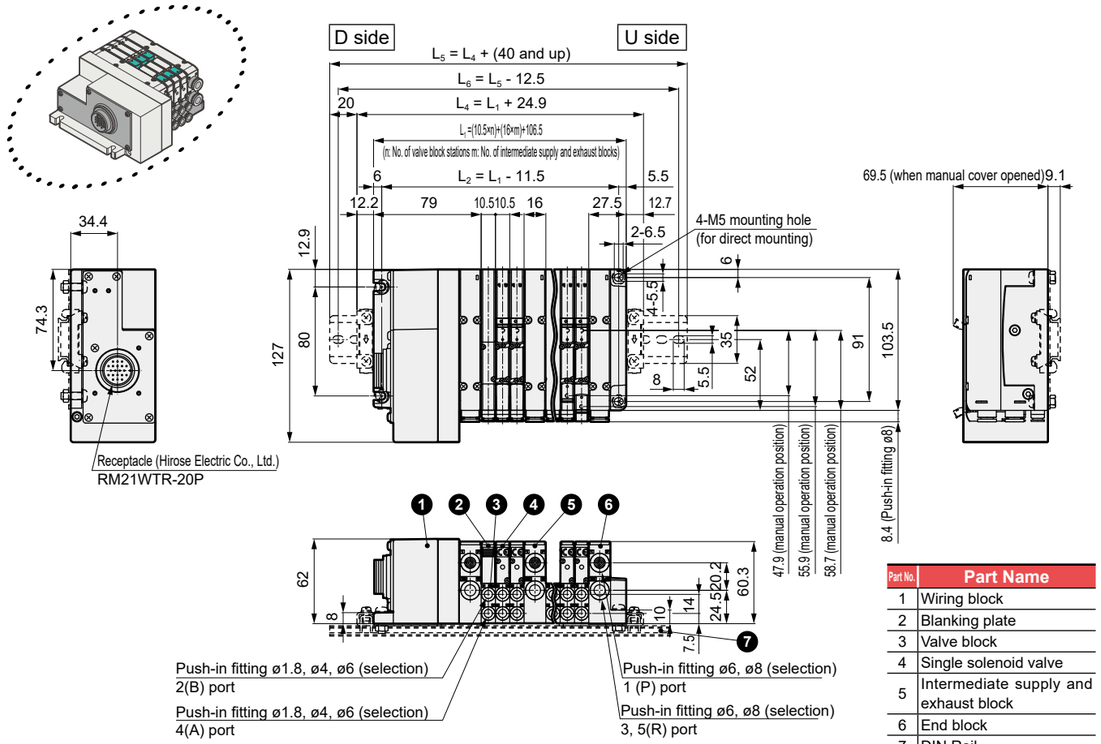
TVG2M



Part No.	Part Name
1	Wiring block
2	Blanking plate
3	Valve block
4	Single solenoid valve
5	Intermediate supply and exhaust block
6	End block
7	DIN Rail

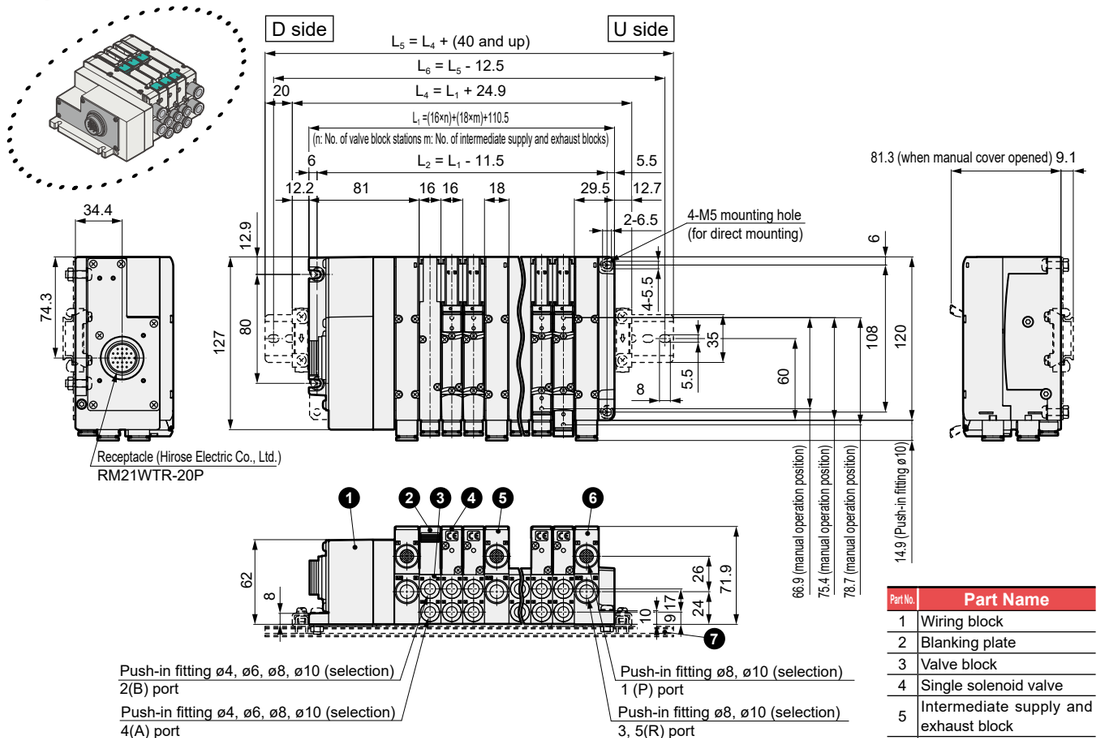
Dimensions diagram (multi-connector FA1□)

TVG1M



Part No.	Part Name
1	Wiring block
2	Blanking plate
3	Valve block
4	Single solenoid valve
5	Intermediate supply and exhaust block
6	End block
7	DIN Rail

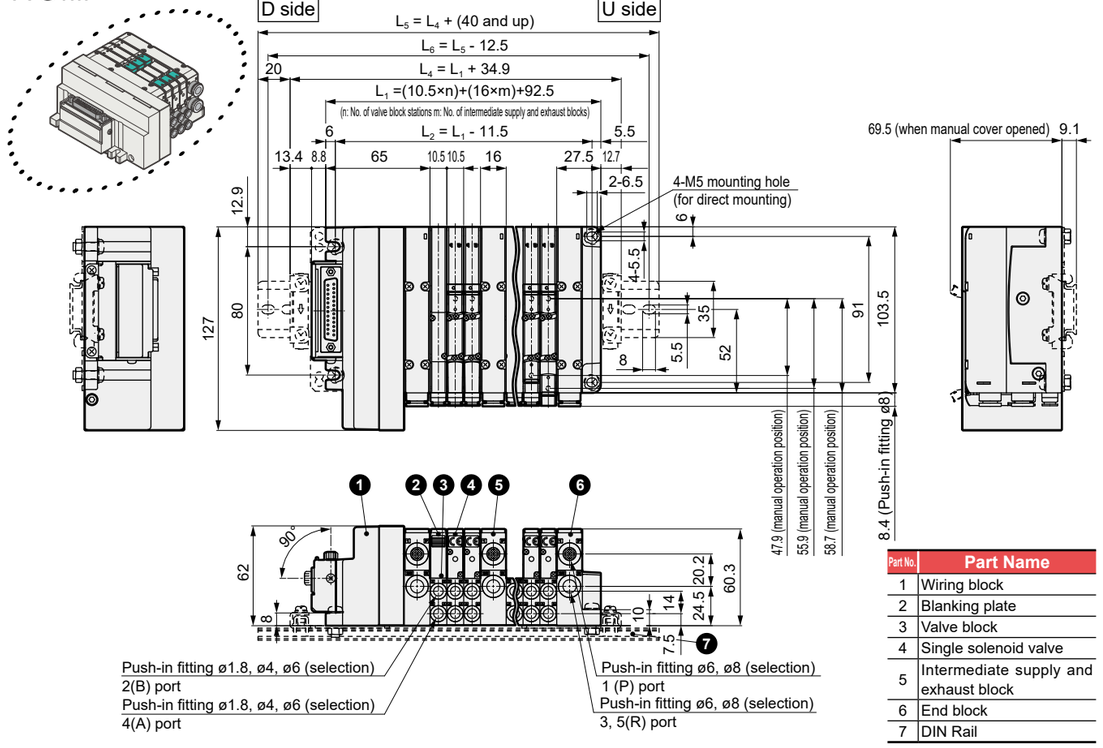
TVG2M



Part No.	Part Name
1	Wiring block
2	Blanking plate
3	Valve block
4	Single solenoid valve
5	Intermediate supply and exhaust block
6	End block
7	DIN Rail

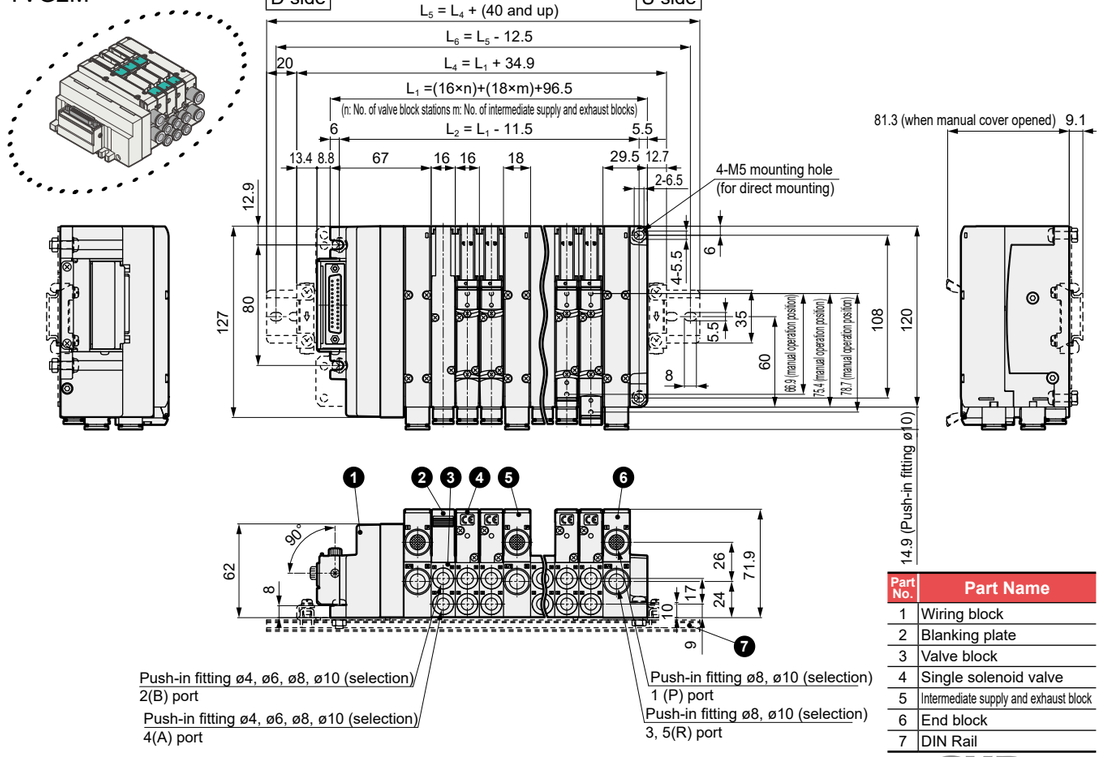
Dimensions diagram (D-sub-connector GA1□)

TVG1M



Part No.	Part Name
1	Wiring block
2	Blanking plate
3	Valve block
4	Single solenoid valve
5	Intermediate supply and exhaust block
6	End block
7	DIN Rail

TVG2M



Part No.	Part Name
1	Wiring block
2	Blanking plate
3	Valve block
4	Single solenoid valve
5	Intermediate supply and exhaust block
6	End block
7	DIN Rail

External Dimension Drawings

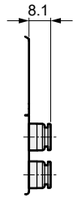
TVG1M

●Fitting straight

●ø1.8 (0ACS)

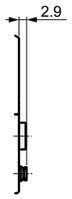
●ø4 (04CS)

●ø6 (06CS)

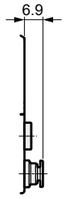


●Fitting straight, single plug

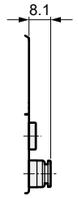
●ø1.8 (0ACA)



●ø4 (04CA)

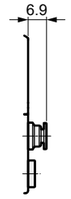


●ø6 06CA

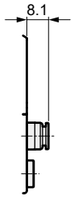


●ø1.8 (0ACF)

●ø4 (04CF)

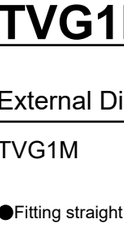


●ø6 (06CF)

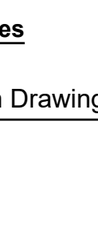


●L fitting (upward)

●ø1.8 (0ACU)



●ø4 (04CU)



●ø6 (06 CU)

●L fitting (downward)

●ø1.8 (0ACD)

●ø4 (04CD)

●ø6 06CD

●L fitting (upward), single plug

●ø1.8 (0ACB)

●ø4 (04CB)

●ø6 (06CB)

●ø1.8 (0ACG)

●ø4 (04CG)

●ø6 (06CG)

●L fitting (downward), single plug

●ø1.8 (0ACC)

●ø4 (04CC)

●ø6 (06CC)

●ø1.8 (0ACH)

●ø4 (04CH)

●ø6 (06CH)

External Dimension Drawings

TVG1M

●Fitting straight

●ø1/8" (03LS)

●ø5/32" (04LS)

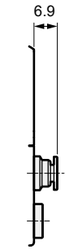
●Fitting straight, single plug

●ø1/8" (03LA)

●ø5/32" (04LA)

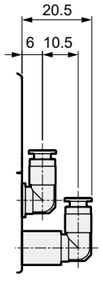
●ø1/8" (03LF)

●ø5/32" (04LF)

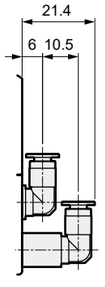


●L fitting (upward)

●ø1/8" (03LU)

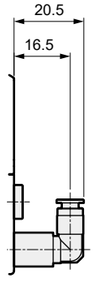


●ø5/32" (04LU)

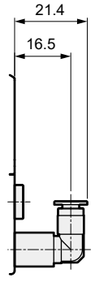


●L fitting (upward), single plug

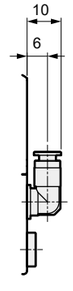
●ø1/8" (03LB)



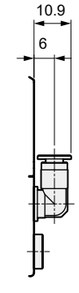
●ø5/32" (04LB)



●ø1/8" (03LG)



●ø5/32" (04LG)

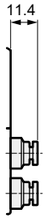


External Dimension Drawings

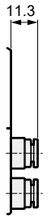
TVG2M

●Fitting straight

●ø4 (04CS)

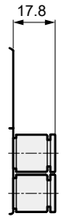


●ø6 (06CS)



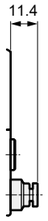
●ø8 (08CS)

●ø10 (10CS)

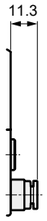


●Fitting straight, single plug

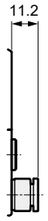
●ø4 (04CA)



●ø6 06CA



●ø8 08CA

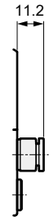


●ø10 (10CA)

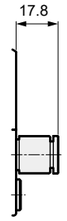
●ø4 (04CF)

●ø6 (06CF)

●ø8 (08CF)

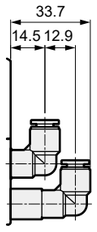


●ø10 (10CF)

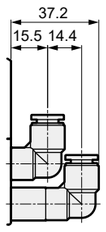


●L fitting (upward)

●ø6 (06 CU)

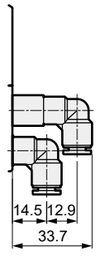


●ø8 (08CU)

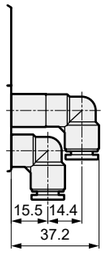


●L fitting (downward)

●ø6 06CD



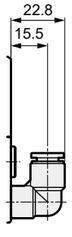
●ø8 08CD



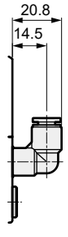
●L fitting (upward), single plug

●ø6 (06CB)

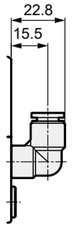
●ø8 (08CB)



●ø6 (06CG)

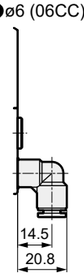


●ø8 (08CG)

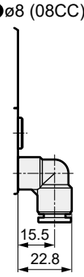


●L fitting (downward), single plug

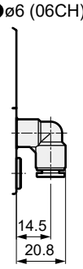
●ø6 (06CC)



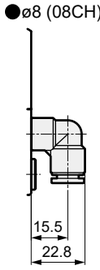
●ø8 (08CC)



●ø6 (06CH)



●ø8 (08CH)



External Dimension Drawings

TVG2M

●Fitting straight

●ø1/4" (06LS)

●ø5/16" (08LS)

●Fitting straight, single plug

●06LA ø1/4"

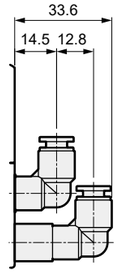
●ø5/16" (08LA)

●ø1/4" (06LF)

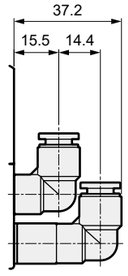
●ø5/16" (08LF)

●L fitting (upward)

●06LU ø1/4"

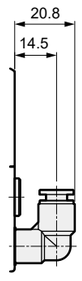


●ø5/16" (08LU)

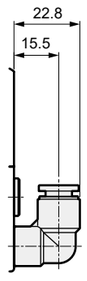


●L fitting (upward), single plug

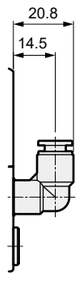
●ø1/4" (06LB)



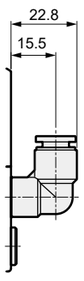
●ø5/16" (08LB)



●ø1/4" (06LG)



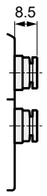
●ø5/16" (08LG)



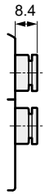
External Dimension Drawings

TVG1M Supply and exhaust block

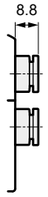
●Fitting straight
●ø6 (06CS)



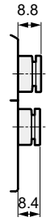
●ø8 (08CS)



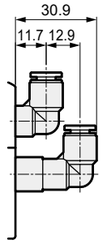
●Fitting straight
●ø5/16" (08LS)



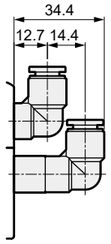
●Port P: ø5/16" (08XS)
Port R: ø8



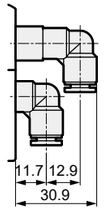
●L fitting (upward)
●ø6 (06 CU)



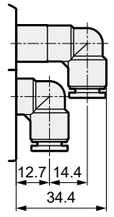
●ø8 (08CU)



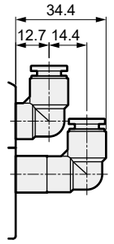
●L fitting (downward)
●ø6 06CD



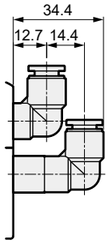
●ø8 08CD



●L fitting (upward)
●ø5/16" (08LU)



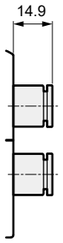
●Port P: ø5/16" (08XU)
Port R: ø8



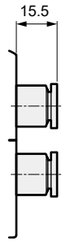
TVG2M Supply and exhaust block

●Fitting straight
●ø8 (08CS)

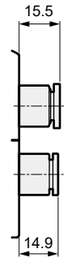
●ø10 (10CS)



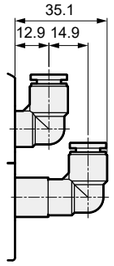
●Fitting straight
●ø3/8" (10LS)



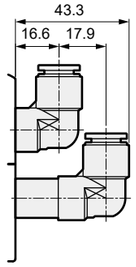
●Port P: ø3/8" (10XS)
Port R: ø10



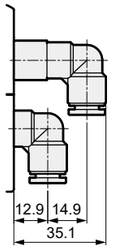
●L fitting (upward)
●ø8 (08CU)



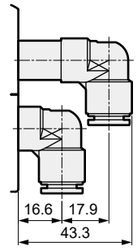
●ø10 (10 CU)



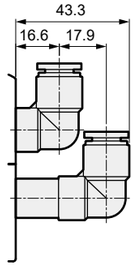
●L fitting (downward)
●ø08 (08CD)



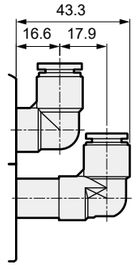
●ø10 (10CD)



●L fitting (upward)
●ø3/8" (10LU)



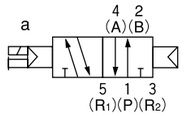
●Port P: ø3/8" (10XU)
Port R: ø10

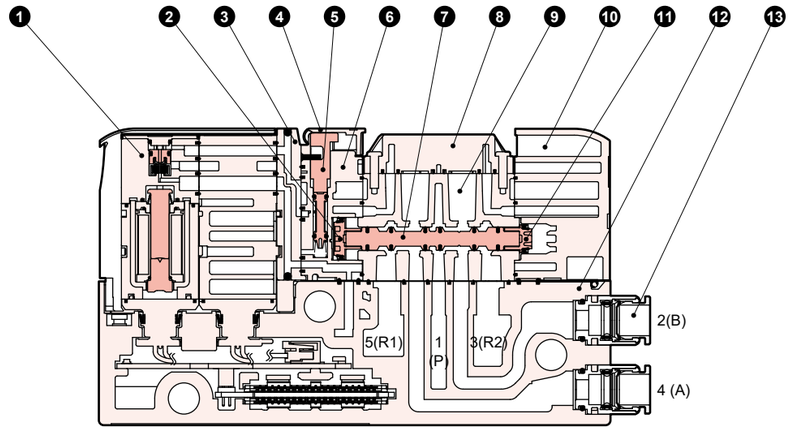


MEMO

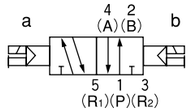
Internal Structure Diagram/Materials

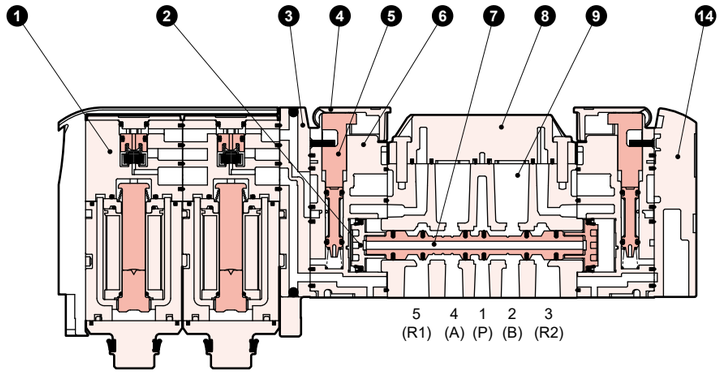
2-position single





● 2-position double





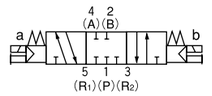
Main parts list

Part No.	Part Name	Material	Part No.	Part Name	Material
1	Coil assembly	–	8	Plate	Resin
2	Piston D assembly	–	9	Body	Aluminum alloy die-cast
3	Pilot plate	Resin	10	Piston chamber S	Resin
4	Manual protection cover	Resin	11	Piston S assembly	–
5	Manual Override	Resin	12	Valve block	Resin
6	Piston chamber	Resin	13	Cartridge push-in fitting	–
7	Spool assembly	–	14	Cap	Resin

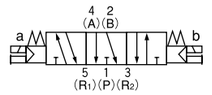
Internal Structure Diagram/Materials

3-position

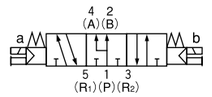
Closed center

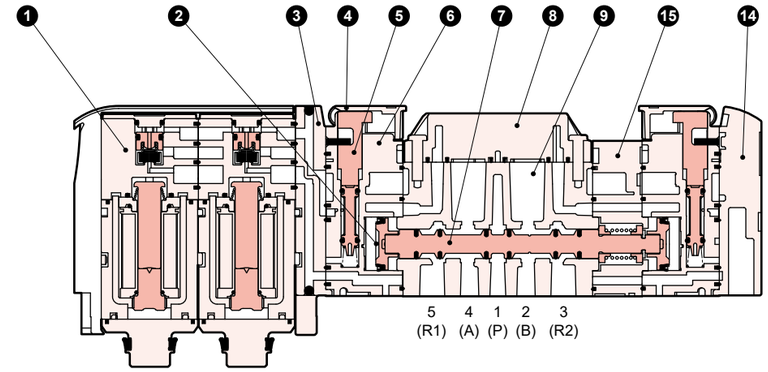


Exhaust center



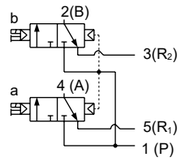
Pressure center

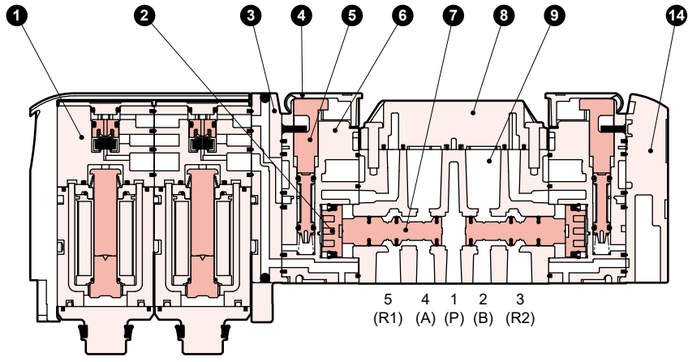




● Two 3-port valves integrated

A side valve: NC type B side valve: NC type



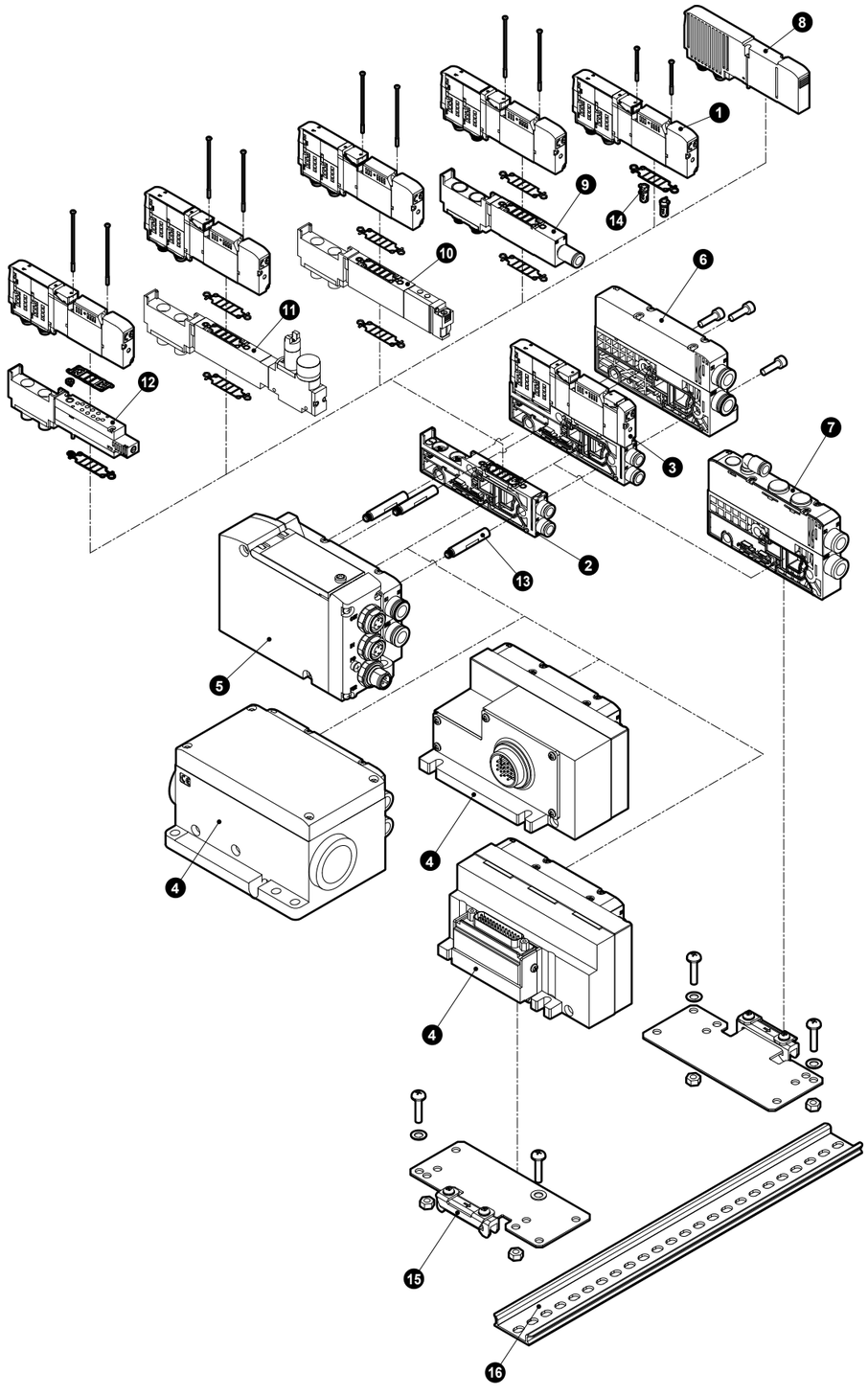


Main parts list

Part No.	Part Name	Material	Part No.	Part Name	Material
1	Coil assembly	–	9	Body	Aluminum alloy die-cast
2	Piston D assembly	–	10	Piston chamber S	Resin
3	Pilot plate	Resin	11	Piston S assembly	–
4	Manual protection cover	Resin	12	Valve block	Resin
5	Manual Override	Resin	13	Cartridge push-in fitting	–
6	Piston chamber	Resin	14	Cap	Resin
7	Spool assembly	–	15	Body block	Resin
8	Plate	Resin			

Block manifolds Configurations

As it can be freely assembled, it is easy to change the number of stations, perform maintenance, etc.



Part No.	Part Name	Model No. (Example)	Remarks	Page Listed
1	Discrete solenoid valve (for base mounting)	TVG1-1B00XX3-HP1	A wide range of solenoid valves is available. It is also possible to have solenoid valves of different solenoid positions mixed in the same manifold.	P. 17
2	Valve block	TVG1P-VB-06CS3	The block on which the solenoid valve is based. Mount according to the required number of stations of solenoid valves. However, the number of stations depends on the wiring method. (Refer to pages 7 and 63.) As option is selected, it is also possible to partition the flow path in the manifold.	P. 45
3	Valve block with solenoid valve	TVG1P-1B06CS3-HP1	–	P. 41
4	Wiring block (common terminal block) Multi-connector D-sub Connector	TVG1P-TB-08CS-EA1	These blocks provide electrical wiring to the manifold and provide the air and exhaust functions.	P. 39
5	Wiring block (serial transmission)	TVG1P-TB-08CS-JA1C		P. 39
6	End block	TVG1P-EB-08CS	Block that provides air supply and exhaust to the manifold. Mount the block on the opposite side of the wiring block.	P. 50
7	Intermediate supply and exhaust block	TVG1P-QB-08CS	Block that provides air supply and exhaust to the manifold. Use this when the number of valve stations increases, or when the supply flow rate shortage is a concern.	P. 51
8	Blanking plate	TVG1P-BP	Assembled with a spare valve block for use if a solenoid valve will be added later.	P. 54
9	Air supply spacer	TVG1P-P-06CS	Use this when supplying different pressures for each station.	P. 19
	(exhaust spacer)	TVG1P-R-06CS	Used for individual exhaust. Use this product to prevent misoperation due to increased exhaust capacity and exhaust lead-in.	P. 19
10	Spacer Pilot Check Valve	TVG1P-PC-	Use this to stop the cylinder midway and to prevent it from falling.	P. 21
11	Spacer regulator	TVG1P-SR-P-G1	Pressure can be adjusted individually for each station. Port P, A and B pressure reduction types are available.	P. 22
12	In-stop valve spacer	TVG1P-IS	The air supply can be shut off individually for each station.	P. 23
13	Tie rod	TVG1P-TR-05	TVG1 is available in sets of 3, and TVG2 is available in sets of 2.	P. 49
14	Check valve	TVG1P-CHECK-VALVE	Prevents cylinder malfunction (popping out phenomenon) caused by exhaust air lead-in.	P. 54
15	DIN rail mounting bracket kit	TVG1P-D	A direct mount manifold can be modified to DIN rail mount manifold.	P. 53
16	DIN Rail	N4GR-BAA200	For how to calculate the standard length, refer to page 118.	P. 53

Weight

TVG1

Part Name	Model No.	Weight (g)
Discrete solenoid valve (for base mounting)	TVG1-1B00XX3-HP1	55
	TVG1-2B00XX3-HP1	62
	TVG1-3/4/5B00XX3-HP1	65
	TVG1-A/B/CB00XX3-HP1	63
Blanking plate	TVG1P-BP	40
End block	TVG1P-EB-08CS	159
Valve block	TVG1P-VB-06CS3	31
Wiring block	TVG1P-TB-08CS-E ✳	518
	TVG1P-TB-08CS-F ✳	850
	TVG1P-TB-08CS-G ✳	707
	TVG1P-TB-08CS-J ✳	456
	TVG1P-TB-08CS-K ✳	280

TVG2

Part Name	Model No.	Weight (g)
Discrete solenoid valve (for base mounting)	TVG2-1B00XX3-HP1	94
	TVG2-2B00XX3-HP1	101
	TVG2-3/4/5B00XX3-HP1	110
	TVG2-A/B/CB00XX3-HP1	101
Blanking plate	TVG2P-BP	68
End block	TVG2P-EB-10CS	224
Valve block	TVG2P-VB-08CS3	66
Wiring block	TVG2P-TB-10CS-E ✳	580
	TVG2P-TB-10CS-F ✳	912
	TVG2P-TB-10CS-G ✳	769
	TVG2P-TB-10CS-J ✳	529
	TVG2P-TB-10CS-K ✳	356

Parts list

TVG1

Part Name		Model No.
ø1.8 Push-in fitting		4G1R-JOINT-C18
ø4 Push-in fitting		4G1R-JOINT-C4
ø6 Push-in fitting		4G1R-JOINT-C6
ø1.8 push-in L-fitting		4G1R-JOINT-CL18,CLL18
ø4push-in L fitting		4G1R-JOINT-CL4,CLL4
ø6 push-in L-fitting		4G1R-JOINT-CL6,CLL6
ø1/8" push-in fitting		4G1R-JOINT-C3N
ø5/32" push-in fitting		4G1R-JOINT-C4N
ø1/8" push-in L-fitting	*1	4G1R-JOINT-CL3N,CLL3N
ø5/32" L type push-in fitting	*1	4G1R-JOINT-CL4N,CLL4N
Plug Cartridge		4G1R-JOINT-CPG

*1: Custom Product.

TVG2

Part Name		Model No.
ø4 Push-in fitting		4G2R-JOINT-C4
ø6 Push-in fitting		4G2R-JOINT-C6
ø8 Push-in fitting		4G2R-JOINT-C8
ø10 Push-in fitting		TVG2P-JOINT-C10
ø6 push-in L-fitting		4G2R-JOINT-CL6,CLL6
ø8 push-in L fitting		4G2R-JOINT-CL8,CLL8
ø1/4" push-in fitting		4G2R-JOINT-C6N
ø5/16" push-in fitting		4G2R-JOINT-C8N
ø1/4" L type push-in fitting	*1	4G2R-JOINT-CL6N,CLL6N
ø5/16" push-in L-fitting	*1	4G2R-JOINT-CL8N,CLL8N
Plug Cartridge		4G2R-JOINT-CPG

*1: Custom Product.

Model No. Notation Method

Wiring block

10 mm Width	TVG1P	- T	B	-	08CS	-		JA4C
15 mm Width	TVG2P	- T	B	-	10CS	-		JA4C
(Valve width)	❶ Model No.		❷ Piping direction		❸ Connection Port Size		❹ Exhaust method / ❺ Pilot operated	❻ Electrical connections

Attached Parts

The tie rod fixing nut is built into the wiring block.

Rechargeable Battery Compatible Specification

● For use in the rechargeable battery manufacturing process, materials used for air path and sliding section are limited

✱✱ - ✱✱ - ✱✱ - P4

For details, please refer to P. 90.

❸ Connection Port Size

●: Standard compliance
○: Custom Product

Fitting	Port P/R	Code	❶ Model No. TVG1P	TVG2P
Metric fitting				
Push-in	ø6	06CS	●	
	ø8	08CS	●	●
	ø10	10CS		●
Push-in L-type upward	ø6	06CU	●	
	ø8	08CU	●	●
	ø10	10CU		●
Push-in L type downward	ø6	06CD	●	
	ø8	08CD	●	●
	ø10	10CD		●
*1 **Inch fitting**				
Push-in	ø5/16"	08LS	●	
	ø3/8"	10LS		●
Push-in L-type upward	ø5/16"	08LU	○	
	ø3/8"	10LU		○
*3 **Port P: Fittings Inch, port R: Metric fitting**				
Push-in	ø5/16" / ø8	08XS	●	
	ø3/8" / ø10	10XS		●
Push-in L-type upward	ø5/16" / ø8	08XU	○	
	ø3/8" / ø10	10XU		○
Plug				
Plug		00XX	●	●

*1: Select 08XS, 10XS, 08XU or 10XU when using a silencer with inch Fittings specifications. Fittings Port R and PR (for KZ) are metric.
*2: ❺Pilot, K, KZ and 00XX cannot be selected together.
*3: Cannot be selected together with exhaust method X.

❷ Piping direction

Code	Content
B	Side piping

❹ Exhaust method

Code	Content
No Symbol	Centralized Exhaust (port R is a push-in fitting)
*1 X	Exhaust is open to atmosphere, with built-in silencer (Port R is sealed.)

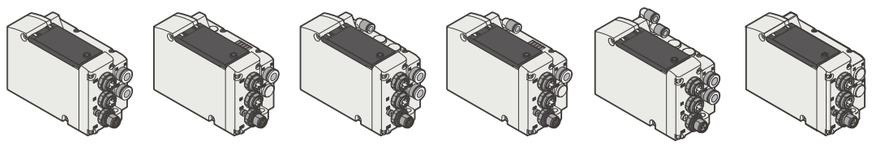
*1: ❸X is not available for port size "00XX", "□□X□".
*2: X is not available for pilot KZ.

❺ Pilot operated

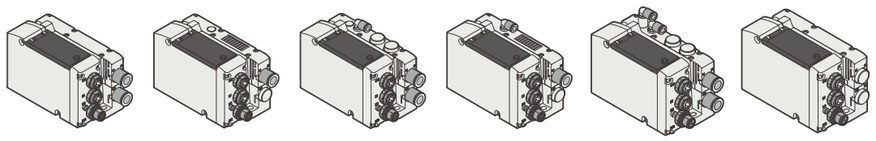
Code	Content
No Code	Internal pilot
*1, *2 K	External pilot
*1, *2 KZ	External pilot (PA/PR separated)

*1: Cannot be selected for❸port size "00XX".
*2: The external pilot port is an ø6 One-touch Fitting, and in the case of □□L□, it will be an ø5/32 inch fitting.

● TVG1P-TB-08CS ● TVG1P-TB-08CS-X ● TVG1P-TB-08CS-K ● TVG1P-TB-08CS-XK ● TVG1P-TB-08CS-KZ ● TVG1P-TB-00XX



● TVG2P-TB-10CS ● TVG2P-TB-10CS-X ● TVG2P-TB-10CS-K ● TVG2P-TB-10CS-XK ● TVG2P-TB-10CS-KZ ● TVG2P-TB-00XX



❻ Electrical connections

• Reduced wiring connection

Content	Code
Common terminal block (M3 thread)	EA1
Multi-connector	FA1
D-sub Connector	GA1

*1:NPN or PNP can be used.

• Serial transmission

Communication protocol		Output Format	Number of points	Code
DeviceNet		NPN	32 points Output	JA1C
		PNP		JA1D
CC-Link Ver.1.10		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	ClassA	NPN		JA9C
		PNP		JA9D
	ClassB	NPN		JA9G
		PNP		JA9H
IO-Link Wireless		NPN		JB1C
		PNP		JB1D

How to order (Serial Transmission Device Unit)

Model No. Notation Method

Serial transmission device unit

	OPP8	- A	2EC
	Model No.		❶ Serial transmission

❶ Serial transmission

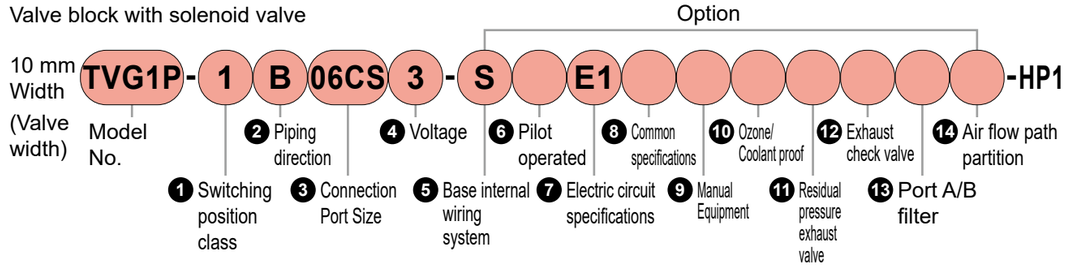
Communication protocol		Output Format	Number of points	Code	
DeviceNet		NPN	32 points Output	2D	
		PNP		2D-P	
CC-LINK		NPN		2G	
		PNP		2G-P	
EtherCAT		NPN		2EC	
		PNP		2EC-P	
EtherNet/IP		NPN		2EN	
		PNP		2EN-P	
CC-Link IEF Basic		NPN		2EB	
		PNP		2EB-P	
PROFINET		NPN		2EP	
		PNP		2EP-P	
CC-Link IE Field		NPN		2EF	
		PNP		2EF-P	
CC-Link IE TSN		NPN		2TG	
		PNP		2TG-P	
IO-Link	ClassA	NPN		2KC-A	
		PNP		2KC-PA	
	ClassB	NPN		2KC-B	
		PNP		2KC-PB	
IO-Link Wireless		NPN		2WK	
		PNP		2WK-P	

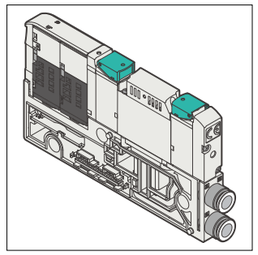
Attached Parts

- OPP fixing bolts 2pcs.
- Drip-proof gasket 1pc.

Model No. Notation Method

Valve block with solenoid valve





1 Switching position class

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 valve side: Normally closed/B valve side: Normally Closed
*1 B	Two valves integrated	A valve side: Normally open/B valve side: Normally Open
*1 C		A valve side: Normally closed/B valve side: Normally Open
*2 Z	With blanking plate	

*1: Only compatible with internal pilot. Dimensions of the Dimensions diagram are the same as those of 2-position double.
*2: "-HP1" is not included in the model No. when Z is selected.

2 Piping direction

Code	Content
B	Side piping

3 Port size (port A/B)

• Metric fitting

Fitting	Port A/B		Code	
Push-in	ø1.8		0ACS	*3
	ø4		04CS	
	ø6		06CS	
Push-in L-type upward *2	ø1.8		0ACU	*3
	ø4		04CU	
	ø6		06CU	
Push-in L type downward	ø1.8		0ACD	*3
	ø4		04CD	
	ø6		06CD	
Fitting	Single side plug specifications *1		Code	
	Port A	Port B		
Push-in	ø1.8	Plug	0ACA	*3
	ø4		04CA	
	ø6		06CA	
	Plug	ø1.8	0ACF	*3
		ø4	04CF	
		ø6	06CF	
Push-in L-type upward *2	ø1.8	Plug	0ACB	*3
	ø4		04CB	
	ø6		06CB	
	Plug	ø1.8	0ACG	*3
		ø4	04CG	
		ø6	06CG	
Push-in L type downward	ø1.8	Plug	0ACC	*3
	ø4		04CC	
	ø6		06CC	
	Plug	ø1.8	0ACH	*3
		ø4	04CH	
		ø6	06CH	

• Inch fitting

Fitting	Port A/B		Code	
Push-in	ø1/8"		03LS	
	ø5/32"		04LS	
Push-in L-type upward *2	ø1/8"		C3LU	*4
	ø5/32"		04LU	*4
Fitting	Single side plug specifications *1		Code	
	Port A	Port B		
Push-in	ø1/8"	Plug	03LA	
	ø5/32"		04LA	
	Plug	ø1/8"	03LF	
		ø5/32"	04LF	
Push-in L-type upward *2	ø1/8"	Plug	03LB	*4
	ø5/32"		04LB	*4
	Plug	ø1/8"	03LG	*4
		ø5/32"	04LG	*4

*1: Ports A and B are available with one-sided plug specifications for 2-position single only.
*2: 3-position is not available for L-type upward push-in fittings.
*3: The compatible tubing for ø1.8 One-touch Fitting is "UP-9402-**".
*4: Custom Product.

4 Voltage

Code	Content
3	24 VDC

How to order (valve block with solenoid valve)

Rechargeable Battery Compatible Specification For details, please refer to P. 90.

● For use in the rechargeable battery manufacturing process, materials used for air path and sliding section are limited

✱✱ - ✱✱ - ✱✱ - P4

• Tie rod is not included, so order separately.
Refer to page 49 for details. The gasket between blocks is included.

5 Base internal wiring system *1

Code	Content
Blank	(double wiring)
S	Single solenoid, Dedicated wiring

*1:Blank = Double solenoid wiring regardless of the type of valve used. If a single solenoid is mounted, an empty number for one solenoid will be generated. S = Dedicated for single solenoid. Cannot be selected with 2-position double solenoid, two 3-port valves integrated type and 3-position.

6 Pilot operated *1

Code	Content
Blank	Internal pilot
K	External pilot

*1:❶Solenoid position "Z" cannot be selected.

7 Electrical circuit specification

* Multiple selection is not possible.

Code	Content
Blank	With surge suppressor and indicator lamp
E1	Low exoergic/energy saving circuit (surgeless specifications)
E2	Surgeless

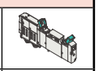
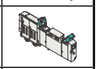
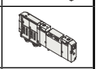
*1: The combination of "E2" and PNP specifications is Custom Product.

8 Common specifications

Code	Content
Blank	NPN/plus common specifications
P	PNP/minus common specifications

*1: Multiple selection is not possible.
*2: Select the same polarity as that of the wiring block.

9 Manual Override *1

Code	Content	
Blank	Locking/non-locking common, With misoperation prevention cover	
M1	Non-locking, with misoperation prevention cover	
M2	Locking/non-locking common, Tool operated, without cover	
M3	Non-locking, tool operation	

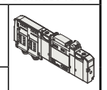
*1:❶Solenoid position "Z" cannot be selected.

10 Ozone/Coolant proof *1

Code	Content
Blank	Standard specifications
A	Ozone/Coolant proof (Main valve fluorine specification)

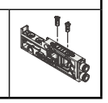
*1: ❶Solenoid position "Z" cannot be selected.

11 Residual pressure exhaust valve

Code	Content	
Blank	Without residual pressure exhaust valve	
*1, *2 Y1	Non-locking With residual pressure exhaust valve	
*1, *2 Y2	Locking With residual pressure exhaust valve	

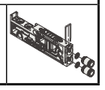
*1: ❶Solenoid position "3" and "4" only are supported.
*2: ❾Only the manual override "M2" and "M3" are supported.

12 Exhaust check valve

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

*1: ❶Solenoid positions "3" and "5" cannot be selected. Refer to page 163 for details on the type with exhaust check valve.

13 Port A/B filter

Code	Content	
Blank	None	
F	Port A/B Filter integrated	

*1: A filter is built into port P.

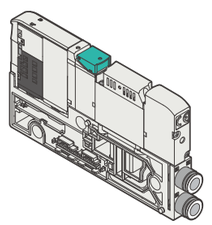
14 Air flow path partition

See P. 46 for details.

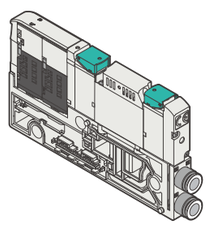
Code	Content
Blank	None
T	P/R/PA/PR blocked
U	P/R blocked, PA/PR through
V	P blocked, R/PA/PR through
W	R blocked, P/PA/PR through

*1: The right flow path is cut off when port A/B is facing forward.

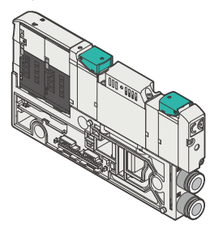
● 2-position single



● 2-position double
Two 3-port valves integrated

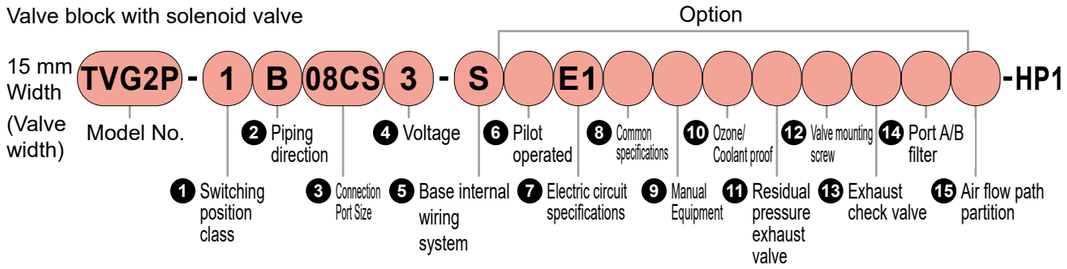


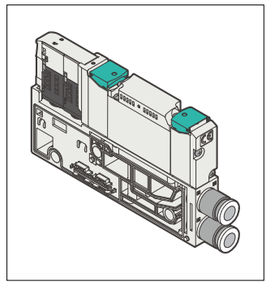
● 3-position exhaust center
3-position pressure center
3-position closed center



Model No. Notation Method

Valve block with solenoid valve





❶ Switching position class

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 valve side: Normally closed/B valve side: Normally Closed
*1 B	Two valves	A valve side: Normally open/B valve side: Normally Open
*1 C	integrated	A valve side: Normally closed/B valve side: Normally Open
*2 Z	With blanking plate	

*1: Only compatible with internal pilot. Dimensions of the Dimensions diagram are the same as those of 2-position double.
*2: "-HP1" is not included in the model No. when Z is selected.

❷ Piping direction

Code	Content
B	Side piping

❸ Port size (port A/B)

• Metric fitting

Fitting	Port A/B		Code
Push-in	ø4		04CS
	ø6		06CS
	ø8		08CS
	ø10		10CS
Push-in L-type upward *2	ø6		06CU
	ø8		08CU
Push-in L type downward	ø6		06CD
	ø8		08CD
Fitting	Single side plug specifications		Code
	Port A	Port B	
Push-in	ø4	Plug	04CA
	ø6		06CA
	ø8		08CA
	ø10		10CA
	Plug	ø4	04CF
		ø6	06CF
		ø8	08CF
		ø10	10CF
Push-in L-type upward *2	ø6	Plug	06CB
	ø8		08CB
	Plug	ø6	06CG
		ø8	08CG
Push-in L type downward	ø6	Plug	06CC
	ø8		08CC
	Plug	ø6	06CH
		ø8	08CH

• Inch fitting

Fitting	Port A/B		Code	
Push-in	ø1/4"		06LS	
	ø5/16"		08LS	
Push-in L-type upward *2	ø1/4"		06LU	*3
	ø5/16"		08LU	*3
Fitting	Single side plug specifications		Code	
	Port A	Port B		
Push-in	ø1/4"	Plug	06LA	
	ø5/16"		08LA	
	Plug	ø1/4"	06LF	
		ø5/16"	08LF	
Push-in L-type upward *2	ø1/4"	Plug	06LB	*3
	ø5/16"		08LB	*3
	Plug	ø1/4"	06LG	*3
		ø5/16"	08LG	*3

*1: Ports A and B are available with one-sided plug specifications for 2-position single only.
*2: 3-position is not available for L-type upward push-in fittings.
*3: Custom Product.

❹ Voltage

Code	Content
3	24 VDC

❺ Base internal wiring system *1

Code	Content
No Code	(double wiring)
S	Single solenoid dedicated wiring

*1: Blank = Double solenoid wiring regardless of the type of valve used. If a single solenoid is mounted, an empty number for one solenoid will be generated.
S = Dedicated for single solenoid. Cannot be selected with 2-position double solenoid, two 3-port valves integrated type and 3-position.

How to order (valve block with solenoid valve)

Rechargeable Battery Compatible Specification For details, please refer to P. 90.

● For use in the rechargeable battery manufacturing process, materials used for air path and sliding section are limited

✱✱ - ✱✱ - ✱✱ - **P4**

• Tie rod is not included, so order separately.
Refer to page 49 for details. The gasket between blocks is included.

❻ Pilot operated *1

Code	Content
Blank	Internal pilot
K	External pilot

*1: ❶Solenoid position "Z" cannot be selected.

❼ Electrical circuit specification *

Multiple selection is not possible.

Code	Content
Blank	With surge suppressor and indicator lamp
E1	Low exoergic/energy saving circuit (surgeless specifications)
E2	Surgeless

*1: The combination of "E2" and PNP specifications is Custom Product.

❽ Common specifications

Code	Content
Blank	NPN/plus common specifications
P	PNP/minus common specifications

*1: Multiple selection is not possible.
*2: Select the same polarity as that of the wiring block.

❾ Manual Override *1

Code	Content	
Blank	Locking/non-locking common, With misoperation prevention cover	
M1	Non-locking, With misoperation prevention cover	
M2	Locking/non-locking common, Tool operated, without cover	
M3	Non-locking, tool operation, Without cover	

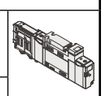
*1: ❶Solenoid position "Z" cannot be selected.

❿ Ozone/Coolant proof *1

Code	Content
Blank	Standard specifications
A	Ozone/Coolant proof (Main valve fluorine specification)

*1: ❶Solenoid position "Z" cannot be selected.

⓫ Residual pressure exhaust valve

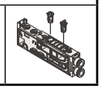
Code	Content	
Blank	Without residual pressure exhaust valve	
*1, *2 Y1	Non-locking With residual pressure exhaust valve	
*1, *2 Y2	Locking With residual pressure exhaust valve	

*1: ❶Solenoid position "3" and "4" only are supported.
*2: ❾Only the manual override "M2" and "M3" are supported.

⓬ Valve mounting screw

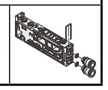
Code	Content
Blank	With plus/minus Pan head machine screw
J	Hexagon Socket Head Cap Screw

⓭ Exhaust check valve

Code	Content	
Blank	None	
H	With exhaust check valve	

*1: ❶Solenoid positions "3" and "5" cannot be selected. Refer to page 163 for details on the type with exhaust check valve.

⓮ Port A/B filter

Code	Content	
Blank	None	
F	Port A/B filter built in	

*1: A filter is built into port P.

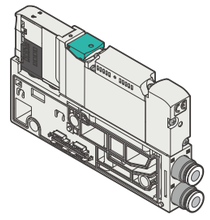
⓯ Air flow path partition

For details P. 48 details.

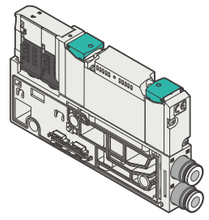
Code	Content
Blank	None
T	P/R/PA/PR blocked
U	P/R blocked, PA/PR through
V	P blocked, R/PA/PR through
W	R blocked, P/PA/PR through

*1: The right flow path is cut off when port A/B is facing forward.

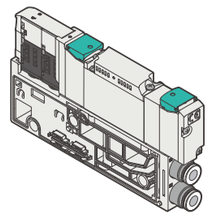
2-position single



● 2-position double
Two 3-port valves integrated



● 3-position exhaust center
3-position pressure center
3-position closed center



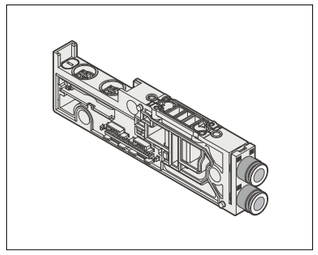
Model No. Notation Method

Valve block

10 mm Width (Valve width)

TVG1P - V **B** - **06CS** **3** - [Option] [Option] [Option] [Option] [Option]

- TVG1P: Model No.
- B: ❶ Piping direction
- 06CS: ❷ Connection Port Size
- 3: ❸ Voltage
- Option: ❹ Base internal wiring system / ❺ Electric circuit specifications / ❻ Common specifications / ❼ Port A/B filter / ❽ Air flow path partition



❶ Piping direction

Code	Content
B	Side piping

❷ Port size (port A/B)

• Metric fitting

Fitting	Port A/B		Code	
Push-in	ø1.8		0ACS	*3
	ø4		04CS	
	ø6		06CS	
Push-in L-type upward *2	ø1.8		0ACU	*3
	ø4		04CU	
	ø6		06CU	
Push-in L type downward	ø1.8		0ACD	*3
	ø4		04CD	
	ø6		06CD	
Fitting	Single side plug specifications		Code	
	Port A	Port B		
Push-in	ø1.8	Plug	0ACA	*3
	ø4		04CA	
	ø6		06CA	
	Plug	ø1.8	0ACF	*3
		ø4	04CF	
		ø6	06CF	
Push-in L-type upward *2	ø1.8	Plug	0ACB	*3
	ø4		04CB	
	ø6		06CB	
	Plug	ø1.8	0ACG	*3
		ø4	04CG	
		ø6	06CG	
Push-in L type downward	ø1.8	Plug	0ACC	*3
	ø4		04CC	
	ø6		06CC	
	Plug	ø1.8	0ACH	*3
		ø4	04CH	
		ø6	06CH	

• Inch fitting

Fitting	Port A/B		Code	
Push-in	ø1/8"		03LS	
	ø5/32"		04LS	
Push-in L-type upward *2	ø1/8"		C3LU	*4
	ø5/32"		04LU	*4
Fitting	Single side plug specifications		Code	
	Port A	Port B		
Push-in	ø1/8"	Plug	03LA	
	ø5/32"		04LA	
	Plug	ø1/8"	03LF	
		ø5/32"	04LF	
Push-in L-type upward *2	ø1/8"	Plug	03LB	*4
	ø5/32"		04LB	*4
	Plug	ø1/8"	03LG	*4
		ø5/32"	04LG	*4

*1: Ports A and B are available with one-sided plug specifications for 2-position single only.
*2: 3-position is not available for L-type upward push-in fittings.
*3: The compatible tubing for ø1.8 One-touch Fitting is "UP-9402-**".
*4: Custom Product.

❸ Voltage

Code	Content
3	24 VDC

❹ Base internal wiring system *1

Code	Content
Blank	(double wiring)
S	Single solenoid dedicated wiring

*1:Blank = Double solenoid wiring regardless of the type of valve used. If a single solenoid is mounted, an empty number for one solenoid will be generated.
S = Dedicated for single solenoid. Cannot be selected with 2-position double solenoid, two 3-port valves integrated type and 3-position.

Rechargeable Battery Compatible Specification For details, please refer to P. 90.

● For use in the rechargeable battery manufacturing process, materials used for air path and sliding section are limited

✱✱ - ✱✱ - ✱✱ - **P4**

• Tie rod is not included, so order separately.
Refer to page 49 for details. The gasket between blocks is included.

❺ Electrical circuit specification

*Multiple selection is not possible.

Code	Content
Blank	With surge suppressor and indicator lamp
E1	Low exoergic/energy saving circuit (surgeless specifications)
E2	Surgeless

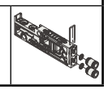
*1: The combination of "E2" and PNP specifications is Custom Product.

❻ Common specifications

Code	Content
Blank	NPN/plus common specifications
P	PNP/minus common specifications

*1: Multiple selection is not possible.
*2: Select the same polarity as that of the wiring block.

❼ Port A/B filter

Code	Content	
Blank	None	
F	Port A/B filter built in	

*1: A filter is built into port P.

❽ Air flow path partition

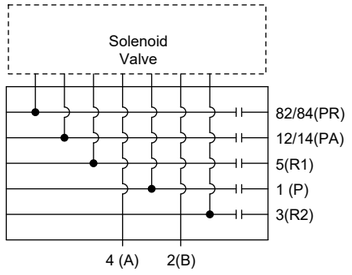
Refer to the following for details.

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

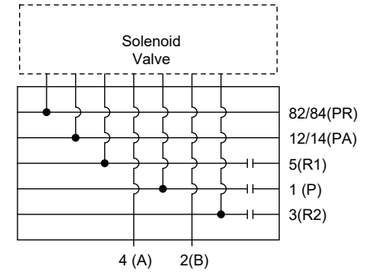
*1: The right flow path is cut off when port A/B is facing forward.

Air flow path partition

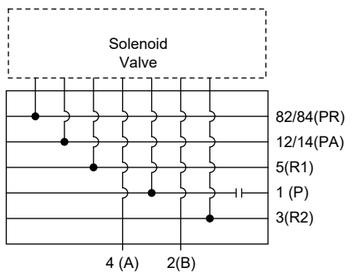
● Discrete valve block circuit diagram (T)



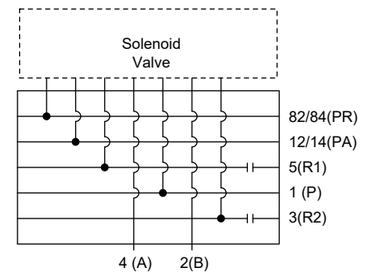
● Discrete valve block circuit diagram (U)



● Discrete valve block circuit diagram (V)



● Discrete valve block circuit diagram (W)



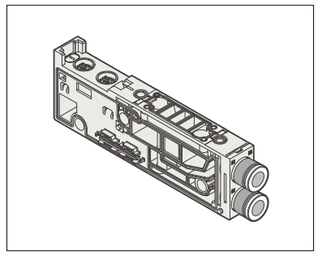
Model No. Notation Method

Valve block

15 mm Width (Valve width)

TVG2P - V B - 06CS 3 - [ ][ ][ ][ ][ ] (Option)

- TVG2P: Model No.
- B: ❶ Piping direction
- 06CS: ❷ Connection Port Size
- 3: ❸ Voltage
- [ ]: ❹ Base internal wiring system
- [ ]: ❺ Electric circuit specifications
- [ ]: ❻ Common specifications
- [ ]: ❼ Port A/B filter
- [ ]: ❽ Air flow path partition



❶ Piping direction

Code	Content
B	Side piping

❷ Port size (port A/B)

• Metric fitting

Fitting	Port A/B	Code
Push-in	ø4	04CS
	ø6	06CS
	ø8	08CS
	ø10	10CS
Push-in L-type upward *2	ø6	06CU
	ø8	08CU
Push-in L type downward	ø6	06CD
	ø8	08CD

Fitting	Single side plug specifications		Code
	Port A	Port B	
Push-in	ø4	Plug	04CA
	ø6		06CA
	ø8		08CA
	ø10		10CA
	Plug	ø4	04CF
		ø6	06CF
		ø8	08CF
		ø10	10CF
Push-in L-type upward *2	ø6	Plug	06CB
	ø8		08CB
	Plug	ø6	06CG
		ø8	08CG
Push-in L type downward	ø6	Plug	06CC
	ø8		08CC
	Plug	ø6	06CH
		ø8	08CH

• Inch fitting

Fitting	Port A/B	Code	
Push-in	ø1/4"	06LS	
	ø5/16"	08LS	
Push-in L-type upward *2	ø1/4"	06LU	*3
	ø5/16"	08LU	*3

Fitting	Single side plug specifications		Code	
	Port A	Port B		
Push-in	ø1/4"	Plug	06LA	
	ø5/16"		08LA	
	Plug	ø1/4"	06LF	
		ø5/16"	08LF	
Push-in L-type upward *2	ø1/4"	Plug	06LB	*3
	ø5/16"		08LB	*3
	Plug	ø1/4"	06LG	*3
		ø5/16"	08LG	*3

*1: Ports A and B are available with one-sided plug specifications for 2-position single only.
*2: 3-position is not available for L-type upward push-in fittings.
*3: Custom Product.

❸ Voltage

Code	Content
3	24 VDC

❹ Base internal wiring system *1

Code	Content
No Code	(double wiring)
S	Single solenoid dedicated wiring

*1: Blank = Double solenoid wiring regardless of the type of valve used. If a single solenoid is mounted, an empty number for one solenoid will be generated.
S = Dedicated for single solenoid. Cannot be selected with 2-position double solenoid, two 3-port valves integrated type and 3-position.

Rechargeable Battery Compatible Specification For details, please refer to P. 90.

● For use in the rechargeable battery manufacturing process, materials used for air path and sliding section are limited

✱✱ - ✱✱ - ✱✱ - **P4**

• Tie rod is not included, so order separately.
Refer to page 49 for details. The gasket between blocks is included.

❺ Electrical circuit specification *

Multiple selection is not possible.

Code	Content
Blank	With surge suppressor and indicator lamp
E1	Low exoergic/energy saving circuit (surgeless specifications)
E2	Surgeless

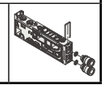
*1: The combination of "E2" and PNP specifications is Custom Product.

❻ Common specifications

Code	Content
Blank	NPN/plus common specifications
P	PNP/minus common specifications

*1: Multiple selection is not possible.
*2: Select the same polarity as that of the wiring block.

❼ Port A/B filter

Code	Content	
Blank	None	
F	Port A/B filter built in	

*1: A filter is built into port P.

❽ Air flow path partition

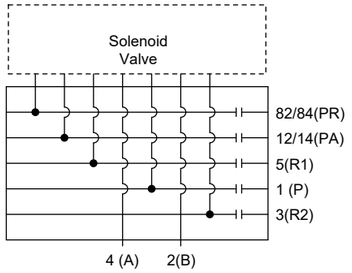
Refer to the bottom for details.

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

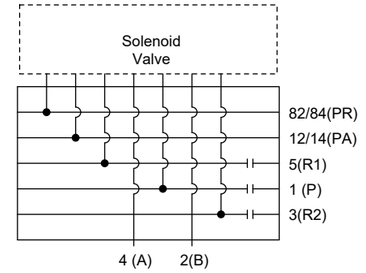
*1: The right flow path is cut off when port A/B is facing forward.

Air flow path partition

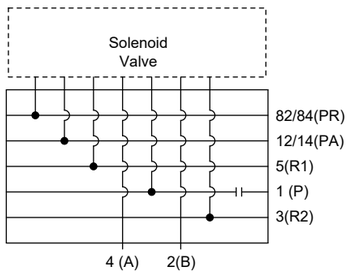
● Discrete valve block circuit diagram (T)



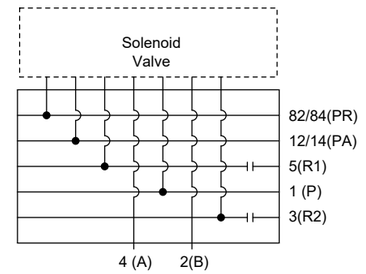
● Discrete valve block circuit diagram (U)



● Discrete valve block circuit diagram (V)



● Discrete valve block circuit diagram (W)



Model No. Notation Method

Tie rod

●For valve block

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

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

❶ Model No. ❷ Station No.

●For intermediate supply and exhaust block

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

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

●For valve block expansion

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

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

*1: TVG1P is a 3-piece set and TVG2P is a 2-piece set.

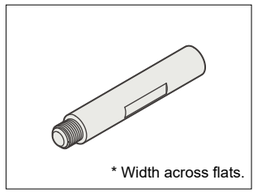
❷ Station No.

Code	Content
02	For 2 stations
03	For 3 stations
04	For 4 stations
05	For 5 stations
06	For 6 stations
07	For 7 stations
08	For 8 stations
09	For 9 stations
10	For 10 stations
11	For 11 stations
12	For 12 stations
13	For 13 stations

Code	Content
14	For 14 stations
15	For 15 stations
16	For 16 stations
17	For 17 stations
18	For 18 stations
19	For 19 stations
20	For 20 stations
21	For 21 stations
22	For 22 stations
23	For 23 stations
24	For 24 stations

Regarding expansion

- Manifold can expand by 3 stations with 2 to 17 stations. Up to three stations can be expanded in total: valve block and intermediate supply and exhaust block. When increasing 18 or more stations of manifolds, use a tie rod that matches the station No. after the increase.
- Fix the tie rod for station expansion/tie rod for intermediate supply and exhaust onto the wiring block. If installed on the end block side, it may not be able to be assembled correctly.



* Width across flats.

Model No. Notation Method

End block (U side)

A hexagon socket head cap screw for tie rod tightening and a gasket between the block are included.

10 mm Width **TVG1P - E B - 08CS -** ( ) ( )

15 mm Width **TVG2P - E B - 10CS -** ( ) ( )

(Valve width) ❶ Model No. ❷ Piping direction ❸ Connection Port Size ❹ Exhaust method ❺ Pilot Type

Rechargeable Battery Compatible Specification

For details, please refer to P. 90.

● For use in the rechargeable battery manufacturing process, materials used for air path and sliding section are limited

✱✱ - ✱✱ - ✱✱ - **P4**

❸ Connection Port Size

●: Standard compliance ○: Custom Product

Fitting	Port P/R	Code	❶ Model No. TVG1P	TVG2P
Metric fitting				
Push-in	ø6	06CS	●	
	ø8	08CS	●	●
	ø10	10CS		●
Push-in L-type upward	ø6	06CU	●	
	ø8	08CU	●	●
	ø10	10CU		●
Push-in L type downward	ø6	06CD	●	
	ø8	08CD	●	●
	ø10	10CD		●
*1 **Inch fitting**				
Push-in	ø5/16"	08LS	●	
	ø3/8"	10LS		●
Push-in L-type upward	ø5/16"	08LU	○	
	ø3/8"	10LU		○

*3 **Port P: Fittings Inch, port R: Metric fitting**					
Push-in	ø5/16"	ø8	08XS	●	
	ø3/8"	ø10	10XS		●
Push-in L-type upward	ø5/16"	ø8	08XU	○	
	ø3/8"	ø10	10XU		○
Plug					
Plug			00XX	●	●

*1: Select 08XS, 10XS, 08XU or 10XU when using a silencer with inch Fittings specifications. Fittings Port R and PR (for KZ) are metric.
*2: ❺Pilot, K, KZ and 00XX cannot be selected together.
*3: Cannot be selected together with exhaust method X.

❷ Piping direction

Code	Content
B	Side piping

❹ Exhaust method

Code	Content
Blank	Centralized Exhaust (port R is a push-in fitting)
*1 X	Exhaust is open to atmosphere, with built-in silencer (Port R is sealed.)

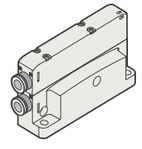
*1: For ❸port size "00XX" and "□□X□", X cannot be selected.
*2: X is not available for pilot KZ.

❺ Pilot operated

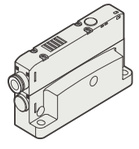
Code	Content
Blank	Internal pilot
*1, *2 K	External pilot
*1, *2 KZ	External pilot (PA/PR separated)

*1: ❸Cannot be selected for port size "00XX".
*2: The external pilot port is an ø6 One-touch Fitting, and in the case of □□L□, it will be an ø5/32 inch fitting.

● TVG1P-EB-08CS



● TVG1P-EB-08CS-X



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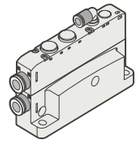

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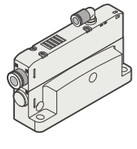

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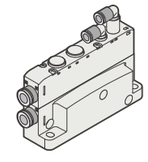
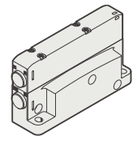
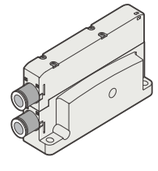


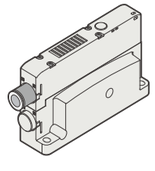
● TVG1P-EB-00XX



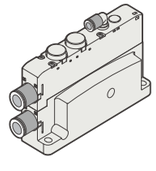
● TVG2P-EB-10CS



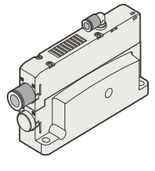
● TVG2P-EB-10CS-X



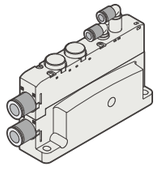
● TVG2P-EB-10CS-K



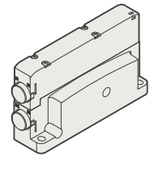
● TVG2P-EB-10CS-XK



● TVG2P-EB-10CS-KZ



● TVG2P-EB-00XX



Model No. Notation Method

Intermediate supply and exhaust block

The intermediate supply and exhaust block can be installed between the valve block and the valve block. These blocks cannot be adjacent to each other. In addition, this block cannot be adjacent to an end block or wiring block. The electrical internal wiring and the P.R.PA.PR port connect to the adjacent blocks.

10 mm Width: **TVG1P - Q B - 08CS -** ❶ ❺
15 mm Width: **TVG2P - Q B - 10CS -** ❹ ❺
(Valve width)

❶ Model No. ❷ Piping direction ❸ Connection Port Size ❹ Exhaust method ❺ Pilot operated

Rechargeable Battery Compatible Specification

For details, please refer to P. 90.

● For use in the rechargeable battery manufacturing process, materials used for air path and sliding section are limited

✱✱ - ✱✱ - ✱✱ - **P4**

❸ Connection Port Size

●: Standard compliance
○: Custom Product

Fitting	Port P/R	Code	❶ Model No. TVG1P	TVG2P
Metric fitting				
Push-in	ø6	06CS	●	
	ø8	08CS	●	●
	ø10	10CS		●
Push-in L-type upward	ø6	06CU	●	
	ø8	08CU	●	●
	ø10	10CU		●
Push-in L type downward	ø6	06CD	●	
	ø8	08CD	●	●
	ø10	10CD		●
*1 **Inch fitting**				
Push-in	ø5/16"	08LS	●	
	ø3/8"	10LS		●
Push-in L-type upward	ø5/16"	08LU	○	
	ø3/8"	10LU		○

*3 **Port P: Fittings Inch, port R: Metric fitting**					
Fitting	P Port	R Port	Code		
Push-in	ø5/16"	ø8	08XS	●	
	ø3/8"	ø10	10XS		●
Push-in L-type upward	ø5/16"	ø8	08XU	○	
	ø3/8"	ø10	10XU		○

*1 : Select 08XS, 10XS, 08XU or 10XU when using a silencer with the inch Fittings specifications. Fittings Port R and PR (for KZ) are metric.
*2: Port P has a filter built in to prevent foreign matter from entering.
*3: Cannot be selected together with exhaust method X.

❷ Piping direction

Code	Content
B	Side piping

❹ Exhaust method

Code	Content
Blank	Centralized Exhaust (port R is a push-in fitting)
*1, *2 X	Exhaust is open to atmosphere, with built-in silencer (Port R is sealed.)

*1: ❸X is not available for port size "□□X□".
*2: X is not available for pilot Z and KZ.

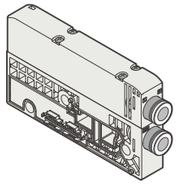
❺ Pilot operated

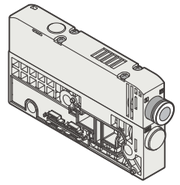
Code	Content
Blank	Internal pilot
*1 K	External pilot
*1 Z	Multi-pressure circuit
*1 KZ	External pilot (PA/PR separated)

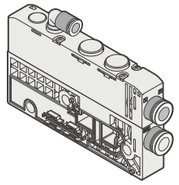
*1:If the ø6 push-in fitting and the ✱ ✱ L ✱ are used for the external pilot port, the øFittings is 5/32". Z cannot be used independently. Be sure to use with another type, blank, K or KZ.

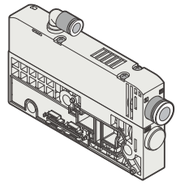
Attached Parts

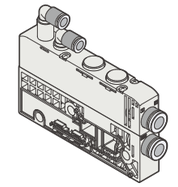
Manifold gasket: 1 pcs
Tie rod is not included, so order separately. Refer to page 49 for details. The gasket between blocks is included.

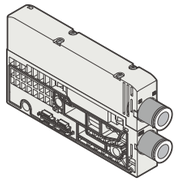
● TVG1P-QB-08CS


● TVG1P-QB-08CS-X


● TVG1P-QB-08CS-K


● TVG1P-QB-08CS-XK


● TVG1P-QB-08CS-KZ


● TVG2P-QB-10CS


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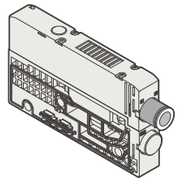

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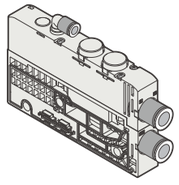

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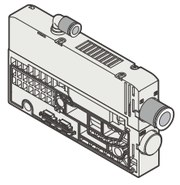
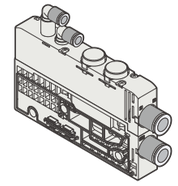
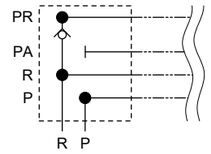
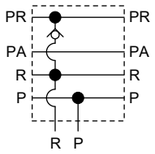
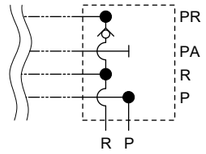
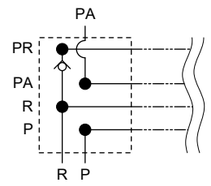
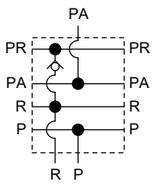
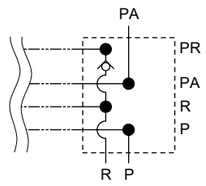
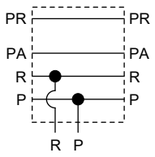
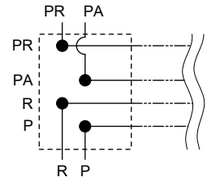
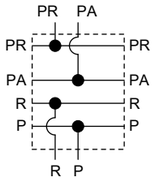
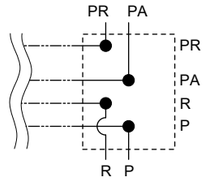
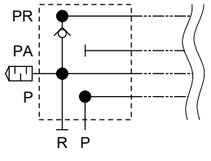
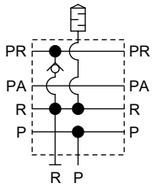
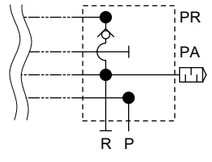
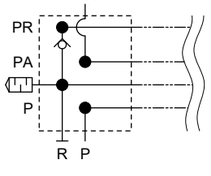
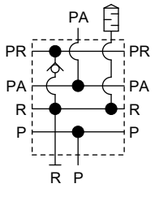
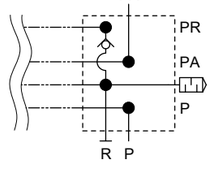


● TVG2P-QB-10CS-KZ


Specification list of supply and exhaust block

Exhaust method	Pilot operated	D side Wiring/supply and exhaust block	Intermediate supply and exhaust block	U side End supply and exhaust block
Blank Centralized Exhaust	Blank Internal pilot			
Blank Centralized Exhaust	K External pilot			
Blank Centralized Exhaust	Z Multi-pressure circuit			
Blank Centralized Exhaust	KZ External pilot (PA/PR separated)			
X Atmospheric Release (Silencer integrated)	Blank Internal pilot			
X Atmospheric Release (Silencer integrated)	K External pilot			

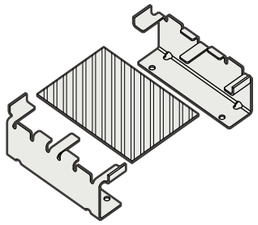
* The check valve between PR and R is for malfunction prevention. This product cannot be used for other applications.

Related products Tag plate (tag holder, tag plate), DIN rail, DIN rail mounting bracket kit

Tag plate Included with manifold with solenoid valve at shipment.
When necessary, indicate a ○ mark in the tag plate field on the manifold specifications sheet on pages 119 to 138.

Tag holder

TVG□P-TAG-HOLDER
- Size
  - 1
  - 2



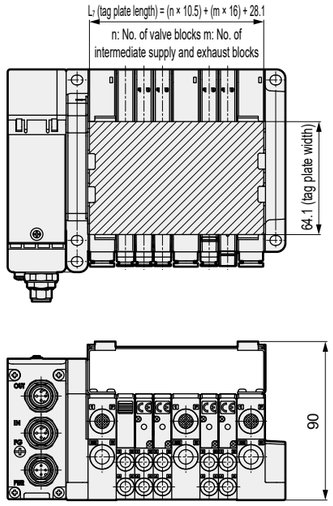
Tag plate

TVGP-TAG-PLATE-B-□
- Length (mm)
  - 200
  - 300
  - 400

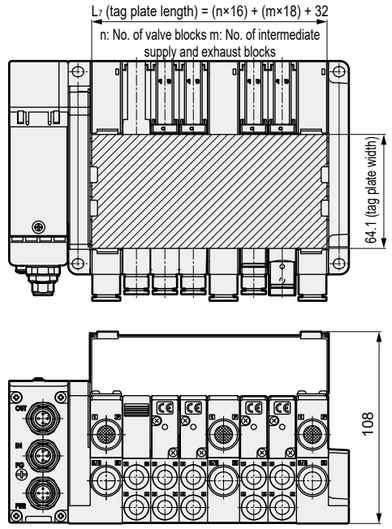
*1: Tag plate cannot be attached for the exhaust method "X".
*2: Tag plates cannot be attached for the pilot operated K and KZ types.
*3: Tag plate cannot be attached for the combination of spacer and residual pressure exhaust valve.
*4: When purchasing the plate as a single unit, cut it to the product length.

External Dimension Drawings

● TVG1

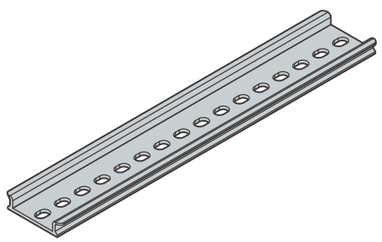


● TVG2



DIN Rail

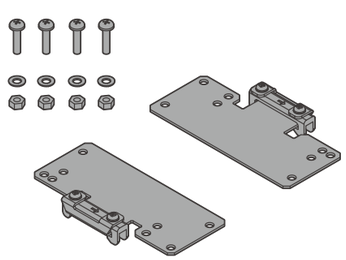
N4GR-BAA□
- Length



*1: Set the DIN rail length by referring to the formula on page 118.

DIN rail mounting bracket kit

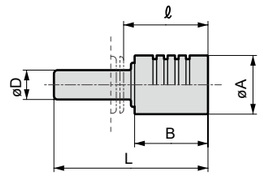
TVG□P-D
- Size
  - 1
  - 2



*Kit Contents: 2 mounting brackets and 4 mounting screws.

Related products Silencer, blanking plate kit, exhaust check valve, cable clamp, waterproof cap, waterproof plug

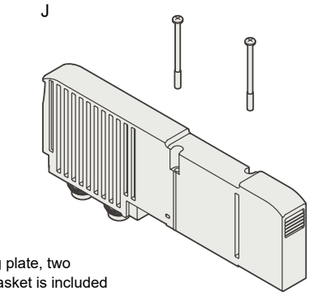
Silencer



Model No.	D	B	L	ℓ	A
SLW-H6	ø6	20	41	23.5	16
SLW-H8	ø8	20	42	23	16
SLW-H10	ø10	27	53	31.5	20

Blanking plate kit

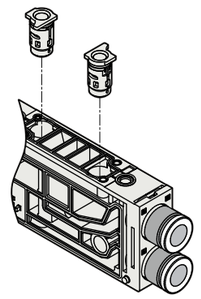
TVG□P-BP-□-□
- Size
  - 1
  - 2
- Valve mounting screw
  - Blank
  - J
- Compatible with rechargeable battery manufacturing processes
  - Blank
  - P4



* Kit Contents: Blanking plate, two mounting screws. A gasket is included with the valve block.

Exhaust check valve

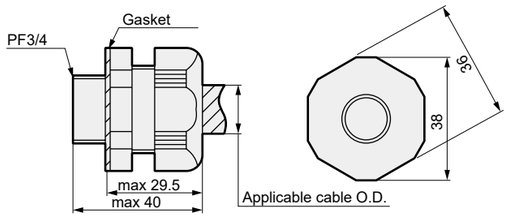
TVG1P-CHECK-VALVE
TVG2P-CHECK-VALVE
2 pieces/set



Parts kit for EA1 wiring block

● Cable clamp

Model No.	Applicable cable O.D.	Content
TVGP-SCL-18A	ø14.5 to 16.5	Used to protect cables from dust and jetting water.
TVGP-SCL-18B	ø16.5 to 18.5	

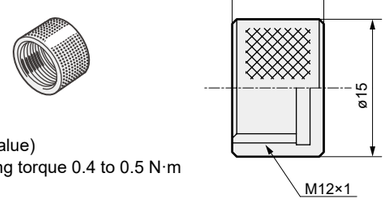


(reference value)
Body tightening torque 4.0 to 4.5 N·m
Cable clamp tightening torque 3.0 to 3.5 N·m

Parts for serial transmission device unit

● Water-proof cap

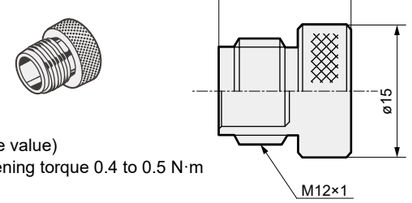
Model No.	Content
TVGP-XSZ-11	Provides water jet proof protection of unused signal connectors.



(reference value)
Tightening torque 0.4 to 0.5 N·m

● Water-proof plug

Model No.	Content
TVGP-XSZ-12	Provides water jet proof protection of unused signal connectors.



(reference value)
Tightening torque 0.4 to 0.5 N·m

Serial Transmission Device Unit cable

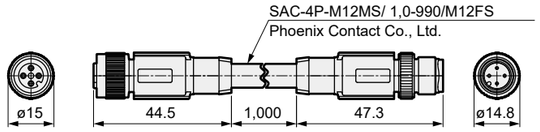
● Communication cable

For CC-Link

[Cable with two-sided connector (M12 socket - M12 plug, 1 m)]

TVGP - CABLE - G - M12M12 - 1

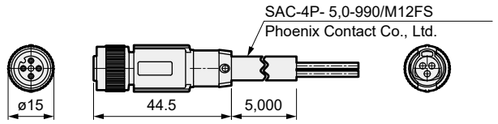
Signal name	Functions	Connector 1 M12, 4 poles Socket, A-cord Pin No.	Connector 2 M12, 4 poles Plug, A cord Pin No.
SLD	Ground wire (shield)	1	1
DB	Differential signal B (reversal)	2	2
DG	Signal ground	3	3
DA	Differential signal A (non-reversed)	4	4



[IN cable with one-sided connector (M12 socket - loose wire, 5 m)]

TVGP - CABLE - G - M12FS - 5

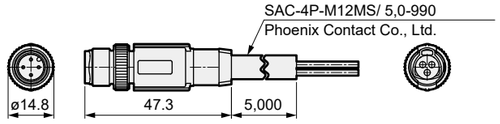
Signal name	Functions	Connector 1 M12, 4 poles Socket, A-cord Pin No.	Cable 5 m Insulator color
SLD	Ground wire (shield)	1	–
DB	Differential signal B (reversal)	2	White
DG	Signal ground	3	Yellow
DA	Differential signal A (non-reversed)	4	Blue



[For cable with one-sided connector OUT (M12 plug - loose wire, 5 m)]

TVGP - CABLE - G - M12MS - 5

Signal name	Functions	Connector 1 M12, 4 poles Plug, A cord Pin No.	Cable 5 m Insulator color
SLD	Ground wire (shield)	1	–
DB	Differential signal B (reversal)	2	White
DG	Signal ground	3	Yellow
DA	Differential signal A (non-reversed)	4	Blue

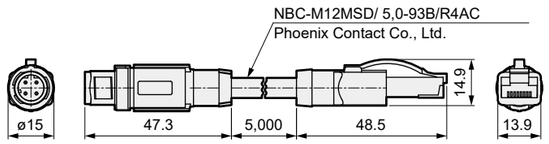


For EtherCAT, EtherNet/IP, PROFINET, CC-Link IEF Basic

[Cable with two-sided connector (M12 plug - RJ45 plug, 5 m)]

TVGP - CABLE - M12R4 - 5

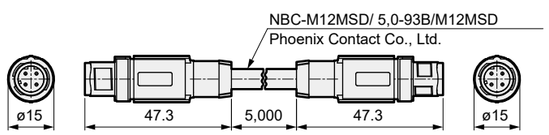
Signal name	Functions	Connector 1 M12, 4 poles Plug, D cord Pin No.	Connector 2 RJ45 Plug Pin No.
TD+	Transmitted data, positive	1	1
RD+	Received data, positive	2	3
TD-	Transmitted data, negative	3	2
RD−	Received data, negative	4	6



[Cable with two-sided connector (M12 plug - M12 plug, 5 m)]

TVGP - CABLE - M12M12 - 5

Signal name	Functions	Connector 1 M12, 4 poles Plug, D cord Pin No.	Connector 2 M12, 4 poles Plug, D cord Pin No.
TD+	Transmitted data, positive	1	1
RD+	Received data, positive	2	2
TD-	Transmitted data, negative	3	3
RD−	Received data, negative	4	4

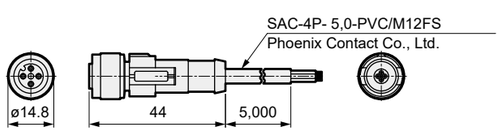


● Power supply cable

[Cable with one-sided connector (M12 socket - loose wire, 5 m)]

TVGP - CABLE - M12SAC - 5

Signal name	Functions	Connector 1 M12, 4 poles Socket, A-cord Pin No.	Cable 5 m Insulator color
Unit power	+ side: 24 V	1	Brown
Valve power supply	+ side: 24 V	2	White
Unit power	−side: 0 V	3	Blue
Valve power supply	−side: 0 V	4	Black



Parts for multi-connector

● Multi-connector (wiring method FA1) cable

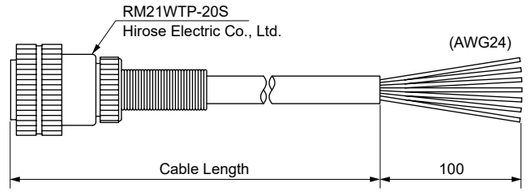
[Cable with connector]

TVGP - RMC - 3

❶ Cable Length

❶ Cable Length

Code	Content
1	1 m
3	3 m
5	5 m



Terminal No. and cores

Terminal No.		1	2	3	4	5	6	7	8	9	10
Core identification	Wire color	White	Brown	Green	Yellow	Gray	Pink	Blue	Red	Black	Purple
	Mark tube No.	1	2	3	4	5	6	7	8	9	10
Terminal No.		**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**
Core identification	Wire color	Gray/pink	Red/blue	White/green	Brown/green	White/yellow	Yellow/brown	White/gray	Gray/brown	(None)	(None)
	Mark tube No.	11	12	13	14	15	16	17	18	(None)	(None)

[Connector only]

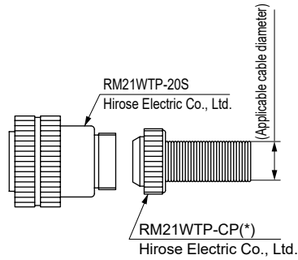
TVGP - RM21WTP - 10

❶ Applicable cable diameter

❶ Applicable cable diameter

Code	Content
8	ø8
10	ø10
12	ø12

*: Clamping force and waterproof performance of applicable cables may differ depending on their types. Therefore, check before use.



* For details on the Serial Transmission Device Unit and the I/O block connector, **Refer to pages 153 to 156.**

Block manifold; related products

Part for D-sub-connector

● Cable with D-sub-connector

Model No. Notation Method

Cable with D-sub-connector model No.

TVGP - CABLE - D 0 ❶ - ❷

❶ User interface

❷ Cable Length

❶ User interface

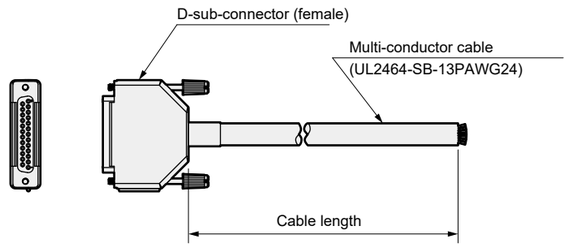
Code	Content	Model No. TVGP
0	Cut only	●
1	With round terminal for M3.5 screw	●

❷ Cable Length

Code	Content	Model No. TVGP
1	1 m	●
3	3 m	●
5	5 m	●

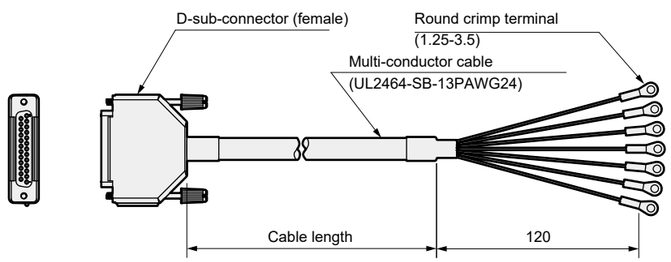
D-sub-connector terminal No. and conductor

TVGP-CABLE-D00-❷



D-sub-connector terminal No.		1	2	3	4	5	6	7	8	9	10	11	12	13
Core identification	Insulator color	Black	Yellow/ green	Brown	Brown/black	Red	Red/black	Orange	Orange/ black	Yellow	Yellow/ black	Green	Green/black	Blue
D-sub-connector terminal No.		14	15	16	17	18	19	20	21	22	23	24	25	–
Core identification	Insulator color	Blue/black	Purple	Purple/ black	Gray	Gray/black	White	White/black	Pink	Pink/black	Yellow-green	Yellow-green/ black	Water	Water/ black

TVGP-CABLE-D01-❷

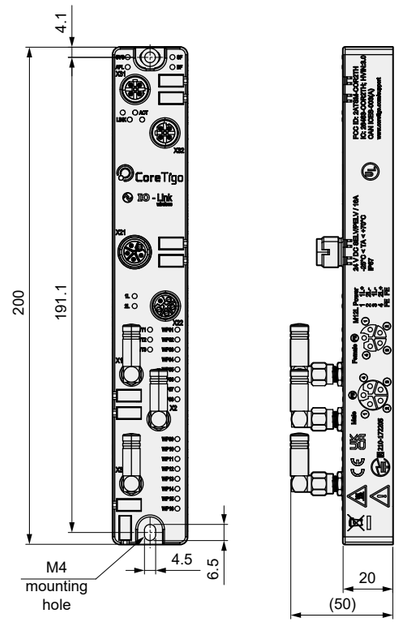


D-sub-connector terminal No.		1	2	3	4	5	6	7	8	9	10	11	12	13
Core identification	Insulator color	Black	Yellow/green	Brown	Brown/black	Red	Red/black	Orange	Orange/black	Yellow	Yellow/black	Green	Green/black	Blue
Mark tube No.		1	2	3	4	5	6	7	8	9	10	11	12	13
D-sub-connector terminal No.		14	15	16	17	18	19	20	21	22	23	24	25	–
Core identification	Insulator color	Blue/ black	Purple	Purple/ black	Gray	Gray/ black	White	White/ black	Pink	Pink/ black	Yellow-green	Yellow-green/black	Water	Water/ black
Mark tube No.		14	15	16	17	18	19	20	21	22	23	24	25	–

* Up to 24 points can be used. Cut the wires for surplus points before use.

IO-Link master

TIGOMASTER2TH-EIP



Supply source: Toho Technology Co., Ltd.

Specifications

Item	Content
Frequency	2401 MHz to 2480 MHz(80ch)
Transmission output	10 dBm MAX
Modulation method	GFSK
Compliant standards	FCC,CE Ordinance for Enforcement of the Radio Act, Article 2, Item 19
Cycle time	Min. 5 ms
Communication distance	Max. 20 m
Power Supply Voltage	18 to 31.2 VDC
Current Consumption	0.2 A
Mounting Method	Screw nominal M4 (torque 1.2 N·m)
Power cable specifications	M12 L code
Communication cable specifications	M12 D code
Communication I/ F *1	EtherNet/IP
Operating Temperature Range	−25 to 55 °C
Protection Structure	IP67

*1: EtherCAT and PROFINET are Special Specification Products.

Cable specifications

Content	Model No.	Specifications
Power supply cable	TIGOCABLEPOW-15	Length 1.5 m, one side M12 female, L-cord, one side rose
Communication cable	TIGOCABLENET-1	Length 1.0 m, one side M12, D cord, one side RJ45

TVG

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

connection

∗Remote I/O requires separate ordering.

CONTENTS

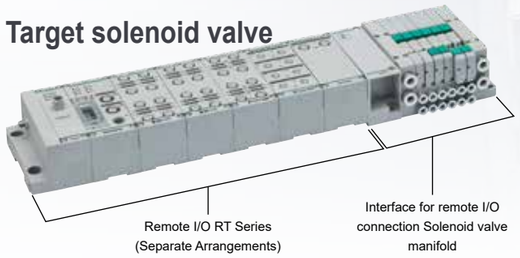
Remote I/O (RT Series) and solenoid valve (TVG Series) must be ordered separately. The customer is asked to assemble the RT and TVG.

The following 3 types of ordering methods are available.

Ordering method	Manifold specifications sheet	Customer assembly processes	Product delivery date
A Manifold assembly	Required	☆	○
B Easy assembly	Not required	◎	◎
C Discrete block	Not required	○	☆

☆: Excellent, ◎: Very good, ○: Good

Target solenoid valve



A Manifold assembly

The units will be delivered with the specifications specified in the manifold specifications sheet. Can be ordered with model No. starting with TVG□M and a manifold specifications sheet.

Remote I/O
Specifications not required
RT Series
(Separate order)

Remote I/O RT Series
(CC-1557AA)

+

Manifold with solenoid valve (for remote I/O connection)
Specifications required

Page 65

+

Manifold specifications sheet

Page 117

*1. The manifold base is only available with a valve interface.
*2. The device unit is a remote I/O (RT Series) device unit.
*3. Select the remote I/O in a separate catalog (RT Series).
*4. The remote I/O and manifold with solenoid valve must be assembled by the customer. Refer to "Remote I/O RT Series (CC-1557AA)" for how to assemble.

B Easy assembly

The single solenoid valve and assembled manifold base will be delivered separately. The following parts can be ordered with their model Nos. The customer is required to assemble the single solenoid valve and manifold base.

Remote I/O
Specs. not required
RT Series
(Separate catalog)

Remote I/O RT Series (CC-1557AA)

+

Discrete solenoid valve (for base mounting)
Specs. not required
TVG□-
□: Valve size

Page 73

+

Manifold base
Specs. not required
TVG□B-
□: Valve size

Page 69

+

Spacer
Specs. not required
TVG□P-
□: Valve size

Page 75

+

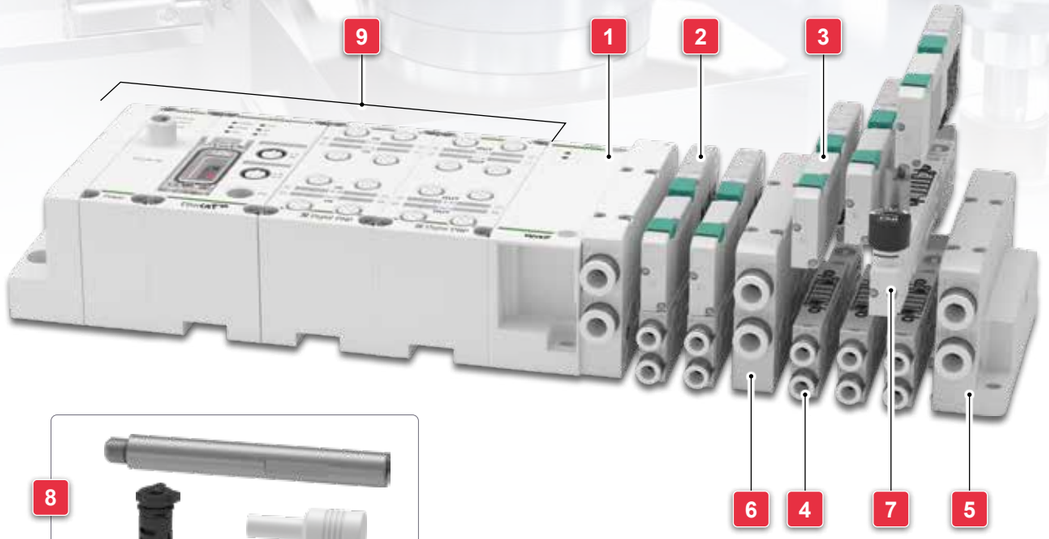
Exhaust check valve
Specs. not required
TVG□P-
□: Valve size

Page 54

*1. The manifold is limited to options that can be manufactured without a specification sheet, such as double wiring and no malfunction prevention valve assembly.
Note: This catalog lists TVGs. Alone, the solenoid valve section does not work, so please assemble the remote I/O and solenoid valve.

C Discrete block

Each part is delivered separately. The customer must assemble the manifold by combining the parts. You can order the parts below with their model Nos.



No.	Name	Head model No.	Listed page
1	Valve interface (supply and exhaust air)	TVG□P- □: Valve size	P. 88
2	Valve block with solenoid valve		P. 41
3	Discrete solenoid valve (for base mounting)		P. 73
4	Valve block		P. 45
5	End supply and exhaust block		P. 50
6	Intermediate supply and exhaust block		P. 51
7	Spacer		P. 75
8	Tie rod, silencer, exhaust check valve		P. 49, 54
	Other related parts		P. 53
9	Device unit	RT	Remote I/O RT Series (CC-1557AA)
	Power supply unit		
	I/O unit		
	End unit (without supply and exhaust)		

* Remote I/O requires separate ordering.

Plug-in Block Manifolds (for connection)
Pilot Operated 3, 5-Port Valve

TVG1 / TVG2 Series

Manifold common specifications

Item		Content
Manifold		Block manifolds
Mounting Method		Direct mounting
Air supply and exhaust method		Common supply/common exhaust (With internal exhaust check valve)
Pilot exhaust method Internal pilot	(*5)	Main valve/pilot valve common exhaust (Pilot exhaust check valve built-in)
Piping direction		Side direction of base
Valve Type and Operation Method		Pilot operated soft spool valve
Operating Fluid		Compressed Air
Max. working pressure	MPa	0.7
Internal pilot min. working pressure MPa	2-position double	0.1 (*6)
	2-position single / 3-position	0.2
	3-port valve Two valves integrated	0.2
Min. working pressure of external pilot	kPa	-100 (Pilot pressure at 0.2 MPa or more)
Proof Pressure	MPa	1.05
Ambient Temperature	°C	−5 to 55 (no freezing)
Fluid temperature	°C	5 to 55
Manual Override		Non-locking/locking common (standard)
Lubrication	(*1)	Not required
Degree of protection	*2	IP65, IP67
Vibration resistance m/s^2		50 or less
Shock resistance	m/s^2	≤ 300
Atmosphere		Cannot be used in corrosive gas environments

Electrical specifications

Item			KA1C	KA1D
Output Specification	Output Format		NPN	PNP
	Number of Output Points		32 points (4 bytes)	
	Response time ms		typ. ON delay 0.5 or less / OFF delay 1.0 or less	
	Forced output setting		Output settable regardless of process data.	
	Supply power V		24 VDC	
Electrical specifications	Internal consumption Current mA	For unit/input	≤ 15	
		For output	≤ 75	
	Operation Indicator		LED (for components status display, 2 pcs)	

*1: Use turbine oil Class 1 ISOVG32 for lubrication. Note that excessive or intermittent lubrication results in unstable operation.
*2: Tested according to the test method for IP65 (IEC 60529: 2001) standards. Refer to page 160 for details.
*3: If low exoergic/energy circuit or surgeless types are selected then there will be a diode.
*4: The pilot exhaust method differs with the supply and exhaust block used. Refer to page 52 for details.
*5: When using at low vacuum, select the external pilot. Refer to page 162 for details.
*6: 0.2 MPa for low exoergic/energy circuit.

Individual specifications

Item			TVG1 KA1□	TVG2 KA1□
Max. station No.	Standard wiring (Double wiring)		16 stations	16 stations
	Single solenoid, double solenoid layout specification (Single wiring)		24 stations	24 stations
Max. number of solenoids			32 points	32 points
Connection Port Size	Metric fitting	Port A/B	Push-in fitting ø1.8, ø4, ø6	Push-in fitting ø4, ø6, ø8, ø10
		P/R Port	Push-in fitting ø6, ø8	Push-in fitting ø8, ø10
	Inch fitting	Port A/B	Push-in fitting ø1/8", ø5/32"	Push-in fitting ø1/4", ø5/16"
		P/R Port	Push-in fitting ø5/16"	Push-in fitting ø3/8"

Performance/characteristics by model

Item	Switching position class		TVG1 at ON	TVG1 at OFF	TVG2 at ON	TVG2 at OFF
Response time ms	Two 3-port valves integrated		15	25	20	37
	2-position	Single	15	20	22	24
		Double	15	15	26	26
	3-position		20	30	25	35

The response times are values with supply pressure of 0.5 MPa at 20°C and without lubrication. They depend on the pressure and the lubricant quality.

Flow Characteristics

Model No.	Switching position class		P ➡ A/B C [dm^3/(s·bar)]	P ➡ A/B b	P ➡ A/B Q [L/min (ANR)]	A/B ➡ R C [dm^3/(s·bar)]		A/B ➡ R b		A/B ➡ R Q[L/min (ANR)]	
TVG1	Two 3-port valves integrated		0.77	0.37	205	1.0	(0.56)	0.34	(0.37)	287	(149)
	2-position		1.0	0.29	253	1.1	(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	1.2	(0.60)	0.38	(0.40)	349	(163)
		Pressure center	1.1	0.35	289	1.0	–	0.36	–	265	–
TVG2	Two 3-port valves integrated		1.7	0.44	476	2.2	(1.8)	0.43	(0.20)	612	(431)
	2-position		2.4	0.32	618	2.5	(2.0)	0.34	(0.19)	731	(476)
	3-position	Closed center	2.2	0.35	578	2.3	–	0.38	–	670	–
		Exhaust center	2.2	0.32	567	2.5	(2.1)	0.40	(0.21)	789	(506)
		Pressure center	2.6	0.34	678	2.3	–	0.37	–	666	–

*1: Effective cross-sectional area S and sonic conductance C are converted as S ≈ 5.0 × C.
*2: Values in ( ) are with the exhaust check valve.

Model No. Notation Method

Manifold with solenoid valve (for connection)

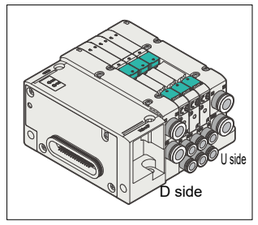
10 mm width (valve width)

Option

TVG1M - 1 B 06CS 3 KA1C - 06 U [ ][ ][ ][ ][ ][ ][ ][ ] -HP1

Model No.	❷ Piping direction	❹ Voltage	❻ Station No.	❽ Base internal wiring system	❿ Electric circuit specifications	⓬ Ozone/ Coolant proof	⓮ With/Without spacer	⓰ Port A/B filter

❶ Switching position class	❸ Connection Port Size	❺ Electrical connections	❼ Port P/R position	❾ Pilot operated	⓫ Manual Equipment	⓭ Residual pressure exhaust valve	⓯ Exhaust check valve



❶ Switching position class

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 valve side: Normally closed/B valve side: Normally Closed
B	Two valves integrated *1	A valve side: Normally open/B valve side: Normally Open
C		A valve side: Normally closed/B valve side: Normally Open

*1: Only compatible with internal pilot. Dimensions is the same as the 2-position double.

❷ Piping direction

Code	Content
B	Side piping

❸ Port size (port A/B)

• Metric fitting

Fitting	Port A/B	Code	
Push-in	ø1.8	0ACS	*4
	ø4	04CS	
	ø6	06CS	
Push-in L-type upward *2	ø1.8	0ACU	*4
	ø4	04CU	
	ø6	06CU	
Push-in L type downward	ø1.8	0ACD	*4
	ø4	04CD	
	ø6	06CD	
Push-in	Mix	99CX	*3

Fitting	Single side plug specifications *1		Code	
	Port A	Port B		
Push-in	ø1.8	Plug	0ACA	*4
	ø4		04CA	
	ø6		06CA	
	Plug	ø1.8	0ACF	*4
		ø4	04CF	
		ø6	06CF	
Push-in L-type upward *2	ø1.8	Plug	0ACB	*4
	ø4		04CB	
	ø6		06CB	
	Plug	ø1.8	0ACG	*4
		ø4	04CG	
		ø6	06CG	
Push-in L type downward	ø1.8	Plug	0ACC	*4
	ø4		04CC	
	ø6		06CC	
	Plug	ø1.8	0ACH	*4
		ø4	04CH	
		ø6	06CH	

• Inch fitting

Fitting	Port A/B	Code	
Push-in	ø1/8"	03LS	
	ø5/32"	04LS	
Push-in L-type upward *2	ø1/8"	C3LU	*5
	ø5/32"	04LU	*5
Push-in	Mix	99LX	*3

Fitting	Single side plug specifications *1		Code	
	Port A	Port B		
Push-in	ø1/8"	Plug	03LA	
	ø5/32"		04LA	
	Plug	ø1/8"	03LF	
		ø5/32"	04LF	
Push-in L-type upward *2	ø1/8"	Plug	03LB	*5
	ø5/32"		04LB	*5
	Plug	ø1/8"	03LG	*5
		ø5/32"	04LG	*5

*1: Ports A and B are available with one-sided plug specifications for 2-position single only.
*2: 3-position is not available for L-type upward push-in fittings.
*3: Port size mixtures of ports 4(A) and 2(B) are not available.
*4: The compatible ø for tube 1.8 push-in fitting is "UP-9402- * *".
*5: Custom Product.

❹ Voltage

Code	Content
3	24 VDC

❺ Electrical connections

Content	Output Format	Number of points	Code
RT Series connection Interface	NPN	32 points Output	KA1C
	PNP		KA1D

❻ Station No.

Code	Content
02	2 stations
to	to
24	24 stations

How to order (manifold with solenoid valve for connection)

• What Refer to Series (Catalog No.CC-1557A) for the RT Series ().
• If an exhaust check valve is necessary, refer to page 54.

❼ Port P/R position * Multiple selection is not possible.

Code	Content	
U	U side	
D	D side	
B	U side, D side	
*1 T	With U side, D side, intermediate supply and exhaust block	

*1: Specify the specifications of the intermediate supply and exhaust block in the manifold specifications sheet.

❽ Base internal wiring system *1

Code	Content
No Code	(Double wiring)
S	Single solenoid, double solenoid layout specification

*1: Blank = Double solenoid wiring regardless of the type of valve used. If a single solenoid is mounted, an empty number for one solenoid will be generated.

❾ Pilot operated

Code	Content	
No Code	Internal pilot	
K	External pilot	

❿ Electrical circuit specification

* Multiple selection is not possible.

Code	Content
No Code	With surge suppressor and indicator lamp
E1	Low exoergic/energy saving circuit (surgeless specifications)
E2	Surgeless

*1: The combination of "E2" and PNP specifications is Custom Product.

⓫ Manual device

* Multiple selections are not possible.

Code	Content	
No Code	With locking, non-locking common, misoperation prevention cover	
M1	Non-locking, with misoperation prevention cover	
M2	Locking/non-locking common, Tool operated, without cover	
M3	Non-locking, tool operation, without cover	

⓬ Ozone/Coolant proof

Code	Content
No Code	Standard specifications
A	Ozone/Coolant proof (main valve fluorine specification)

⓭ Residual pressure exhaust valve

Code	Content	
No Code	Without residual pressure exhaust valve	
*1, *2 Y1	With non-locking residual pressure exhaust valve	
*1, *2 Y2	With locking residual pressure exhaust valve	

*1: ❶Solenoid position "3" and "4" only are supported.
*2: ⓫Only the manual override "M2" and "M3" are supported.

⓮ With/Without spacer

Code	Content
No Code	Without spacer
Z	With spacer (type and location specified in MF specifications sheet)

*1: Specify the spacer type and mounting position in the manifold specifications sheet. Stacking of spacers is not possible. Combination with the blanking plate is not supported. Cannot be selected together with L-type push-in fitting (upward).

⓯ Exhaust check valve

Code	Content	
No Code	None	
H	With exhaust check valve	

*1: ❶Solenoid positions "3" and "5" cannot be selected. Refer to page 163 for details on the type with exhaust check valve. Specify the number of stations to install in the manifold specifications sheet.

⓰ Port A/B filter

Code	Content	
No Code	None	
F	Port A/B filter built in	

*1: A filter is built into port P.

Model No. Notation Method

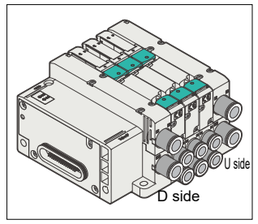
Manifold with solenoid valve (for connection)

15 mm width (valve width)

Option

TVG2M- 2 B 06CS 3 KA1C- 05 B -HP1

Model No.
❷ Piping direction
❹ Voltage
❻ Station No.
❽ Base internal wiring system
❿ Electric circuit specifications
⓬ Ozone/ Coolant proof
⓮ Valve mounting screw
⓰ Exhaust check valve
❶ Switching position class
❸ Connection Port Size
❺ Electrical connections
❼ P/R Port Position
❾ Pilot operated
⓫ Manual Override
⓭ Residual pressure exhaust valve
⓯ With/ Without spacer
⓱ Port A/B filter



❶ Switching position class

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 Two valves integrated *1	A valve side: Normally closed/B valve side: Normally Closed
B		A valve side: Normally open/B valve side: Normally Open
C		A valve side: Normally closed/B valve side: Normally Open

*1: Only compatible with internal pilot. Dimensions is the same as the 2-position double.

❷ Piping direction

Code	Content
B	Side piping

❸ Port size (port A/B)

• Metric fitting

Fitting	Port A/B		Code	
Push-in	ø4		04CS	
	ø6		06CS	
	ø8		08CS	
	ø10		10CS	
Push-in L-type upward *2	ø6		06CU	
	ø8		08CU	
Push-in L type downward	ø6		06CD	
	ø8		08CD	
Push-in	Mix		99CX	*3
Fitting	Single side plug specifications *1		Code	
	Port A	Port B		
Push-in	ø4	Plug	04CA	
	ø6		06CA	
	ø8		08CA	
	ø10		10CA	
	Plug	ø4	04CF	
		ø6	06CF	
		ø8	08CF	
		ø10	10CF	
Push-in L-type upward *2	ø6	Plug	06CB	
	ø8		08CB	
	Plug	ø6	06CG	
		ø8	08CG	
Push-in L type downward	ø6	Plug	06CC	
	ø8		08CC	
	Plug	ø6	06CH	
		ø8	08CH	

• Inch fitting

Fitting	Port A/B		Code	
Push-in	ø1/4"		06LS	
	ø5/16"		08LS	
Push-in L-type upward *2	ø1/4"		06LU	*4
	ø5/16"		08LU	*4
Push-in	Mix		99LX	*3
Fitting	Single side plug specifications *1		Code	
	Port A	Port B		
Push-in	ø1/4"	Plug	06LA	
	ø5/16"		08LA	
	Plug	ø1/4"	06LF	
		ø5/16"	08LF	
Push-in L-type upward *2	ø1/4"	Plug	06LB	*4
	ø5/16"		08LB	*4
	Plug	ø1/4"	06LG	*4
		ø5/16"	08LG	*4

*1: Ports A and B are available with one-sided plug specifications for 2-position single only.
*2: 3-position is not available for L-type upward push-in fittings.
*3: Port size mixtures of ports 4(A) and 2(B) are not available.
*4: Custom Product.

❹ Voltage

Code	Content
3	24 VDC

❺ Electrical connections

Content	Output Format	# of points	Code
RT Series interface	NPN	32 points Output	KA1C
	PNP		KA1D

❻ Station No.

Code	Content
02	2 stations
to	to
24	24 stations

How to order (manifold with solenoid valve for connection)

- For RT Series (), Series refer to "Pneumatic Valves" (Catalog No.CC-1557AA).
- If an exhaust check valve is necessary, refer to page 54.

❼ Port P/R position * Multiple selection is not possible.

Code	Content	
U	U side	
D	D side	
B	U side, D side	
*1 T	With U side, D side, intermediate supply and exhaust block	

*1: Specify the specifications of the intermediate supply and exhaust block in the manifold specifications sheet.

❽ Base internal wiring system *1

Code	Content
Blank	(double wiring)
S	Single solenoid, double solenoid layout specification

*1: Blank = Double solenoid wiring regardless of the type of valve used. If a single solenoid is mounted, an empty number for one solenoid will be generated.

❾ Pilot operated

Code	Content	
Blank	Internal pilot	
K	External pilot	

❿ Electrical circuit specification

* Multiple selection is not possible.

Code	Content
Blank	With surge suppressor and indicator lamp
E1	Low exoergic/energy saving circuit (surgeless specifications)
E2	Surgeless

*1: The combination of "E2" and PNP specifications is Custom Product.

⓫ Manual device * Multiple selections are not possible.

Code	Content	
Blank	With locking, non-locking common, misoperation prevention cover	
M1	Non-locking, with misoperation prevention cover	
M2	Locking/non-locking common, Tool operated, without cover	
M3	Non-locking, tool operation, without cover	

⓬ Ozone/Coolant proof

Code	Content
Blank	Standard specifications
A	Ozone/Coolant proof (main valve fluorine specification)

⓭ Residual pressure exhaust valve

Code	Content	
Blank	Without residual pressure exhaust valve	
*1, *2 Y1	With non-locking residual pressure exhaust valve	
*1, *2 Y2	With locking residual pressure exhaust valve	

*1: ❶Solenoid position "3" and "4" only are supported.
*2: ⓫Only the manual override "M2" and "M3" are supported.

⓮ Valve mounting screw

Code	Content
Blank	Pan head machine screw with Phillips head/flathead
J	Hexagon Socket Head Cap Screw

*1: ⓯With/without spacer "Z" cannot be selected with "J".

⓯ With/Without spacer

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

*1: Specify the spacer type and mounting position in the manifold specifications sheet. Stacking of spacers is not possible. Combination with the blanking plate is not supported. Cannot be selected together with L-type push-in fitting (upward).

⓰ Exhaust check valve

Code	Content	
Blank	None	
H	With exhaust check valve	

*1: ❶Solenoid positions "3" and "5" cannot be selected. Refer to page 163 for details on the type with exhaust check valve. Specify the number of stations to install in the manifold specifications sheet.

⓱ Port A/B filter

Code	Content	
Blank	None	
F	Port A/B filter built in	

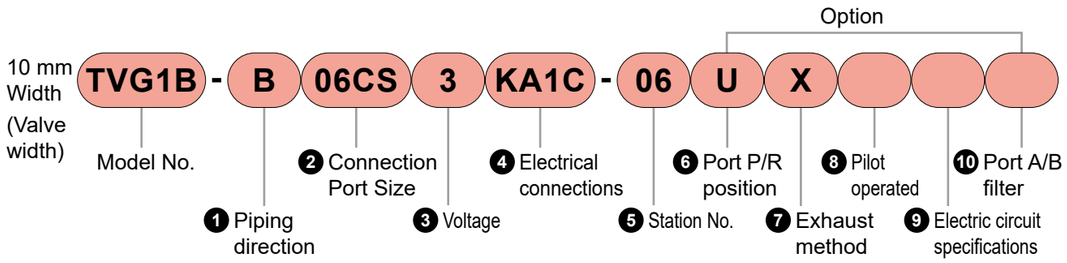
*1: A filter is built into port P.

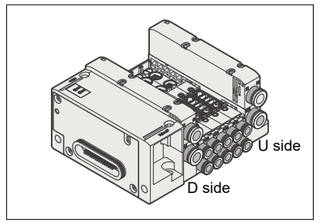
How to order (connection manifold base only)

- For the RT Series, please refer to the Remote I/O RT Series (Catalog No.CC-1557AA).

Model No. Notation Method

Manifold base for connection only. * Solenoid valve is not included.





1 Piping direction

Code	Content
B	Side piping

2 Port size (port A/B)

• Metric fitting

Fitting	Port A/B	Code	
Push-in	ø1.8	0ACS	*2
	ø4	04CS	
	ø6	06CS	
Push-in L-type upward *1	ø1.8	0ACU	*2
	ø4	04CU	
	ø6	06CU	
Push-in L type downward	ø1.8	0ACD	*2
	ø4	04CD	
	ø6	06CD	

• Inch fitting

Fitting	Port A/B	Code	
Push-in	ø1/8"	03LS	
	ø5/32"	04LS	
Push-in L-type upward *1	ø1/8"	C3LU	*3
	ø5/32"	04LU	*3

*1: 3-position is not available for L-type upward push-in fittings.
*2: Custom Product.

3 Voltage

Code	Content
3	24 VDC

4 Electrical connections

Content	Output Format	Number of points	Code
RT Series interface	NPN	32 point output	KA1C
	PNP		KA1D

5 Station No.

Code	Content
02	2 stations
to	to
16	16 stations

*1: The wiring inside the base is all for double solenoid regardless of the type of valve used. The blank number for one solenoid is generated in the section where a single solenoid is mounted.

6 Port P/R position

(TVG1B: ø 8)
* Multiple selection is not possible.

Code	Content	
U	U side	
D	D side	
B	U, D both sides	

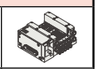
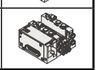
*1: The Port P/R tube has the same direction as the Port A/B tube.
*2: A port P filter is integrated.

7 Exhaust method

Code	Content	
Blank	Centralized Exhaust (port R is a push-in fitting)	
*1 X	Silencer integrated (port R is a plug, exhaust is released to atmosphere)	

*1: 6 A silencer is integrated at the position selected with port P/R position.

8 Pilot operated

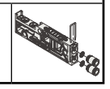
Code	Content	
Blank	Internal pilot	
K	External pilot	

9 Electrical circuit specification * Multiple selection is not possible.

Code	Content
Blank	With surge suppressor and indicator lamp
E1	Low dust generation/energy saving circuit (surgeless specifications)
E2	Surgeless

*1: The combination of "E2" and PNP specifications is Custom Product.

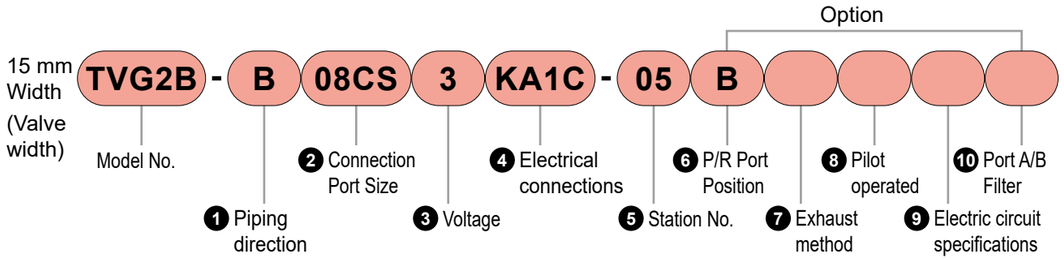
10 Port A/B filter

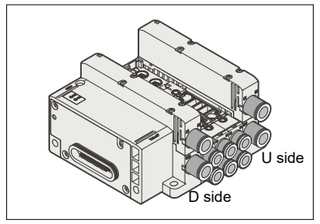
Code	Content	
Blank	None	
F	Port A/B filter built in	

*1: A filter is built into port P.

Model No. Notation Method

Manifold base for connection only. * Solenoid valve is not included.





❷ Port size (port A/B)

• Metric fitting

Fitting		Port A/B	Code
Push-in		ø4	04CS
		ø6	06CS
		ø8	08CS
		ø10	10CS
Push-in L-type upward	*1	ø6	06CU
		ø8	08CU
Push-in L type downward		ø6	06CD
		ø8	08CD

• Inch fitting

Fitting		Port A/B	Code	
Push-in		ø1/4"	06LS	
		ø5/16"	08LS	
Push-in L-type upward		ø1/4"	06LU	*2
	*1	ø5/16"	08LU	*2

*1: 3-position is not available for L-type upward push-in fittings.
*2: Custom Product.

❸ Voltage

Code	Content
3	24 VDC

❹ Electrical connections

Content	Output Format	Number of points	Code
RT Series interface	NPN	32 points Output	KA1C
	PNP		KA1D

❺ Station No.

Code	Content
02	2 stations
to	to
16	16 stations

*1: The wiring inside the base is all for double solenoid regardless of the type of valve used. The blank number for one solenoid is generated in the section where a single solenoid is mounted.

❻ Port P/R position

(TVG2B: ø10)
* Multiple selection is not possible.

Code	Content	
U	U side	
D	D side	
B	U, D both sides	

*1: The port P/R tube has the same direction as the port A/B tube.
*2: A port P filter is integrated.

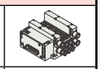
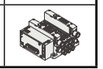
How to order (connection manifold base only)

• For the RT Series, please refer to the Remote I/O RT Series (Catalog No.CC-1557AA).

❶ Piping direction

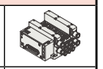
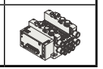
Code	Content
B	Side piping

❼ Exhaust method

Code	Content	
Blank	Centralized Exhaust (port R is a push-in fitting)	
*1 X	Silencer integrated (port R is a plug, exhaust is released to atmosphere)	

*1: ❻A silencer is integrated at the position selected with port P/R position.

❽ Pilot operated

Code	Content	
Blank	Internal pilot	
K	External pilot	

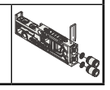
❾ Electrical circuit specification

* Multiple selection is not possible.

Code	Content
Blank	With surge suppressor and indicator lamp
E1	Low dust generation/energy saving circuit (surgeless specifications)
E2	Surgeless

*1: The combination of "E2" and PNP specifications is Custom Product.

❿ Port A/B filter

Code	Content	
Blank	None	
F	Port A/B filter built in	

*1: A filter is built into port P.

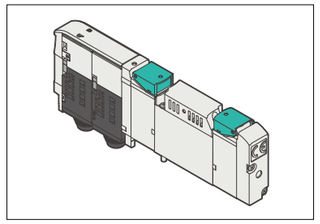
Model No. Notation Method

Discrete solenoid valve (for base mounting)

10 mm Width (Valve width)

TVG1 - 1 B 00XX 3 - (Option) - HP1

- TVG1: Model No.
- 1: ❶ Switching position class
- B: ❷ Piping direction
- 00XX: ❸ Connection Port Size
- Option: ❹ Pilot operated, ❺ Manual Override, ❻ Ozone/Coolant proof, ❼ Residual pressure exhaust valve
- HP1



Attached Parts
- The valve mounting screws are included.
- The gasket is attached to the manifold base.

❶ Switching position class

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 Two valves integrated	A valve side: Normally Closed B valve side: Normally Closed
*1 B		A valve side: Normally Open B valve side: Normally Open
*1 C		A valve side: Normally Closed B valve side: Normally Open

*1: Only compatible with internal pilot. Dimensions of the Dimensions diagram are the same as those of 2-position double.

❷ Piping direction

Code	Content
B	Side piping

❸ Connection Port Size

Code	Content
00XX	Discrete solenoid valve for base

❹ Pilot operated

Code	Content
Blank	Internal pilot
K	External pilot

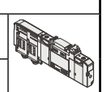
❺ Manual device * Multiple selections are not possible.

Code	Content	
Blank	With locking, non-locking common, misoperation prevention cover	
M1	Non-locking, with misoperation prevention cover	
M2	Locking/non-locking common, tool operation, Without cover	
M3	Non-locking, tool operation, without cover	

❻ Ozone/Coolant proof

Code	Content
Blank	Standard specifications
A	Ozone/Coolant proof (main valve fluorine specification)

❼ Residual pressure exhaust valve

Code	Content	
Blank	Without residual pressure exhaust valve	
*1, *2 Y1	With non-locking residual pressure exhaust valve	
*1, *2 Y2	With locking residual pressure exhaust valve	

*1: ❶Solenoid position "3" and "4" only are supported.
*2: ❺Only the manual override "M2" and "M3" are supported.

- Refer to Series (Catalog No.CC-1557AA) for the RT Series ().
- If an exhaust check valve is necessary, refer to page 54.

How to order (solenoid valve single unit)

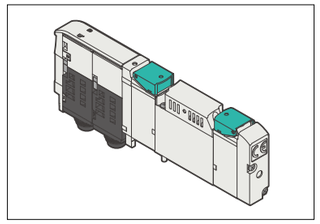
Model No. Notation Method

Discrete solenoid valve (for base mounting)

15 mm Width (Valve width)

TVG2 - 1 B 00XX 3 - (Option) - HP1

- TVG2: Model No.
- 1: ❶ Switching position class
- B: ❷ Piping direction
- 00XX: ❸ Connection Port Size
- Option: ❹ Pilot operated, ❺ Manual Override, ❻ Ozone/Coolant proof, ❼ Residual pressure exhaust valve, ❽ Valve mounting Thread
- HP1



Attached Parts
- The valve mounting screws are included.
- The gasket is attached to the manifold base.

❶ Switching position class

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 Two valves integrated	A valve side: Normally Closed B valve side: Normally Closed
*1 B		A valve side: Normally Open B valve side: Normally Open
*1 C		A valve side: Normally Closed B valve side: Normally Open

*1: Only compatible with internal pilot. Dimensions of the Dimensions diagram are the same as those of 2-position double.

❷ Piping direction

Code	Content
B	Side piping

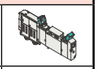
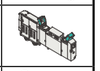
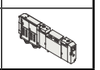
❸ Connection Port Size

Code	Content
00XX	Discrete solenoid valve for base

❹ Pilot operated

Code	Content
Blank	Internal pilot
K	External pilot

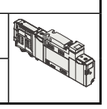
❺ Manual device * Multiple selections are not possible.

Code	Content	
Blank	With locking, non-locking common, misoperation prevention cover	
M1	Non-locking, with misoperation prevention cover	
M2	Locking/non-locking common, tool operation, Without cover	
M3	Non-locking, tool operation, without cover	

❻ Ozone/Coolant proof

Code	Content
Blank	Standard specifications
A	Ozone/Coolant proof (main valve fluorine specification)

❼ Residual pressure exhaust valve

Code	Content	
Blank	Without residual pressure exhaust valve	
*1, *2 Y1	With non-locking residual pressure exhaust valve	
*1, *2 Y2	With locking residual pressure exhaust valve	

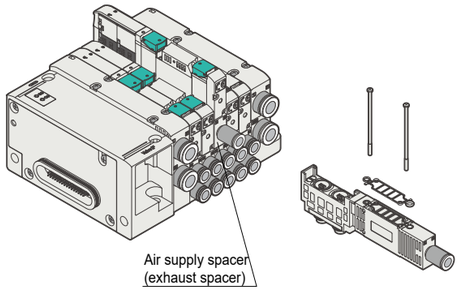
*1: ❶Solenoid position "3" and "4" only are supported.
*2: ❺Only the manual override "M2" and "M3" are supported.

❽ Valve mounting screw

Code	Content
Blank	Pan head machine screw with Phillips head/flathead
J	Hexagon Socket Head Cap Screw

- Refer to Series (Catalog No.CC-1557AA) for the RT Series ().
- If an exhaust check valve is necessary, refer to page 54.

Air supply spacer/exhaust spacer



Specifications

● Air supply spacer

Model No.	Weight g
TVG1P-P-□	31

● Exhaust spacer

Model No.	Weight g
TVG1P-R-□	31

Discrete model No.

● Air supply spacer

TVG1P – P – 04CS

❶ Connection Port Size

❶ Connection Port Size

Code	Bore size	Content
04CS	ø4	ø4 Push-in fitting
06CS	ø6	ø6 Push-in fitting

● Exhaust spacer

TVG1P – R – 04CS

❶ Connection Port Size

❶ Connection Port Size

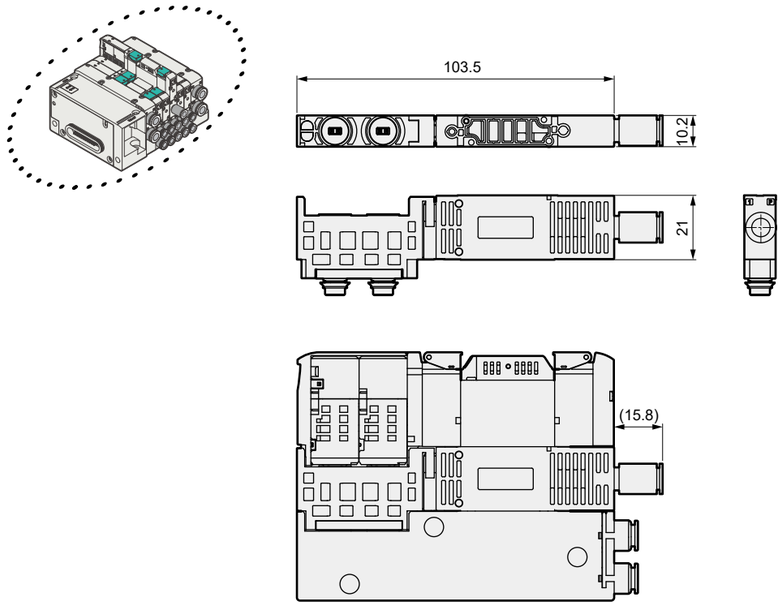
Code	Bore size	Content
04CS	ø4	ø4 Push-in fitting
06CS	ø6	ø6 Push-in fitting

⚠ Notes for model No. Selection

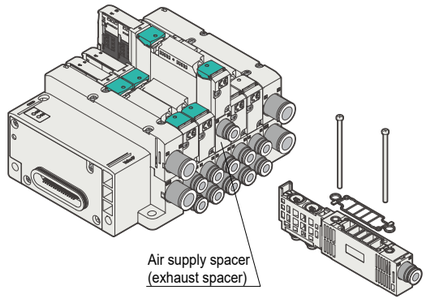
*1: Specify the positions and quantity of spacers for manifold in the manifold specifications sheet (**Refer to pages 127 to 130. Please provide instructions.**
*2: Stacking of spacers is not possible.
*3: A spacer cannot be combined with a blanking plate.
*4: A spacer mounting screw and gasket are included.
*5: If the port A/B Fittings is elbow (upward), a spacer cannot be selected.

External Dimension Drawings

● Air supply spacer/exhaust spacer



Air supply spacer/exhaust spacer



Specifications

● Air supply spacer

Model No.	Weight g
TVG2P-P-□	56

● Exhaust spacer

Model No.	Weight g
TVG2P-R-□	56

Discrete model No.

● Air supply spacer

TVG2P – P – 06CS

❶ Connection Port Size

❶ Connection Port Size

Code	Bore size	Content
06CS	ø6	ø6 Push-in fitting
08CS	ø8	ø8 Push-in fitting
10CS	ø10	ø10 Push-in fitting

● Exhaust spacer

TVG2P – R – 06CS

❶ Connection Port Size

❶ Connection Port Size

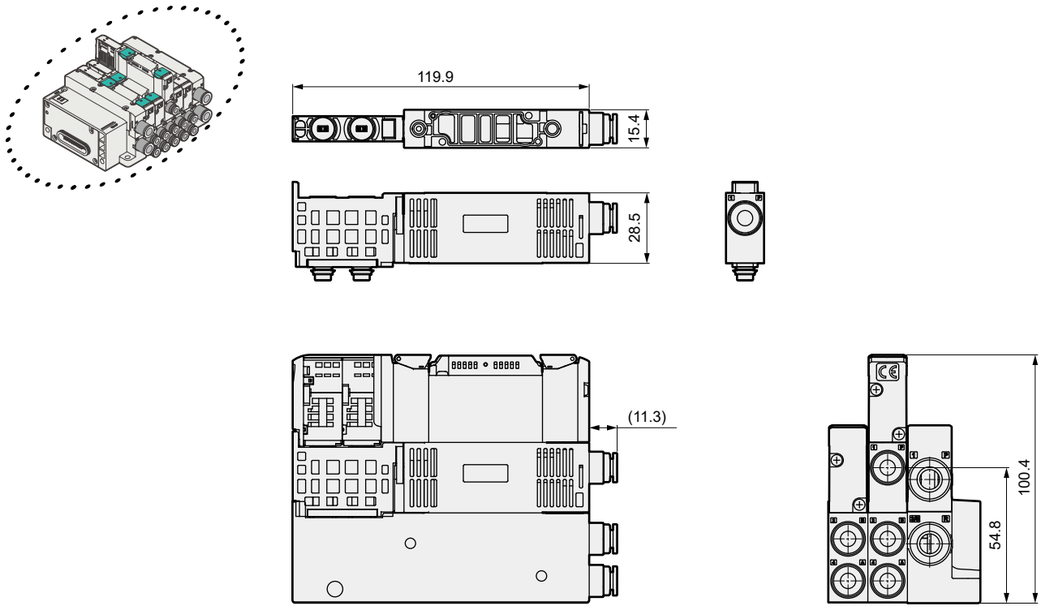
Code	Bore size	Content
06CS	ø6	ø6 Push-in fitting
08CS	ø8	ø8 Push-in fitting
10CS	ø10	ø10 Push-in fitting

⚠ Notes for model No. Selection

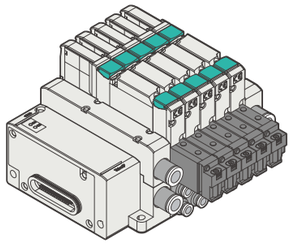
*1: Specify the positions and quantity of spacers for manifold in the manifold specifications sheet (**Refer to pages 127 to 130. Please provide instructions.**
*2: Stacking of spacers is not possible.
*3: A spacer cannot be combined with a blanking plate.
*4: A spacer mounting screw and gasket are included.
*5: If the port A/B Fittings is elbow (upward), a spacer cannot be selected.

External Dimension Drawings

● Air supply spacer/exhaust spacer



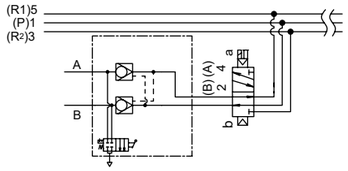
Perfect spacer (spacer pilot check valve)



Specifications

Item		TVG1P-PC-□	TVG2P-PC-□
Operating Fluid		Compressed Air	
Maximum Operating Pressure	MPa	0.7	
Min. working pressure	MPa	0.2	
Proof Pressure	MPa	1.05	
Ambient Temperature	°C	−5 to 55 (no freezing)	
Working fluid temperature	°C	5 to 55	
Atmosphere		Cannot be used in corrosive gas environment.	
Weight	g	34	73

Circuit Diagram Symbol



Note: Please note that if you use cylinders with a large bore (guideline ø50 or more) in a state with almost no throttling on the exhaust side (e.g., without a speed controller or silencer), this may lead to a decrease in intermediate stop accuracy and intermediate stop failure.

Discrete model No.

TVG1 P − PC − M

1 Model No. Perfect Spacer

2 Residual pressure exhaust function

1 Model No.

Code	Content
TVG1	10 mm width (valve width)
TVG2	15 mm width (valve width)

2 Residual pressure exhaust function

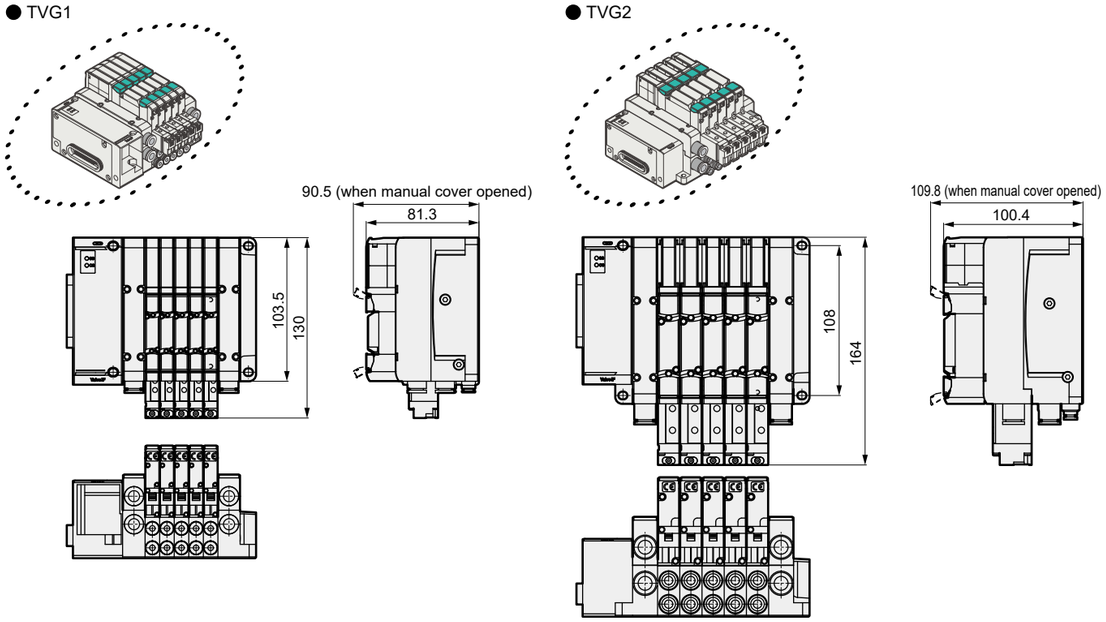
Code	Content
M	Manual override of non-locking
M1	Locking manual device
Blank	Without residual pressure exhaust function

Notes for model No. Selection

Note 1: Please specify the spacer mounting position and the selection of the residual pressure release function in the manifold specifications.
Note 2: If the A/B port fittings are the upward-facing elbow type, a spacer cannot be selected.
Note 3: Stacking multiple spacers is not supported.
Note 4: A spacer and a blanking plate cannot be combined.
Note 5: Spacer mounting screws and a gasket are included.

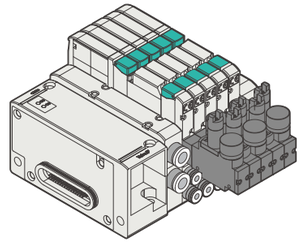
External Dimension Drawings

● TVG1



● TVG2

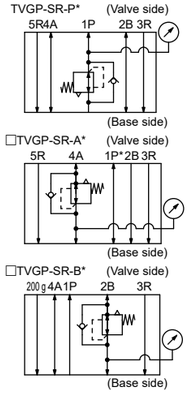
Spacer regulator



Specifications

Item		TVG1P-SR-□	TVG2P-SR-□
Pressure reduction port		P / A / B	
Operating Fluid		Compressed Air	
Maximum Operating Pressure	MPa	0.7	
Min. working pressure	MPa	0.1	
Proof Pressure	MPa	1.05	
Ambient Temperature	°C	−5 to 55 (no freezing)	
Working fluid temperature	°C	5 to 55	
Atmosphere		Cannot be used in corrosive gas environment.	
Weight	g	48	110

Circuit Diagram Symbol



Discrete model No.

TVG1 P − SR − P − G0

1 Model No. Spacer Regulator

2 Pressure reduction specification

3 Pressure Gauge

2 Pressure reduction specification

Code	Content
P	P port pressure reduction
A	A port pressure reduction
B	B port pressure reduction

3 Pressure Gauge

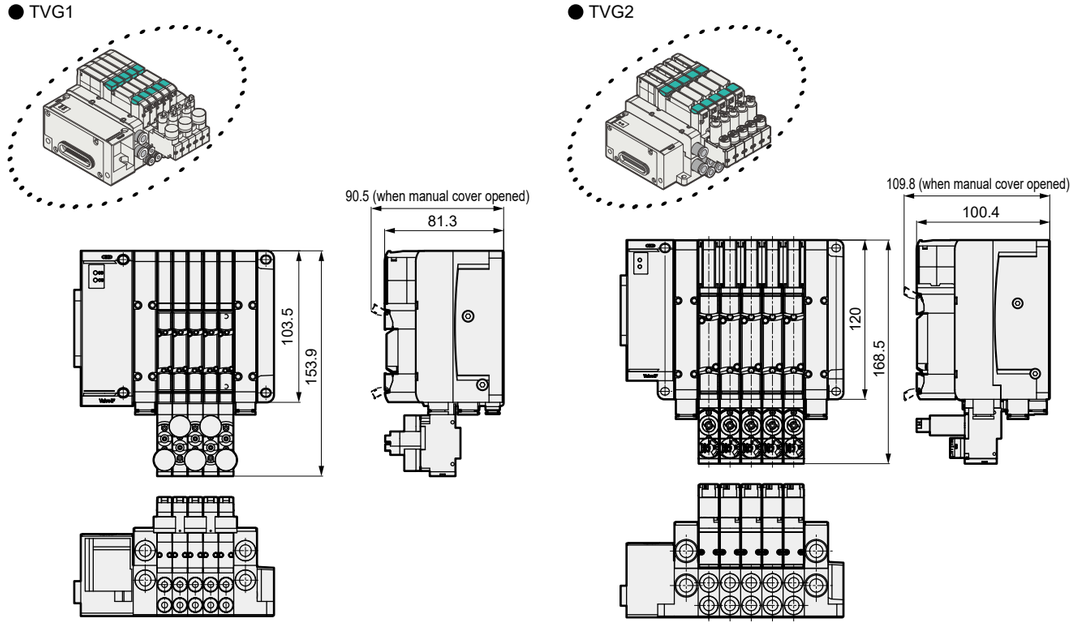
Code	Content	1 Model No. TVG1	TVG2
G0	Without Pressure Gauge	●	●
G1	With pressure gauge for odd numbers	●	
G2	With pressure gauge for even stations	●	
G3	Odd/even stations with common pressure gauge		●

Notes for model No. Selection

*1: Specify the spacer positions in the manifold specifications sheet.
*2: If the port A/B Fittings is elbow (upward), a spacer cannot be selected.
*3: Stacking of spacers is not possible.
*4: A spacer cannot be combined with a blanking plate.
*5: A spacer mounting screw and gasket are included.

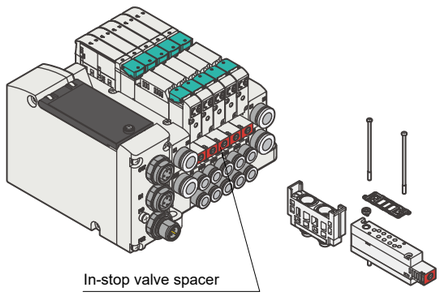
External Dimension Drawings

● TVG1



● TVG2

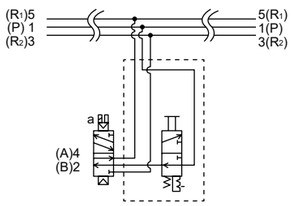
In-stop valve spacer



Specifications

Item		TVG1P-IS	TVG2P-IS
Operating Fluid		Compressed Air	
Maximum Operating Pressure	MPa	0.7	
Min. working pressure	MPa	0.1	
Proof Pressure	MPa	1.05	
Ambient Temperature	°C	−5 to 55 (no freezing)	
Working fluid temperature	°C	5 to 55	
Atmosphere		Cannot be used in corrosive gas environment.	
Weight	g	35	71

Circuit Diagram Symbol



Discrete model No.

TVG1 P − IS

❶ Model No. In-stop valve spacer

❶ Model No.

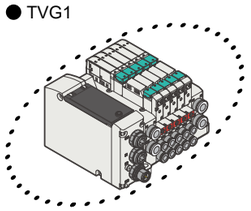
Code	Content
TVG1	10 mm width (valve width)
TVG2	15 mm width (valve width)

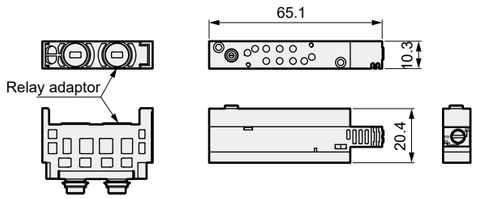
⚠ Notes for model No. Selection

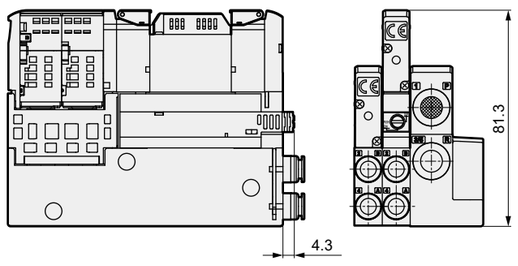
*1: Specify the spacer positions in the manifold specifications sheet.
*2: If the A/B port fitting is elbow type facing upward, a spacer cannot be selected.
*3: Stacking of spacers is not possible.
*4: A spacer cannot be combined with a blanking plate.
*5: Not compatible in combination with external pilot (K).

External Dimension Drawings

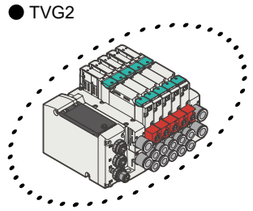
● TVG1

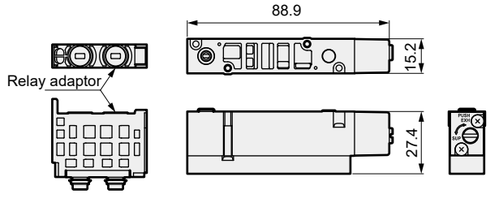


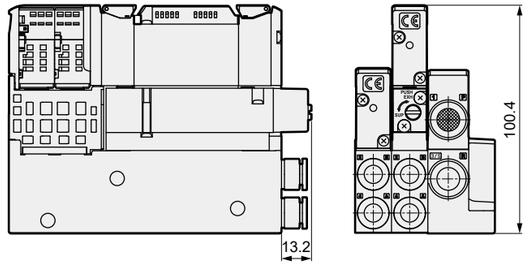




● TVG2



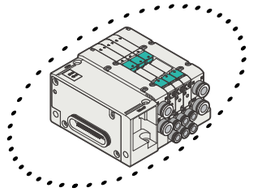


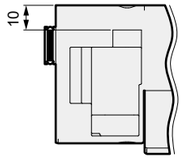


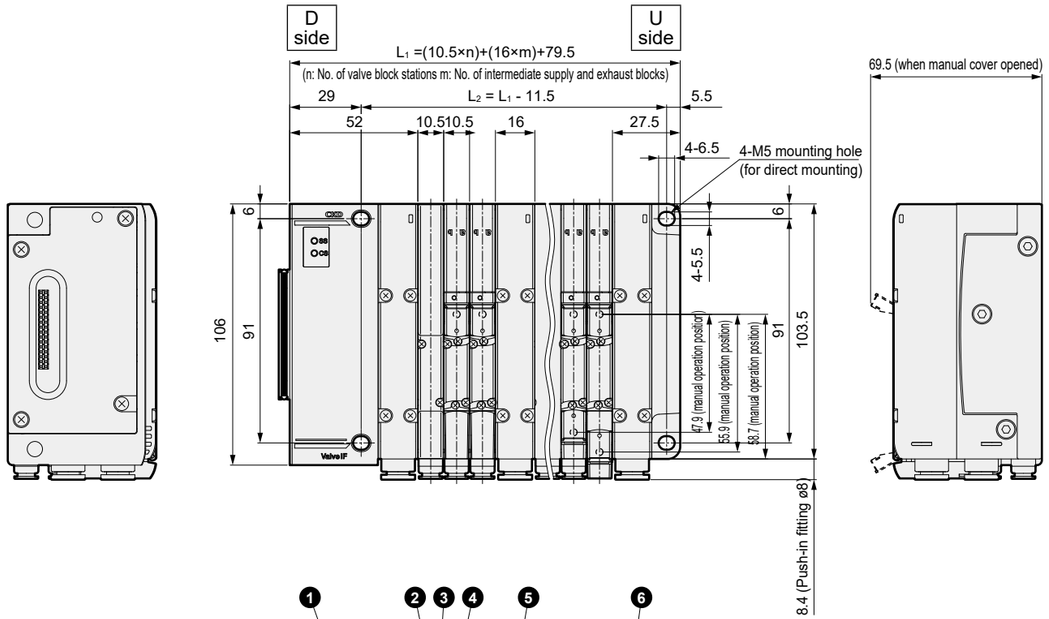
MEMO

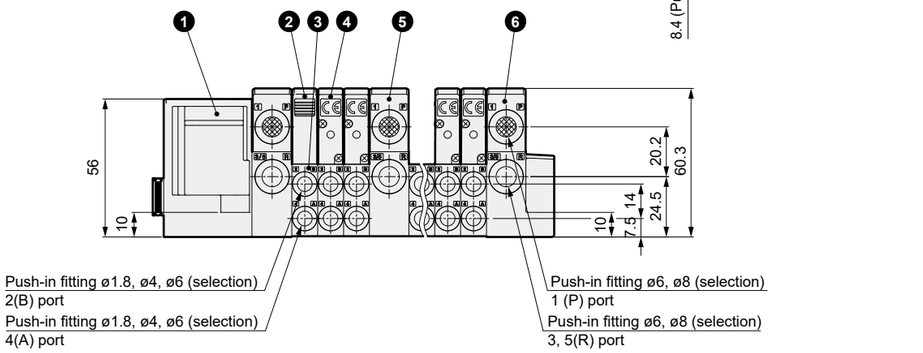
External Dimension Drawings

TVG1M for connection







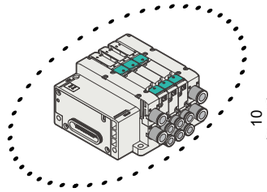


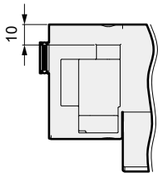
Part No.	Part Name
1	Valve interface
2	Blanking plate
3	Valve block
4	Single solenoid valve
5	Intermediate supply and exhaust block
6	End block

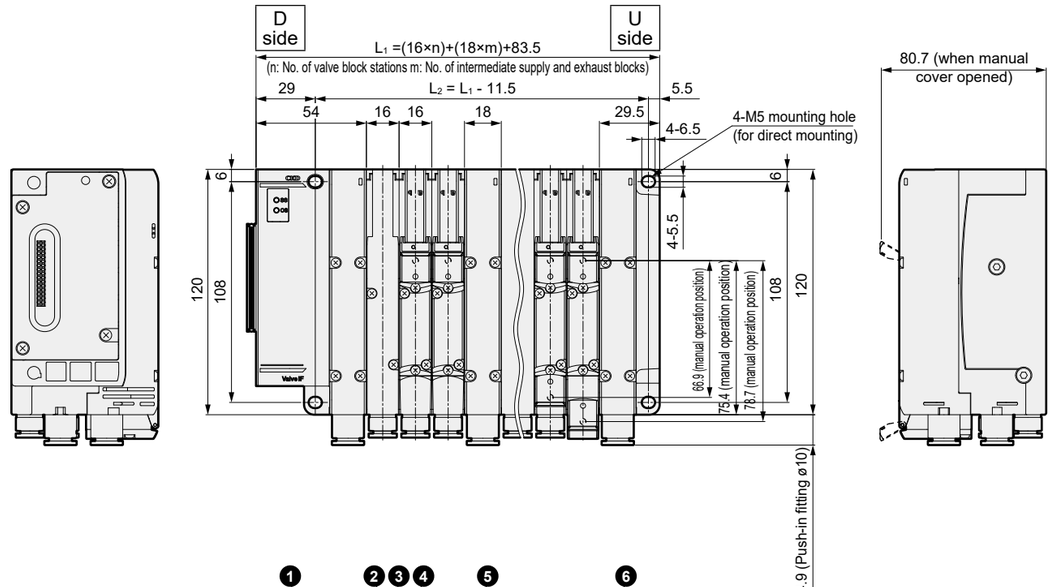
*Two tie rods to connect the valve interface to the RT Series are included.

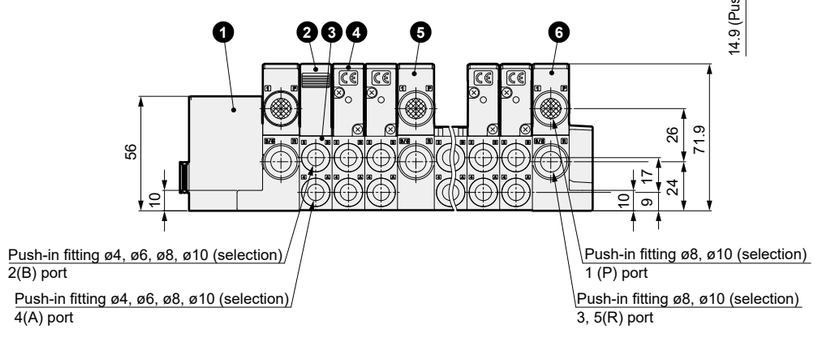
External Dimension Drawings

TVG2M for connection









Part No.	Part Name
1	Valve interface
2	Blanking plate
3	Valve block
4	Single solenoid valve
5	Intermediate supply and exhaust block
6	End block

*Two tie rods to connect the valve interface to the RT Series are included.

External Dimension Drawings

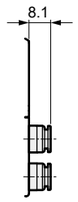
TVG1M

●Fitting straight

●ø1.8 (0ACS)

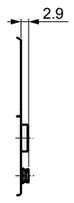
●ø4 (04CS)

●ø6 (06CS)

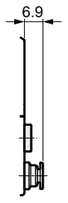


●Fitting straight, single plug

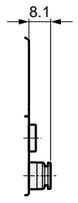
●ø1.8 (0ACA)



●ø4 (04CA)

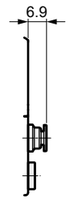


●ø6 06CA

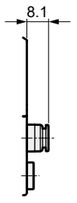


●ø1.8 (0ACF)

●ø4 (04CF)

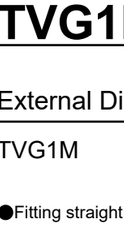


●ø6 (06CF)

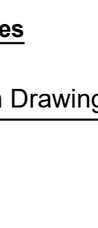


●L fitting (upward)

●ø1.8 (0ACU)



●ø4 (04CU)



●ø6 (06 CU)

●L fitting (downward)

●ø1.8 (0ACD)

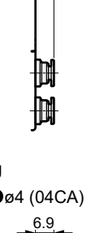
●ø4 (04CD)

●ø6 06CD

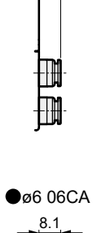
●L fitting (upward), single plug

●ø1.8 (0ACB)

●ø4 (04CB)



●ø6 (06CB)



●ø1.8 (0ACG)

●ø4 (04CG)

●ø6 (06CG)

●L fitting (downward), single plug

●ø1.8 (0ACC)

●ø4 (04CC)

●ø6 (06CC)

●ø1.8 (0ACH)

●ø4 (04CH)

●ø6 (06CH)

External Dimension Drawings

TVG1M

●Fitting straight

●ø1/8" (03LS)

●ø5/32" (04LS)

●Fitting straight, single plug

●ø1/8" (03LA)

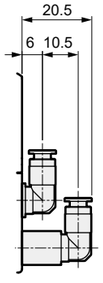
●ø5/32" (04LA)

●ø1/8" (03LF)

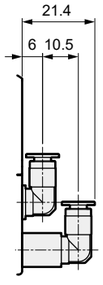
●ø5/32" (04LF)

●L fitting (upward)

●ø1/8" (03LU)

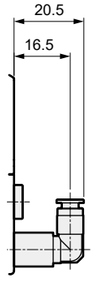


●ø5/32" (04LU)

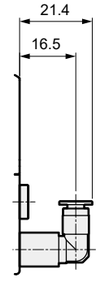


●L fitting (upward), single plug

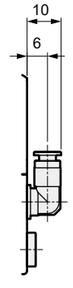
●ø1/8" (03LB)



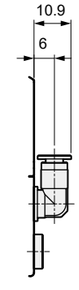
●ø5/32" (04LB)



●ø1/8" (03LG)



●ø5/32" (04LG)

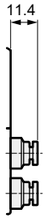


External Dimension Drawings

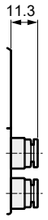
TVG2M

●Fitting straight

●ø4 (04CS)

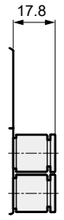


●ø6 (06CS)



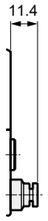
●ø8 (08CS)

●ø10 (10CS)

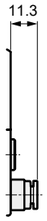


●Fitting straight, single plug

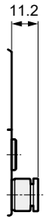
●ø4 (04CA)



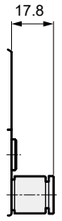
●ø6 06CA



●ø8 08CA



●ø10 (10CA)

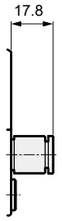


●ø4 (04CF)

●ø6 (06CF)

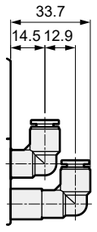
●ø8 (08CF)

●ø10 (10CF)

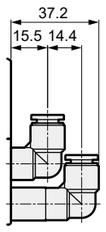


●L fitting (upward)

●ø6 (06 CU)

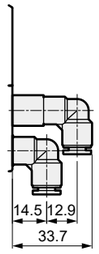


●ø8 (08CU)

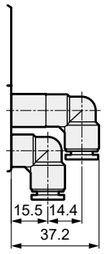


●L fitting (downward)

●ø6 06CD



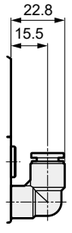
●ø8 08CD



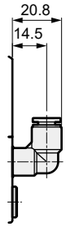
●L fitting (upward), single plug

●ø6 (06CB)

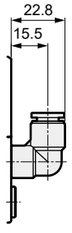
●ø8 (08CB)



●ø6 (06CG)

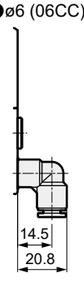


●ø8 (08CG)

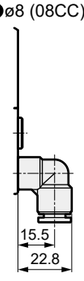


●L fitting (downward), single plug

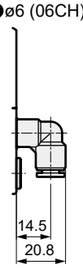
●ø6 (06CC)



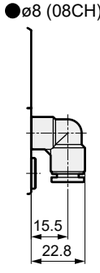
●ø8 (08CC)



●ø6 (06CH)



●ø8 (08CH)



External Dimension Drawings

TVG2M

●Fitting straight

●ø1/4" (06LS)

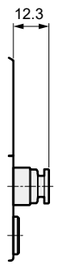
●ø5/16" (08LS)

●Fitting straight, single plug

●06LA ø1/4"

●ø5/16" (08LA)

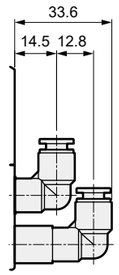
●ø1/4" (06LF)



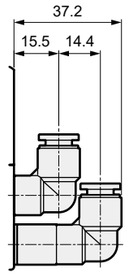
●ø5/16" (08LF)

●L fitting (upward)

●06LU ø1/4"

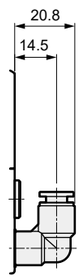


●ø5/16" (08LU)



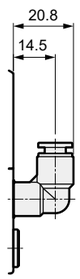
●L fitting (upward), single plug

●ø1/4" (06LB)

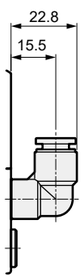


●ø5/16" (08LB)

●ø1/4" (06LG)



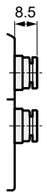
●ø5/16" (08LG)



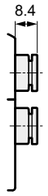
External Dimension Drawings

TVG1M Supply and exhaust block

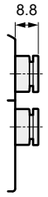
●Fitting straight
●ø6 (06CS)



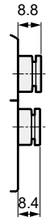
●ø8 (08CS)



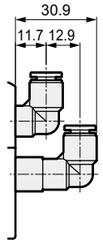
●Fitting straight
●ø5/16" (08LS)



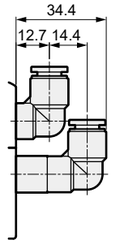
●Port P: ø5/16" (08XS)
Port R: ø8



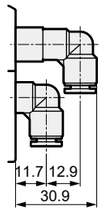
●L fitting (upward)
●ø6 (06 CU)



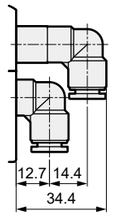
●ø8 (08CU)



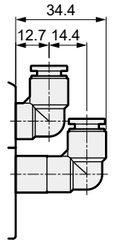
●L fitting (downward)
●ø6 06CD



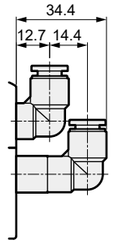
●ø8 08CD



●L fitting (upward)
●ø5/16" (08LU)



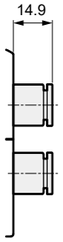
●Port P: ø5/16" (08XU)
Port R: ø8



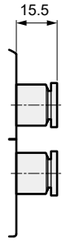
TVG2M Supply and exhaust block

●Fitting straight
●ø8 (08CS)

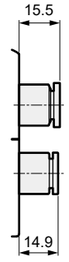
●ø10 (10CS)



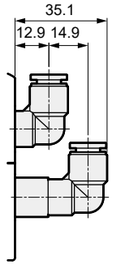
●Fitting straight
●ø3/8" (10LS)



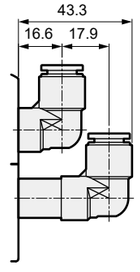
●Port P: ø3/8" (10XS)
Port R: ø10



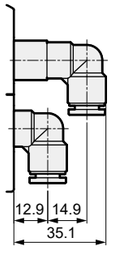
●L fitting (upward)
●ø8 (08CU)



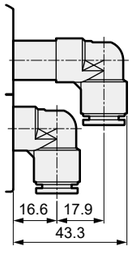
●ø10 (10 CU)



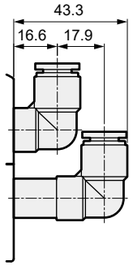
●L fitting (downward)
●ø08 (08CD)



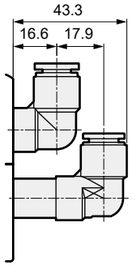
●ø10 (10CD)



●L fitting (upward)
●ø3/8" (10LU)



●Port P: ø3/8" (10XU)
Port R: ø10



How to order (valve interface (supply and exhaust air))

Model No. Notation Method

Valve interface (supply and exhaust air)

10 mm Width	TVG1P	- T	B	-	08CS	-		KA1C
15 mm Width	TVG2P	- T	B	-	10CS	-		KA1C
(Valve width)	❶ Model No.		❷ Piping direction		❸ Connection Port Size		❹ Exhaust method / ❺ Pilot operated	❻ Electrical connections

Attached Parts
- The nut for fixing tie rod is built into the valve interface.
- Comes with two tie rods that fasten the valve interface to the RT Series.

❸ Connection Port Size

●: Standard compliance
○: Custom Product

			❶ Model No. TVG1P	❶ Model No. TVG2P
Metric fitting				
Fitting	**Port P/R**	**Code**		
Push-in	ø6	06CS	●	
	ø8	08CS	●	●
	ø10	10CS		●
Push-in L-type upward	ø6	06CU	●	
	ø8	08CU	●	●
	ø10	10CU		●
Push-in L type downward	ø6	06CD	●	
	ø8	08CD	●	●
	ø10	10CD		●
*1 **Inch fitting**				
Fitting	**Port P/R**	**Code**		
Push-in	ø5/16"	08LS	●	
	ø3/8"	10LS		●
Push-in L-type upward	ø5/16"	08LU	○	
	ø3/8"	10LU		○
*3 **Port P: Fittings Inch, port R: Metric fitting**				
Fitting	**P Port**	**R Port**	**Code**	
Push-in	ø5/16"	ø8	08XS	●	
	ø3/8"	ø10	10XS		●
Push-in L-type upward	ø5/16"	ø8	08XU	○	
	ø3/8"	ø10	10XU		○
Plug				
Port P/R			**Code**	
Plug			00XX	●	●

*1: Select 08XS, 10XS, 08XU or 10XU when using a silencer with inch Fittings specifications. Fittings Port R and PR (for KZ) are metric.
*2: ❺Pilot, K, KZ and 00XX cannot be selected together.
*3: Cannot be selected together with exhaust method X.

❷ Piping direction

Code	Content
B	Side piping

❹ Exhaust method

	Code	Content
	Blank	Centralized Exhaust (port R is a push-in fitting)
*1	X	Exhaust is open to atmosphere, with built-in silencer (Port R is sealed.)

*1: ❸X is not available for port size "00XX".
*2: X is not available for pilot KZ.

❺ Pilot operated

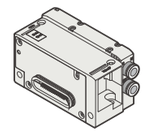
	Code	Content
	Blank	Internal pilot
*1, *2	K	External pilot
*1, *2	KZ	External pilot (PA/PR separated)

*1: ❸Cannot be selected for port size "00XX" and "□□X□".
*2: The external pilot port is an ø6 One-touch Fitting, and in the case of □□L□, it will be an ø5/32 inch fitting.

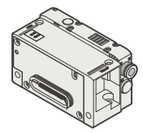
❻ Electrical connections

Content		Code
Valve interface	NPN	KA1C
	PNP	KA1D

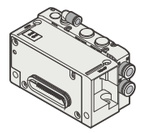
● TVG1P-TB-08CS



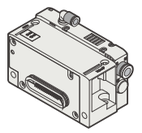
● TVG1P-TB-08CS-X



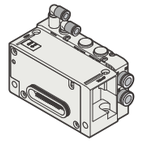
● TVG1P-TB-08CS-K



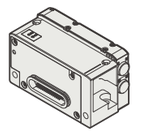
● TVG1P-TB-08CS-XK



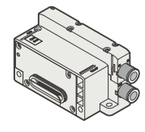
● TVG1P-TB-08CS-KZ



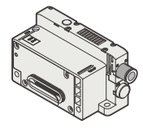
● TVG1P-TB-00XX



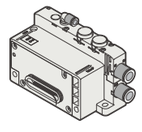
● TVG2P-TB-10CS



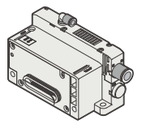
● TVG2P-TB-10CS-X



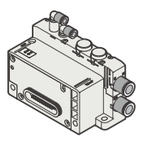
● TVG2P-TB-10CS-K



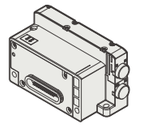
● TVG2P-TB-10CS-XK



● TVG2P-TB-10CS-KZ



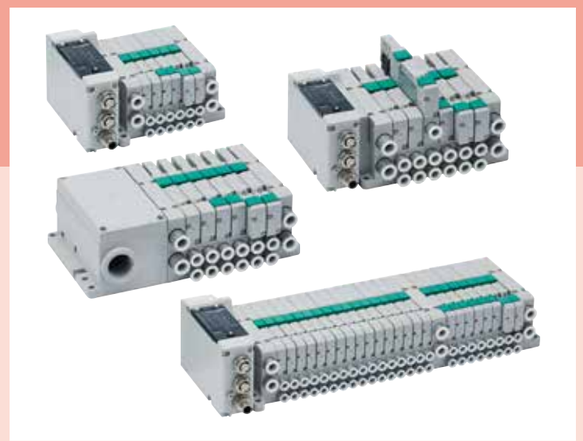
● TVG2P-TB-00XX



TVG

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

Specifications for rechargeable battery manufacturing processes



CONTENTS

Model No. Notation Method

Manifold * with solenoid valve P4 Series has limited materials for air flow path/sliding part.

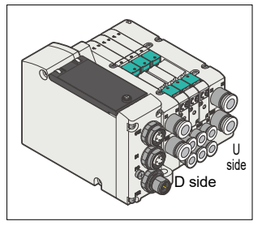
10 mm width (valve width)

Option

TVG1M - 1 B 06CS 3 JA4C - 06 U -P4-HP1

Model No.

1 Switching position class
2 Piping direction
3 Connection Port Size
4 Voltage
5 Electrical connections
6 Station No.
7 Port P/R position
8 Base internal wiring system
9 Pilot operated
10 Electric circuit specifications
11 Manual Override
12 Ozone/ Coolant proof
13 Spacer Yes/No
14 Exhaust check valve
15 Port A/B filter
16 Mount type



1 Switching position class

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 valve side: Normally closed/B valve side: Normally Closed
B	Two valves	A valve side: Normally open/B valve side: Normally Open
C	integrated *1	A valve side: Normally closed/B valve side: Normally Open

*1: Only compatible with internal pilot. Dimensions is the same as the 2-position double.

2 Piping direction

Code	Content
B	Side piping

3 Port size (port A/B)

• Metric fitting

Fitting	Port A/B	Code
Push-in fitting	ø4	04CS
	ø6	06CS
	Mix	99CX

*1

Fitting	Single side plug specifications		Code
	Port A	Port B	
Push-in fitting	ø4	Plug	04CA
	ø6		06CA
	Plug	ø4	04CF
		ø6	06CF

*1: Port size mixtures of ports 4(A) and 2(B) are not available.
*2: Ports A and B are available with one-sided plug specifications for 2-position single only.

4 Voltage

Code	Content
3	24 VDC

5 Electrical connections

• Reduced wiring connection

Communication protocol	Output Format	Code
Common terminal block (M3 thread)	NPN	EA1A
	PNP	EA1B
Multi-connector	NPN	FA1A
	PNP	FA1B
D-sub Connector	NPN	GA1A
	PNP	GA1B

• Serial transmission

Communication protocol		Output Format	Number of Output Points	Code
DeviceNet		NPN	32 points	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

6 Station No.

*1, *2

Code	Content
02	2 stations
to	to
24	24 stations

*1: Differs depending on the reduced wiring specifications. Refer to the individual specifications (on page 7).
*2: 16For mount "R" (DIN rail), the max. station No. is 16.

How to order (manifold with solenoid valve)

• If an exhaust check valve is necessary, refer to page 54.

7 Port P/R position

* Multiple selection is not possible.

Code	Content	
U	U side	
D	D side	
B	U side, D side	
T	U side, D side, With intermediate supply and exhaust block	

*1: Specify the specifications of the intermediate supply and exhaust block in the manifold specifications sheet.
*2: The atmosphere release (internal silencer) type does not support P4 specifications.

8 Base internal wiring system*1

Code	Content
Blank	(Double wiring)
S	Single solenoid, Double solenoid layout specification

*1: Blank = Double solenoid wiring regardless of the type of valve used. If a single solenoid is mounted, an empty number for one solenoid will be generated.

9 Pilot operated

Code	Content
Blank	Internal pilot
K	External pilot

10 Electrical circuit specification

* Multiple selection is not possible.

Code	Content
Blank	With surge suppressor and indicator lamp
E1	Low exoergic/energy saving circuit (surgeless specifications)
E2	Surgeless

*1:Combination of "E2" and PNP specifications is Custom Product.

11 Manual device * Multiple selections are not possible.

Code	Content	
Blank	Locking/non-locking common, With misoperation prevention cover	
M1	Non-locking, With misoperation prevention cover	
M2	Locking/non-locking common, Tool operated, without cover	
M3	Non-locking, Tool operated, without cover	

12 Ozone/Coolant proof

Code	Content
Blank	Standard specifications
A	Ozone/Coolant proof (Main valve fluorine specification)

13 With/Without spacer

Code	Content
Blank	Without spacer
Z	With spacer (Type and location are specified in the MF specifications sheet)

*1: Specify the spacer type and mounting position in the manifold specifications sheet. Stacking of spacers is not possible. Combination with the blanking plate is not supported. The spacer Regulators does not support P4 specifications.

14 Exhaust check valve

Code	Content	
Blank	None	
H	With exhaust check valve	

*1

*1: 1Solenoid positions "3" and "5" cannot be selected. Refer to page 163 for details on the type with exhaust check valve. Specify the number of stations to install in the manifold specifications sheet.

15 Port A/B filter

Code	Content	
Blank	None	
F	Port A/B filter built in	

*1: A filter is built into port P.

16 Mount type

Code	Content
Blank	Direct mount
R	DIN rail mount

Model No. Notation Method

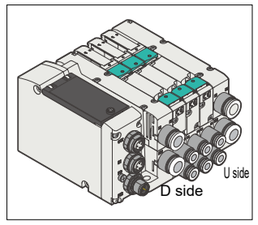
Manifold * with solenoid valve P4 Series has limited materials for air flow path/sliding part.

15 mm width (valve width)

Option

TVG2M - 2 B 06CS 3 JA4C - 05 B [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] -P4-HP1

- TVG2M: Model No.
- 2: ❷ Piping direction
- B: ❸ Connection Port Size
- 06CS: ❺ Electrical connections
- 3: ❹ Voltage
- JA4C: ❼ Port P/R position
- 05: ❻ Station No.
- B: ❽ Base internal wiring system
- [ ]: ❾ Pilot operated
- [ ]: ❿ Electric circuit specifications
- [ ]: ⓫ Manual Override
- [ ]: ⓬ Ozone/Coolant proof
- [ ]: ⓭ Valve mounting Thread
- [ ]: ⓮ Spacer with/without
- [ ]: ⓯ Exhaust check valve
- [ ]: ⓰ Port A/B filter
- -P4-HP1: ⓱ Mount type



❶ Switching position class

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 valve side: Normally closed/B valve side: Normally Closed
B	Two valves integrated *1	A valve side: Normally open/B valve side: Normally Open
C		A valve side: Normally closed/B valve side: Normally Open

*1: Only compatible with internal pilot. Dimensions is the same as the 2-position double.

❷ Piping direction

Code	Content
B	Side piping

❸ Port size (port A/B)

• Metric fitting

Fitting	Port A/B	Code	
Push-in fitting	ø4	04CS	
	ø6	06CS	
	ø8	08CS	
	Mix	99CX	*1

Fitting	Single side plug specifications		Code
	Port A	Port B	
Push-in fitting	ø4	Plug	04CA
	ø6		06CA
	ø8		08CA
Push-in fitting	Plug	ø4	04CF
		ø6	06CF
		ø8	08CF

*1: Port size mixtures of ports 4(A) and 2(B) are not available.
*2: Ports A and B are available with one-sided plug specifications for 2-position single only.

❹ Voltage

Code	Content
3	24 VDC

❺ Electrical connections

• Reduced wiring connection

Communication protocol	Output Format	Code	
Common terminal block (M3 thread)	NPN	EA1A	
	PNP	EA1B	
Multi-connector	NPN	FA1A	
	PNP	FA1B	
D-sub Connector	NPN	GA1A	
	PNP	GA1B	

• Serial transmission

Communication protocol		Output Format	Number of Output Points	Code	
DeviceNet		NPN	32 points	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	

❻ Station No.

Code	Content
02	2 stations
to	to
24	24 stations

*1, *2

*1: Differs depending on the reduced wiring specifications. Refer to the individual specifications (on page 7).
*2: ⓱For mount "R" (DIN rail), the max. station No. is 16.

❼ Port P/R position

* Multiple selection is not possible.

Code	Content	
U	U side	
D	D side	
B	U side, D side	
T	U side, D side, With intermediate supply and exhaust block	

*1: Specify the specifications of the intermediate supply and exhaust block in the manifold specifications sheet.
*2: The atmosphere release (internal silencer) type does not support P4 specifications.

❽ Base internal wiring system*1

Code	Content
Blank	(Double wiring)
S	Single solenoid, Double solenoid layout specification

*1: Blank = Double solenoid wiring regardless of the type of valve used. If a single solenoid is mounted, an empty number for one solenoid will be generated.

❾ Pilot operated

Code	Content
Blank	Internal pilot
K	External pilot

❿ Electrical circuit specification

* Multiple selection is not possible.

Code	Content
Blank	With surge suppressor and indicator lamp
E1	Low exoergic/energy saving circuit (surgeless specifications)
E2	Surgeless

*1: Combination of "E2" and PNP specifications is Custom Product.

⓫ Manual device * Multiple selections are not possible.

Code	Content	
Blank	With locking, non-locking common, misoperation prevention cover	
M1	Non-locking, with misoperation prevention cover	
M2	Locking/non-locking common, tool operation, without cover	
M3	Non-locking, tool operation, without cover	

⓬ Ozone/Coolant proof

Code	Content
Blank	Standard specifications
A	Ozone/Coolant proof (Main valve fluorine specification)

⓭ Valve mounting screw

Code	Content
Blank	Pan head machine screw with Phillips head/flathead
J	Hexagon Socket Head Cap Screw

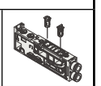
*1: ⓮With/without spacer "Z" cannot be selected with "J".

⓮ With/Without spacer

Code	Content
Blank	Without spacer
Z	With spacer (Type and location are specified in the MF specifications sheet)

*1: Specify the spacer type and mounting position in the manifold specifications sheet. Stacking of spacers is not possible. Combination with the blanking plate is not supported. Cannot be selected together with L-type push-in fitting (upward). The spacer Regulators does not support P4 specifications.

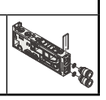
⓯ Exhaust check valve

Code	Content	
Blank	None	
H	With exhaust check valve	

*1

*1: ❶Solenoid positions "3" and "5" cannot be selected. Refer to page 163 for details on the type with exhaust check valve. Specify the number of stations to install in the manifold specifications sheet.

⓰ Port A/B filter

Code	Content	
Blank	None	
F	Port A/B filter built in	

*1: A filter is built into port P.

⓰ Mount type

Code	Content
Blank	Direct mount
R	DIN rail mount

• If an exhaust check valve is necessary, refer to page 54.

Model No. Notation Method

* The P4 Series has limited materials for the air flow paths and sliding parts.
* Solenoid valve is not included.

Manifold base only

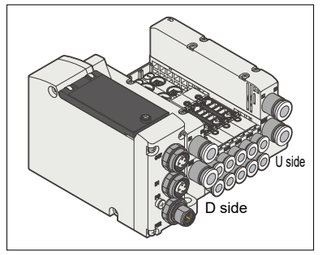
Option

10 mm Width (Valve width)

TVG1B - B 06CS 3 JA4C - 06 U - P4

Model No. | ❷ Connection Port Size | ❹ Electrical connections | ❻ Port P/R position | ❽ Electric circuit specifications | ❿ Mount type

❶ Piping direction | ❸ Voltage | ❺ Station No. | ❼ Pilot operated | ❾ Port A/B Filter



❷ Port size (port A/B)

• Metric fitting

Fitting	Port A/B		Code
Push-in fitting	ø4		04CS
	ø6		06CS
Fitting	Single side plug specifications		Code
	Port A	Port B	
Push-in fitting	ø4	Plug	04CA
	ø6		06CA
	Plug	ø4	04CF
		ø6	06CF

*1: Ports A and B are available with one-sided plug specifications for 2-position single only.

❹ Voltage

Code	Content
3	24 VDC

❶ Piping direction

Code	Content
B	Side piping

❸ Electrical connections

• Reduced wiring connection

Communication protocol	Output Format	Code	
Common terminal block (M3 thread)	NPN	EA1A	
	PNP	EA1B	
Multi-connector	NPN	FA1A	
	PNP	FA1B	
D-sub Connector	NPN	GA1A	
	PNP	GA1B	

• Serial transmission

Communication protocol		Output Format	Number of points	Code	
DeviceNet		NPN	32 points Output	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	ClassA	NPN		JA9C	
		PNP		JA9D	
	ClassB	NPN		JA9G	
		PNP		JA9H	
IO-Link Wireless		NPN		JB1C	
		PNP		JB1D	

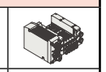
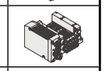
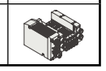
❺ Station No.

Code	Content
02	2 stations
to	to
16	16 stations

*1: The wiring inside the base is all for double solenoid regardless of the type of valve used. The blank number for one solenoid is generated in the section where a single solenoid is mounted.

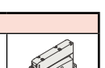
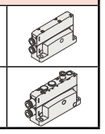
❻ Port P/R position (TVG1B: ø8)

* Multiple selection is not possible.

Code	Content	
U	U side	
D	D side	
B	U, D both sides	

*1: The Port P/R tube has the same direction as the Port A/B tube.

❼ Pilot operated

Code	Content	
Blank	Internal pilot	
K	External pilot	

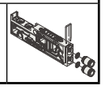
❽ Electrical circuit specification *

Multiple selection is not possible.

Code	Content
Blank	With surge suppressor and indicator lamp
E1	Low exoergic/energy saving circuit (surgeless specifications)
E2	Surgeless

*1: The combination of "E2" and PNP specifications is Custom Product.

❾ Port A/B filter

Code	Content	
Blank	None	
F	Port A/B filter built in	

*1: A filter is built into port P.

❿ Mount type

Code	Content
Blank	Direct mount
*1 R	DIN rail mount

*1: A DIN rail with standard length is attached. For how to calculate the standard length, refer to page 118.

Model No. Notation Method

* The P4 Series has limited materials for the air flow paths and sliding parts.
* Solenoid valve is not included.

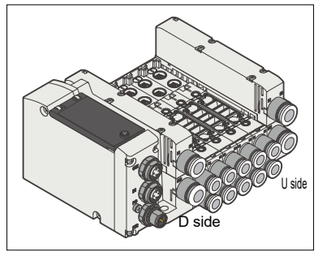
Manifold base only

15 mm Width (Valve width)

TVG2B - B - 08CS - 3 - JA4C - 05 - B - - - - - P4

Option

Model No.	❷ Connection Port Size	❹ Electrical connections	❻ Port P/R position	❽ Electric circuit specifications	❿ Mount type
❶ Piping direction	❸ Voltage	❺ Station No.	❼ Pilot operated	❾ Port A/B Filter	



❶ Piping direction

Code	Content
B	Side piping

❷ Port size (port A/B)

• Metric fitting

Fitting	Port A/B		Code
Push-in fitting	ø4		04CS
	ø6		06CS
	ø8		08CS
Fitting	Single side plug specifications		Code
	Port A	Port B	
Push-in fitting	ø4	Plug	04CA
	ø6		06CA
	ø8		08CA
	Plug	ø4	04CF
		ø6	06CF
		ø8	08CF

*1: Ports A and B are available with one-sided plug specifications for 2-position single only.

❸ Electrical connections

• Reduced wiring connection

Communication protocol	Output Format	Code	
Common terminal block (M3 thread)	NPN	EA1A	
	PNP	EA1B	
Multi-connector	NPN	FA1A	
	PNP	FA1B	
D-sub Connector	NPN	GA1A	
	PNP	GA1B	

• Serial transmission

Communication protocol		Output Format	Number of points	Code	
DeviceNet		NPN	32 points Output	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	ClassA	NPN		JA9C	
		PNP		JA9D	
	ClassB	NPN		JA9G	
		PNP		JA9H	
IO-Link Wireless		NPN		JB1C	
		PNP		JB1D	

❹ Voltage

Code	Content
3	24 VDC

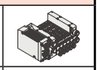
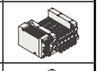
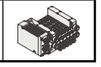
❺ Station No.

Code	Content
02	2 stations
to	to
16	16 stations

*1: The wiring inside the base is all for double solenoid regardless of the type of valve used. The blank number for one solenoid is generated in the section where a single solenoid is mounted.

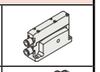
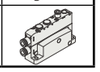
❻ Port P/R position (TVG2B ø10)

* Multiple selection is not possible.

Code	Content	
U	U side	
D	D side	
B	U, D both sides	

*1: The Port P/R tube has the same direction as the Port A/B tube.
*2: A filter is built into port P.

❼ Pilot operated

Code	Content	
Blank	Internal pilot	
K	External pilot	

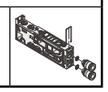
❽ Electrical circuit specification

* Multiple selection is not possible.

Code	Content
Blank	With surge suppressor and indicator lamp
E1	Low exoergic/energy saving circuit (surgeless specifications)
E2	Surgeless

*1: The combination of "E2" and PNP specifications is Custom Product.

❾ Port A/B filter

Code	Content	
Blank	None	
F	Port A/B filter built in	

*1: A filter is built into port P.

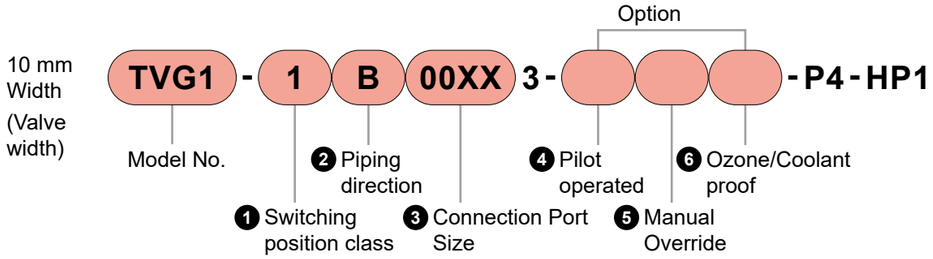
❿ Mount type

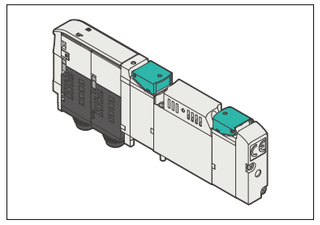
Code	Content
Blank	Direct mount
R	DIN rail mount

*1: A DIN rail with standard length is attached. For how to calculate the standard length, refer to page 118.

Model No. Notation Method

Discrete solenoid valve (for base mounting) The P4 Series * has limited materials for the air flow path and sliding part.





Attached Parts
- The valve mounting screws are included.
- The gasket is attached to the manifold base.

❶ Switching position class

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 Two valves integrated	A valve side: Normally Closed B valve side: Normally Closed
*1 B		A valve side: Normally Open B valve side: Normally Open
*1 C		A valve side: Normally Closed B valve side: Normally Open

*1: Only compatible with internal pilot. Dimensions of the Dimensions diagram are the same as those of 2-position double.

❷ Piping direction

Code	Content
B	Side piping

❸ Connection Port Size

Code	Content
00XX	Discrete solenoid valve for base

❹ Pilot operated

Code	Content
Blank	Internal pilot
K	External pilot

❺ Manual device * Multiple selections are not possible.

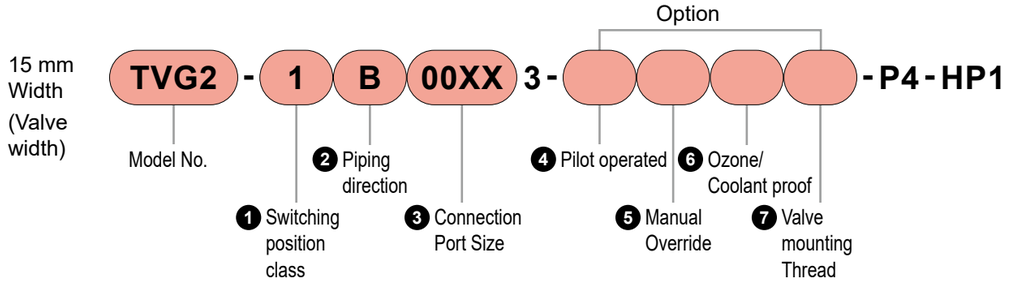
Code	Content	
Blank	With locking, non-locking common, misoperation prevention cover	
M1	Non-locking, with misoperation prevention cover	
M2	Locking/non-locking common, tool operation, Without cover	
M3	Non-locking, tool operation, without cover	

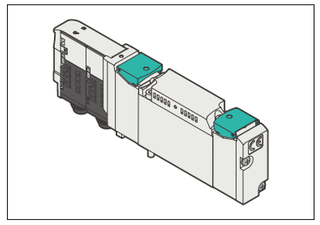
❻ Ozone/Coolant proof

Code	Content
Blank	Standard specifications
A	Ozone/Coolant proof (main valve fluorine specification)

Model No. Notation Method

Discrete solenoid valve (for base mounting) * The P4 Series has limited materials for the air flow path and sliding part.





Attached Parts
- The valve mounting screws are included.
- The gasket is attached to the manifold base.

❶ Switching position class

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 Two valves integrated	A valve side: Normally Closed B valve side: Normally Closed
*1 B		A valve side: Normally Open B valve side: Normally Open
*1 C		A valve side: Normally Closed B valve side: Normally Open

*1: Only compatible with internal pilot. Dimensions of the Dimensions diagram are the same as those of 2-position double.

❷ Piping direction

Code	Content
B	Side piping

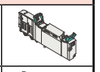
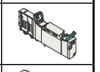
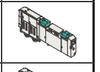
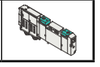
❸ Connection Port Size

Code	Content
00XX	Discrete solenoid valve for base

❹ Pilot operated

Code	Content
Blank	Internal pilot
K	External pilot

❺ Manual device * Multiple selections are not possible.

Code	Content	
Blank	With locking, non-locking common, misoperation prevention cover	
M1	Non-locking, with misoperation prevention cover	
M2	Locking/non-locking common, tool operation, Without cover	
M3	Non-locking, tool operation, without cover	

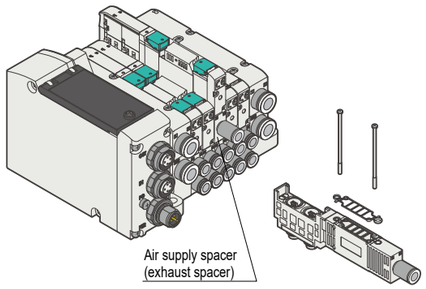
❻ Ozone/Coolant proof

Code	Content
Blank	Standard specifications
A	Ozone/Coolant proof (main valve fluorine specification)

❼ Valve mounting screw

Code	Content
Blank	Pan head machine screw with Phillips head/flathead
J	Hexagon Socket Head Cap Screw

Air supply spacer/exhaust spacer



Specifications

● Air supply spacer

Model No.	Weight g
TVG1P-P-□	33

● Exhaust spacer

Model No.	Weight g
TVG1P-R-□	33

Discrete model No.

● Air supply spacer

TVG1P – P – 04CS – P4

❶ Connection Port Size

❶ Connection Port Size

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

● Exhaust spacer

TVG1P – R – 04CS – P4

❶ Connection Port Size

❶ Connection Port Size

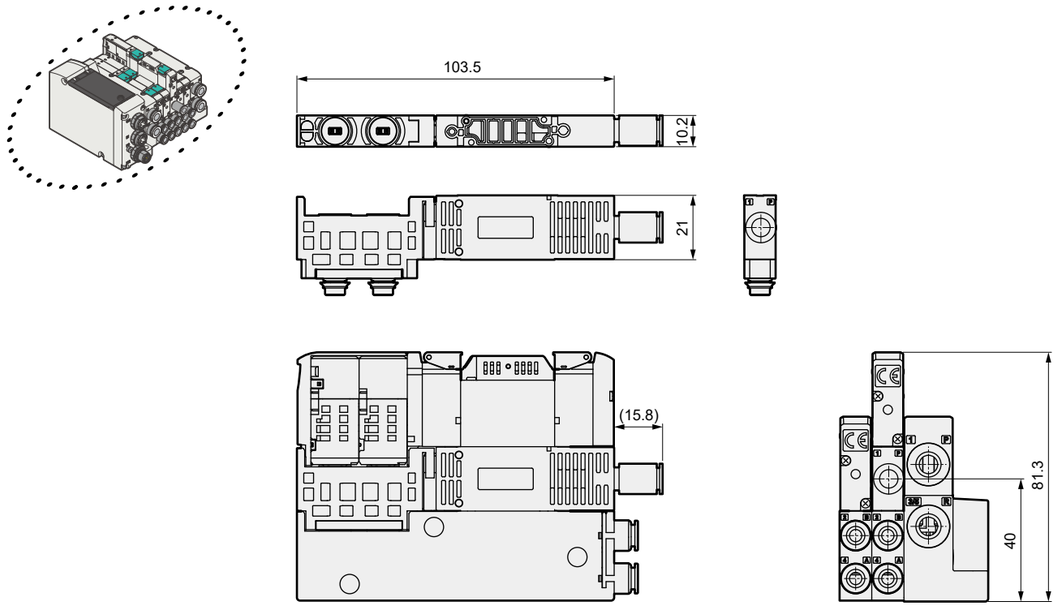
Code	Bore size	Content
04CS	ø4	ø4 Push-in fitting

⚠ Notes for model No. Selection

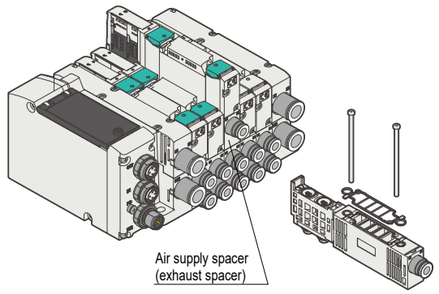
*1: Specify the positions and quantity of spacers for manifold in the manifold specifications sheet (**Refer to pages 131 to 138. Please provide instructions.**
*2: Stacking of spacers is not possible.
*3: A spacer cannot be combined with a blanking plate.
*4: A spacer mounting screw and gasket are included.
*5: If the port A/B Fittings is elbow (upward), a spacer cannot be selected.

External Dimension Drawings

● Air supply spacer/exhaust spacer



Air supply spacer/exhaust spacer



Specifications

● Air supply spacer

Model No.	Weight g
TVG2P-P-□	66

● Exhaust spacer

Model No.	Weight g
TVG2P-R-□	66

Discrete model No.

● Air supply spacer

TVG2P – P – 06CS – P4

❶ Connection Port Size

❶ Connection Port Size

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

● Exhaust spacer

TVG2P – R – 06CS – P4

❶ Connection Port Size

❶ Connection Port Size

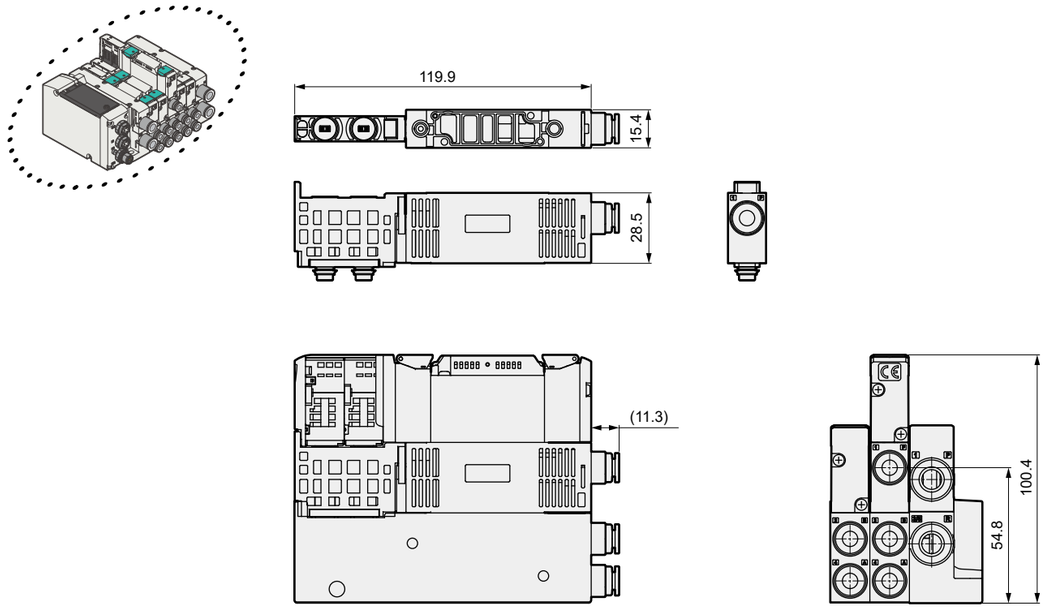
Code	Bore size	Content
06CS	ø6	ø6 Push-in fitting
08CS	ø8	ø8 Push-in fitting

⚠ Notes for model No. Selection

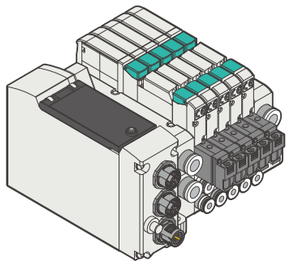
*1: Specify the positions and quantity of spacers for manifold in the manifold specifications sheet (**Refer to pages 131 to 138. Please provide instructions.**
*2: Stacking of spacers is not possible.
*3: A spacer cannot be combined with a blanking plate.
*4: A spacer mounting screw and gasket are included.
*5: If the port A/B Fittings is elbow (upward), a spacer cannot be selected.

External Dimension Drawings

● Air supply spacer/exhaust spacer



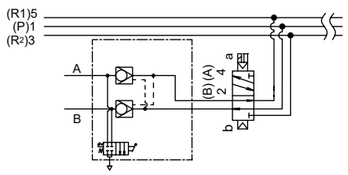
Spacer Pilot Check Valve



Specifications

Item		TVG1P-PC-P4
Operating Fluid		Compressed Air
Maximum Operating Pressure	MPa	0.7
Min. working pressure	MPa	0.2
Proof Pressure	MPa	1.05
Ambient Temperature	°C	−5 to 55 (no freezing)
Working fluid temperature	°C	5 to 55
Atmosphere		Cannot be used in corrosive gas environment.
Weight	g	34

Circuit Diagram Symbol



Discrete model No.

TVG1P − PC − P4

Spacer Pilot Check Valve

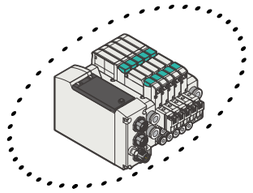
*** Residual pressure release function is not available.**

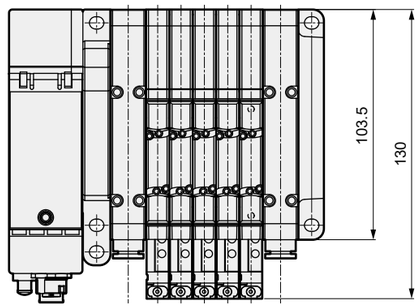
Note) Please note that if you use cylinders with a large bore (guideline ø50 or more) in a state with almost no throttling on the exhaust side (e.g., without a speed controller or silencer), this may lead to a decrease in intermediate stop accuracy and intermediate stop failure.

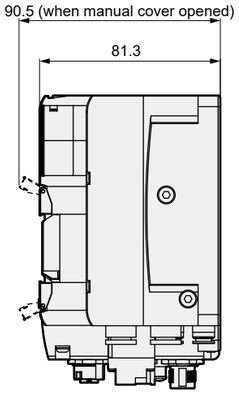
Notes for model No. Selection

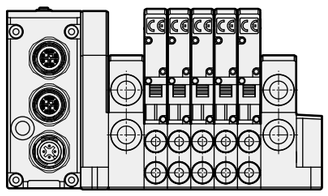
*1: Specify the spacer positions in the manifold specifications sheet.
*2: If the port A/B Fittings is elbow (upward), a spacer cannot be selected.
*3: Stacking of spacers is not possible.
*4: A spacer cannot be combined with a blanking plate.
*5: A spacer mounting screw and gasket are included.

External Dimension Drawings

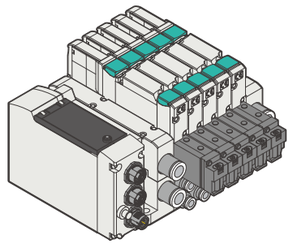








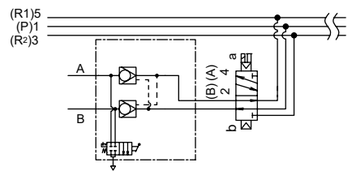
Spacer Pilot Check Valve



Specifications

Item		TVG2P-PC-P4
Operating Fluid		Compressed Air
Maximum Operating Pressure	MPa	0.7
Min. working pressure	MPa	0.2
Proof Pressure	MPa	1.05
Ambient Temperature	°C	−5 to 55 (no freezing)
Working fluid temperature	°C	5 to 55
Atmosphere		Cannot be used in corrosive gas environment.
Weight	g	73

Circuit Diagram Symbol



Discrete model No.

TVG2P − PC − P4

Spacer Pilot Check Valve

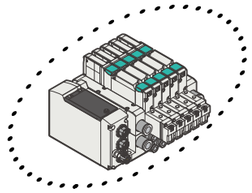
*** Residual pressure release function is not available.**

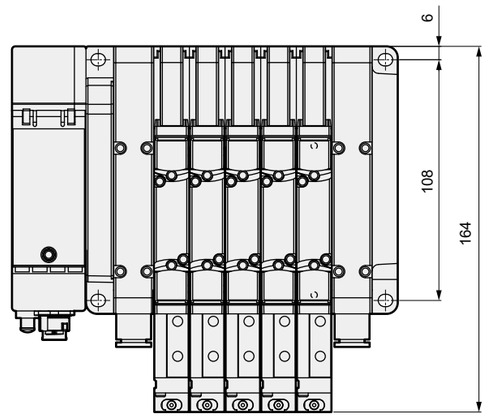
Note) Please note that if you use cylinders with a large bore (guideline ø50 or more) in a state with almost no throttling on the exhaust side (e.g., without a speed controller or silencer), this may lead to a decrease in intermediate stop accuracy and intermediate stop failure.

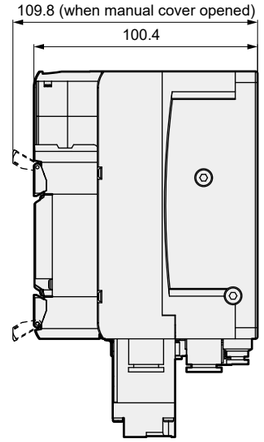
Notes for model No. Selection

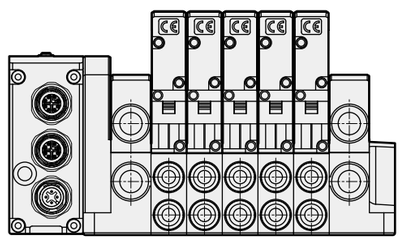
*1: Specify the spacer positions in the manifold specifications sheet.
*2: If the port A/B Fittings is elbow (upward), a spacer cannot be selected.
*3: Stacking of spacers is not possible.
*4: A spacer cannot be combined with a blanking plate.
*5: A spacer mounting screw and gasket are included.

External Dimension Drawings









Model No. Notation Method (Wiring block/Serial Transmission Device Unit)

Model No. Notation Method

Wiring block

10 mm Width	TVG1P	- T	B	-	08CS	-		JA4C	- P4
15 mm Width (Valve width)	TVG2P	- T	B	-	10CS	-		JA4C	- P4
		❶ Model No.	❷ Piping direction		❸ Connection Port Size		❹ Pilot operated	❺ Electrical connections	

Attached Parts
The tie rod fixing nut is built into the wiring block.

❷ Piping direction

Code	Content
B	Side piping

❸ Connection Port Size

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

❹ Pilot operated

	Code	Content
	Blank	Internal pilot
*1, *2	K	External pilot
*1, *2	KZ	External pilot (PA/PR separated)

*1: ❸Cannot be selected for port size "00XX".
*2: The external pilot port is a ø6-push-in fitting.

❺ Electrical connections

• Reduced wiring connection

Content	Code
Common terminal block (M3 thread)	EA1
Multi-connector	FA1
D-sub Connector	GA1

* Both NPN and PNP can be used.

• Serial transmission

Communication protocol		Output Format	Number of points	Code
DeviceNet		NPN	32 points Output	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	ClassA	NPN		JA9C
		PNP		JA9D
	ClassB	NPN		JA9G
		PNP		JA9H
IO-Link Wireless		NPN		JB1C
		PNP		JB1D

Model No. Notation Method

Serial transmission device unit

OPP8	- A	2EC	- P4	
Model No.		❶ Serial transmission		

Attached Parts
- OPP fixing bolts 2pcs.
- Drip-proof gasket 1pc.

❶ Serial transmission

Communication protocol		Output Format	Number of points	Code	
DeviceNet		NPN	32 points Output	2D	
		PNP		2D-P	
CC-LINK		NPN		2G	
		PNP		2G-P	
EtherCAT		NPN		2EC	
		PNP		2EC-P	
EtherNet/IP		NPN		2EN	
		PNP		2EN-P	
CC-Link IEF Basic		NPN		2EB	
		PNP		2EB-P	
PROFINET		NPN		2EP	
		PNP		2EP-P	
CC-Link IE Field		NPN		2EF	
		PNP		2EF-P	
CC-Link IE TSN		NPN		2TG	
		PNP		2TG-P	
IO-Link	ClassA	NPN		2KC-A	
		PNP		2KC-PA	
	ClassB	NPN		2KC-B	
		PNP		2KC-PB	
IO-Link Wireless		NPN		2WK	
		PNP		2WK-P	

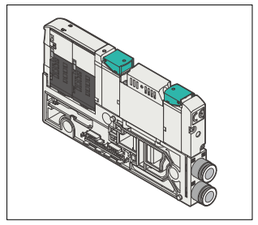
MEMO

Model No. Notation Method

Valve block with solenoid valve

10 mm Width (Valve width) — TVG1P - 1 B 06CS 3 - S [Option] E1 [Option] -P4 -HP1

- Model No.
- ❷ Piping direction
- ❹ Voltage
- ❻ Pilot operated
- ❽ Common specifications
- ❿ Ozone/Coolant proof
- ⓬ Port A/B filter
- ❶ Switching position class
- ❸ Connection Port Size
- ❺ Base internal wiring system
- ❼ Electric circuit specifications
- ❾ Manual Override
- ⓫ Exhaust check valve
- ⓭ Air flow path Partition



❶ Switching position class

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 valve side: Normally closed/B valve side: Normally Closed
*1 B	Two valves	A valve side: Normally open/B valve side: Normally Open
*1 C	integrated	A valve side: Normally closed/B valve side: Normally Open
Z	With blanking plate	

*1: Only compatible with internal pilot. Dimensions of the Dimensions diagram are the same as those of 2-position double.

❷ Piping direction

Code	Content
B	Side piping

❸ Port size (port A/B)

• **Metric fitting**

Fitting	Port A/B	Code
Push-in fitting	ø4	04CS
	ø6	06CS

Fitting	Single side plug specifications *1		Code
	Port A	Port B	
Push-in fitting	ø4	Plug	04CA
	ø6		06CA
	Plug	ø4	04CF
		ø6	06CF

*1: Ports A and B are available with one-sided plug specifications for 2-position single only.

❹ Voltage

Code	Content
3	24 VDC

❺ Base internal wiring system *1

Code	Content
Blank	(double wiring)
S	Single solenoid dedicated wiring

*1: Blank = Double solenoid wiring regardless of the type of valve used. If a single solenoid is mounted, an empty number for one solenoid will be generated.
S = Dedicated for single solenoid. Cannot be selected with 2-position double solenoid, two 3-port valves integrated type and 3-position.

❻ Pilot operated *1

Code	Content
Blank	Internal pilot
K	External pilot

*1: ❶Solenoid position "Z" cannot be selected.

❼ Electrical circuit specification

* Multiple selection is not possible.

Code	Content
Blank	With surge suppressor and indicator lamp
E1	Low exoergic/energy saving circuit (surgeless specifications)
E2	Surgeless

*1: The combination of "E2" and PNP specifications is Custom Product.

❽ Common specifications

Code	Content
Blank	NPN/plus common specifications
P	PNP/minus common specifications

*1: Multiple selection is not possible.
*2: Select the same polarity as that of the wiring block.

❾ Manual Override *1

Code	Content	
Blank	Locking/non-locking common, With misoperation prevention cover	
M1	Non-locking, with misoperation prevention cover	
M2	Locking/non-locking common, Tool operated, without cover	
M3	Non-locking, tool operation, without cover	

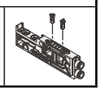
*1: ❶Solenoid position "Z" cannot be selected.

❿ Ozone/Coolant proof *1

Code	Content
Blank	Standard specifications
A	Ozone/Coolant proof (main valve fluorine specification)

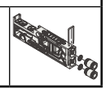
*1: ❶Solenoid position "Z" cannot be selected.

⓫ Exhaust check valve

Code	Content	
Blank	None	
*1 H	With exhaust check valve	

*1: ❶Solenoid positions "3" and "5" cannot be selected. Refer to page 163 for details on the type with exhaust check valve.

⓬ Port A/B filter

Code	Content	
Blank	None	
F	Port A/B filter built in	

*1: A filter is built into port P.

⓭ Air flow path partition

See P. 46 for details.

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:A/B port faces forward and cuts off the right flow path.

Model No. Notation Method

Valve block with solenoid valve

15 mm Width (Valve width)

TVG2P - 2 B 08CS 3 - S E1 -P4 -HP1 (Option)

Model No.

❷ Piping direction

❹ Voltage

❻ Pilot operated

❽ Common specifications

❿ Ozone/Coolant proof

⓬ Exhaust check valve

⓮ Air flow path Partition

❶ Switching position class

❸ Connection Port Size

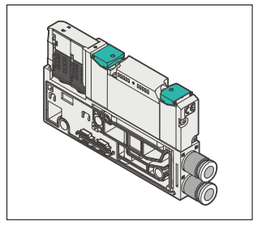
❺ Base internal wiring system

❼ Electric circuit specifications

❾ Manual Override

⓫ Valve mounting Thread

⓭ Port A/B filter



❶ Switching position class

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 valve side: Normally closed/B valve side: Normally Closed
*1 B	Two valves	A valve side: Normally open/B valve side: Normally Open
*1 C	integrated	A valve side: Normally closed/B valve side: Normally Open
Z	With blanking plate	

*1: Only compatible with internal pilot. Dimensions of the Dimensions diagram are the same as those of 2-position double.

❷ Piping direction

Code	Content
B	Side piping

❸ Port size (port A/B)

• Metric fitting

Fitting	Port A/B	Code
Push-in fitting	ø4	04CS
	ø6	06CS
	ø8	08CS

Fitting	Single side plug specifications *1		Code
	Port A	Port B	
Push-in fitting	ø4	Plug	04CA
	ø6		06CA
	ø8		08CA
	Plug	ø4	04CF
		ø6	06CF
		ø8	08CF

*1: Ports A and B are available with one-sided plug specifications for 2-position single only.

❹ Voltage

Code	Content
3	24 VDC

❺ Base internal wiring system *1

Code	Content
Blank	(double wiring)
S	Single solenoid, Dedicated wiring

*1: Blank = Double solenoid wiring regardless of the type of valve used. If a single solenoid is mounted, an empty number for one solenoid will be generated.
S = Dedicated for single solenoid. Cannot be selected with 2-position double solenoid, two 3-port valves integrated type and 3-position.

❻ Pilot operated *1

Code	Content
Blank	Internal pilot
K	External pilot

*1: ❶Solenoid position "Z" cannot be selected.

❼ Electrical circuit specification

* Multiple selection is not possible.

Code	Content
Blank	With surge suppressor and indicator lamp
E1	Low exoergic/energy saving circuit (surgeless specifications)
E2	Surgeless

*1: The combination of "E2" and PNP specifications is Custom Product.

❽ Common specifications

Code	Content
Blank	NPN/plus common specifications
P	PNP/minus common specifications

*1: Multiple selection is not possible.
*2: Select the same polarity as that of the wiring block.

❾ Manual Override *1

Code	Content	
Blank	Locking/non-locking common, With misoperation prevention cover	
M1	Non-locking, with misoperation prevention cover	
M2	Locking/non-locking common, Tool operated, without cover	
M3	Non-locking, tool operation, without cover	

*1: ❶Solenoid position "Z" cannot be selected.

❿ Ozone/Coolant proof *1

Code	Content
Blank	Standard specifications
A	Ozone/Coolant proof (main valve fluorine specification)

*1: ❶Solenoid position "Z" cannot be selected.

⓫ Valve mounting screw

Code	Content
Blank	Pan head machine screw with Phillips head/flathead
J	Hexagon Socket Head Cap Screw

⓬ Exhaust check valve

Code	Content	
Blank	None	
*1 H	With exhaust check valve	

*1: ❶Solenoid positions "3" and "5" cannot be selected. Refer to page 163 for details on the type with exhaust check valve.

⓭ Port A/B filter

Code	Content	
Blank	None	
F	Port A/B filter built in	

*1: A filter is built into port P.

⓮ Air flow path partition

For details P. 48 details.

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: A/B port faces forward and cuts off the right flow path.

Model No. Notation Method

Valve block

10 mm Width (Valve width)

TVG1P - V **B** - **06CS** **3** - [ ][ ][ ][ ][ ] - P4

Option

Model No. TVG1P

1 Piping direction: B

2 Connection Port Size: 06CS

3 Voltage: 3

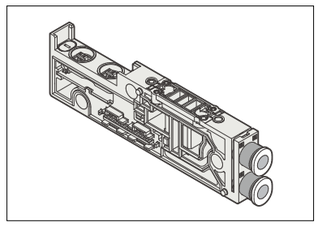
4 Base internal wiring system

5 Electric circuit specifications

6 Common specifications

7 Port A/B filter

8 Air flow path Partition



・Tie rod is not included, so order separately. Refer to page 49 for details. The gasket between blocks is included.

1 Piping direction

Code	Content
B	Side piping

2 Port size (port A/B)

• **Metric fitting**

Fitting	Port A/B	Code
Push-in fitting	ø4	04CS
	ø6	06CS

Fitting	Single side plug specifications *1		Code
	Port A	Port B	
Push-in fitting	ø4	Plug	04CA
	ø6		06CA
	Plug	ø4	04CF
		ø6	06CF

*1: Ports A and B are available with one-sided plug specifications for 2-position single only.

3 Voltage

Code	Content
3	24 VDC

4 Base internal wiring system *1

Code	Content
Blank	(double wiring)
S	Single solenoid dedicated wiring

*1: Blank = Double solenoid wiring regardless of the type of valve used. If a single solenoid is mounted, an empty number for one solenoid will be generated.
S = Dedicated for single solenoid. Cannot be selected with 2-position double solenoid, two 3-port valves integrated type and 3-position.

5 Electrical circuit specification

* Multiple selection is not possible.

Code	Content
Blank	With surge suppressor and indicator lamp
E1	Low exoergic/energy saving circuit (surgeless specifications)
E2	Surgeless

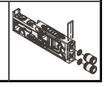
*1: The combination of "E2" and PNP specifications is Custom Product.

6 Common specifications

Code	Content
Blank	NPN/plus common specifications
P	PNP/minus common specifications

*1: Multiple selection is not possible.
*2: Select the same polarity as that of the wiring block.

7 Port A/B filter

Code	Content	
Blank	None	
F	Port A/B filter built in	

*1: A filter is built into port P.

8 Air flow path partition

See P. 46 for details.

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 Method

Valve block

15 mm Width (Valve width)

TVG2P - V **B** - **06CS** **3** - [ ][ ][ ][ ][ ] - P4

Option

Model No. TVG2P

1 Piping direction: B

2 Connection Port Size: 06CS

3 Voltage: 3

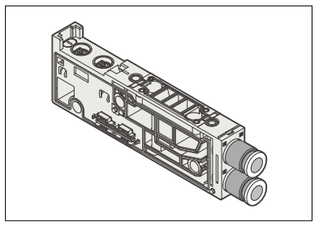
4 Base internal wiring system

5 Electric circuit specifications

6 Common specifications

7 Port A/B filter

8 Air flow path Partition



・Tie rod is not included, so order separately. Refer to page 49 for details. The gasket between blocks is included.

1 Piping direction

Code	Content
B	Side piping

2 Port size (port A/B)

• **Metric fitting**

Fitting	Port A/B	Code
Push-in fitting	ø6	06CS
	ø8	08CS

Fitting	Single side plug specifications *1		Code
	Port A	Port B	
Push-in fitting	ø6	Plug	06CA
	ø8		08CA
	Plug	ø6	06CF
		ø8	08CF

*1: Ports A and B are available with one-sided plug specifications for 2-position single only.

3 Voltage

Code	Content
3	24 VDC

4 Base internal wiring system *1

Code	Content
Blank	(double wiring)
S	Single solenoid dedicated wiring

*1: Blank = Double solenoid wiring regardless of the type of valve used. If a single solenoid is mounted, an empty number for one solenoid will be generated.
S = Dedicated for single solenoid. Cannot be selected with 2-position double solenoid, two
3-port valves integrated type and 3-position.

5 Electrical circuit specification

* Multiple selection is not possible.

Code	Content
Blank	With surge suppressor and indicator lamp
E1	Low exoergic/energy saving circuit (surgeless specifications)
E2	Surgeless

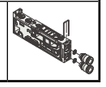
*1: The combination of "E2" and PNP specifications is Custom Product.

6 Common specifications

Code	Content
Blank	NPN/plus common specifications
P	PNP/minus common specifications

*1: Multiple selection is not possible.
*2: Select the same polarity as that of the wiring block.

7 Port A/B filter

Code	Content	
Blank	None	
F	Port A/B filter built in	

*1: A filter is built into port P.

8 Air flow path partition

See P. 48 for details.

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 Method

Tie rod

●For valve block

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

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

❶ Model No. ❷ Station No.

●For intermediate supply and exhaust block

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

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

●For valve block expansion

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

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

❷ Station No.

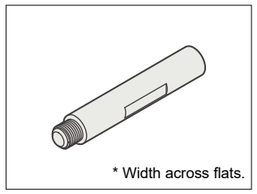
Code	Content
02	For 2 stations
03	For 3 stations
04	For 4 stations
05	For 5 stations
06	For 6 stations
07	For 7 stations
08	For 8 stations
09	For 9 stations
10	For 10 stations
11	For 11 stations
12	For 12 stations
13	For 13 stations

Code	Content
14	For 14 stations
15	For 15 stations
16	For 16 stations
17	For 17 stations
18	For 18 stations
19	For 19 stations
20	For 20 stations
21	For 21 stations
22	For 22 stations
23	For 23 stations
24	For 24 stations

*1: TVG1P is a 3-piece set and TVG2P is a 2-piece set.

Regarding expansion

- Manifold can expand by 3 stations with 2 to 17 stations. Up to three stations can be expanded in total: valve block and intermediate supply and exhaust block. When increasing 18 or more stations of manifolds, use a tie rod that matches the station No. after the increase.
- Fix the tie rod for station expansion/tie rod for intermediate supply and exhaust onto the wiring block. If installed on the end block side, it may not be able to be assembled correctly.



* Width across flats.

Model No. Notation Method

End block (U side)

A hexagon socket head cap screw for tie rod tightening and a gasket between the block are included.

10 mm Width **TVG1P - E B - 08CS - - P4**

15 mm Width **TVG2P - E B - 10CS - - P4**

(Valve width)

❶ Model No. ❷ Piping direction ❸ Connection Port Size ❹ Pilot operated

❷ Piping direction

Code	Content
B	Side piping

❹ Pilot operated

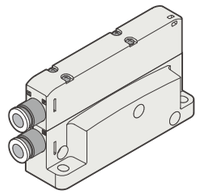
	Code	Content
	Blank	Internal pilot
*1, *2	K	External pilot
*1, *2	KZ	External pilot (PA/PR separated)

*1: ❸Cannot be selected for port size "00XX".
*2: The external pilot port is a ø6-push-in fitting.

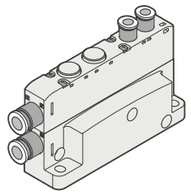
❸ Connection Port Size

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

● TVG1P-EB-08CS-P4



● TVG1P-EB-08CS-KZ-P4



Model No. Notation Method

Intermediate supply and exhaust block

The intermediate supply and exhaust block can be installed between the valve block and the valve block.
These blocks cannot be adjacent to each other. In addition, this block cannot be adjacent to an end block or wiring block.
The electrical internal wiring and the P.R.PA.PR port connect to the adjacent blocks.

10 mm Width: **TVG1P - Q B - 08CS - ( ) - P4**

16 mm Width: **TVG2P - Q B - 10CS - ( ) - P4**

(Valve width)

❶ Model No. ❷ Piping direction ❸ Connection Port Size ❹ Pilot operated

❷ **Piping direction**

Code	Content
B	Side piping

❸ **Connection Port Size**

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

*1: A filter is built into port P to prevent foreign matter from entering.

❹ **Pilot operated**

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

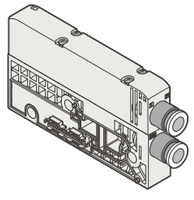
*1: ❸Cannot be selected for port size "00XX".
*2: The external pilot port is a ø6-push-in fitting.
*3: Z cannot be used independently. Be sure to use with another type, blank, K and KZ.

Attached Parts

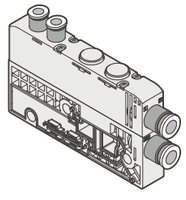
Manifold gasket: 1 pcs

Tie rod is not included, so order separately.
Refer to page 113 for details. The gasket between blocks is included.

● TVG1P-QB-08CS-P4



● TVG1P-QB-08CS-KZ-P4



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