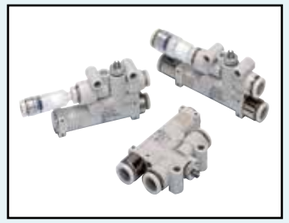


Vacuum Ejector with Vacuum Break Function

VSY Series

RoHS

Integrates ejector and vacuum break functions
Compact and lightweight, enabling use at the end of vacuum piping

Vacuum Characteristic Variations

Nozzle Diameter \ Vacuum Characteristics	Suction Flow Rate (L/min (ANR))			Air Consumption (L/min (ANR))			Ultimate Vacuum Pressure (-kPa)		
	H	L	E	H	L	E	H	L	E
0.5 mm	7	12	3	11.5		8	90	66	90
0.7 mm	12.5	21	9	23		17	92	66	90

*Rated supply pressure; H, L⇒0.5 MPa, E⇒0.35 MPa

Integrates ejector and vacuum break functions

Switching between vacuum generation ⇔ break air is possible by turning the supply air to the ejector ON/OFF.

Added function to discharge break air to the ejector
Enables more reliable vacuum breaking compared to conventional single unit type ejectors

(Refer to the piping examples on the next page)

Achieves faster suction/break cycles by incorporating a shutoff valve

Solution Examples

Transport by robot hand, etc.

Concentrates necessary functions while being lightweight and compact, allowing installation near the workpiece at the tip of moving parts.

Model No. Notation

●Vacuum Ejector with Vacuum Break Function

VSY - H 07 - 6 6 6 S - F

- VSY: Model No.
- H: ❶ Vacuum Characteristics
- 07: ❷ Nozzle Diameter
- 6: ❸ Vacuum Port (V)
- 6: ❹ Vacuum Generation Air Supply Port (P)
- 6: ❺ Break Air Supply Port (PD)
- S: ❻ Exhaust Port (EX)
- F: ❼ Vacuum Filter

❶ Vacuum Characteristics

Code	Content
H	High Vacuum/Medium Flow Type
L	Medium Vacuum/High Flow Type
E	High Vacuum/Low Flow Type

❷ Nozzle Diameter

Code	Content
05	ø0.5
07	ø0.7

❸ Vacuum Port (V)
❹ Vacuum Generation Air Supply Port (P)
❺ Break Air Supply Port (PD)

Code	Content
444	ø4 Push-in fitting
666	ø6 Push-in fitting

❻ Exhaust Port (EX)

Code	Content	
S	Atmospheric Release with Silencer	
J	Centralized Exhaust	

❼ Vacuum Filter

Code	Content	
Blank	None	
F	With Vacuum Filter	

Maintenance Part Model No.

●Replacement vacuum filter

VSY - F - 44M

- VSY: Model No.
- 44M: ❶ Port Size

❶ Port Size

Code	Content
44M	For VSY-□444□
66M	For VSY-□666□

●Dedicated Bracket

VSY - B

- VSY: Model No.

Specifications

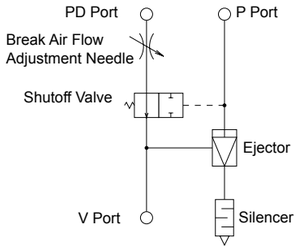
Item	VSY
Operating Fluid	Air
Operating Pressure MPa	0.3 to 0.7
Ambient/Fluid Temperatures ℃	5 to 50
Lubrication	Not required

Vacuum Filter Specifications

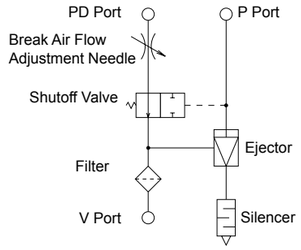
Item	Vacuum Filter
Operating Fluid	Air
Working pressure kPa	-100 to 0
Filtration Rating μm	10
Ambient/Fluid Temperatures ℃	0 to 60
Filtration Area cm²	Port size ø4: 0.8
	Port size ø6: 1.1

Circuit Diagram

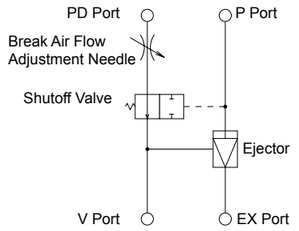
●VSY-□S(Atmospheric release with silencer)



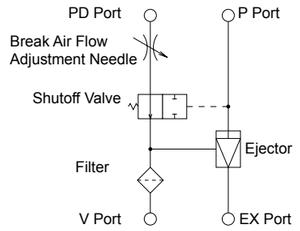
●VSY-□S-F(Atmospheric release with silencer, with vacuum filter)



●VSY-□-J(common exhaust)



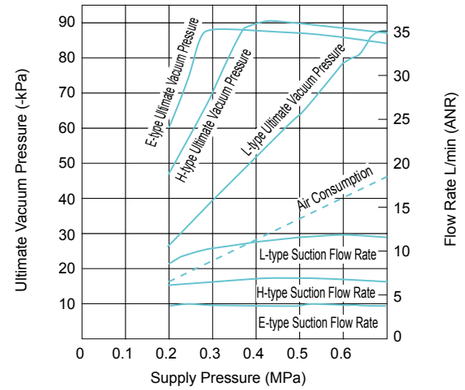
●VSY-□J-F(common exhaust, with vacuum filter)



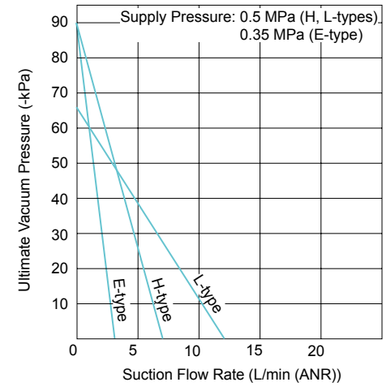
Vacuum Characteristics, Flow Characteristics

●VSY-□05

Vacuum Characteristics

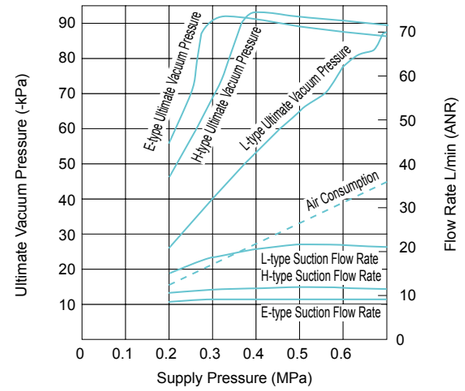


Flow Characteristics

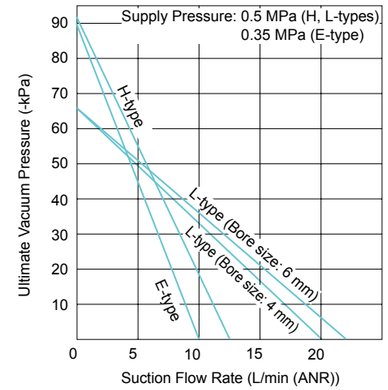


●VSY-□07

Vacuum Characteristics



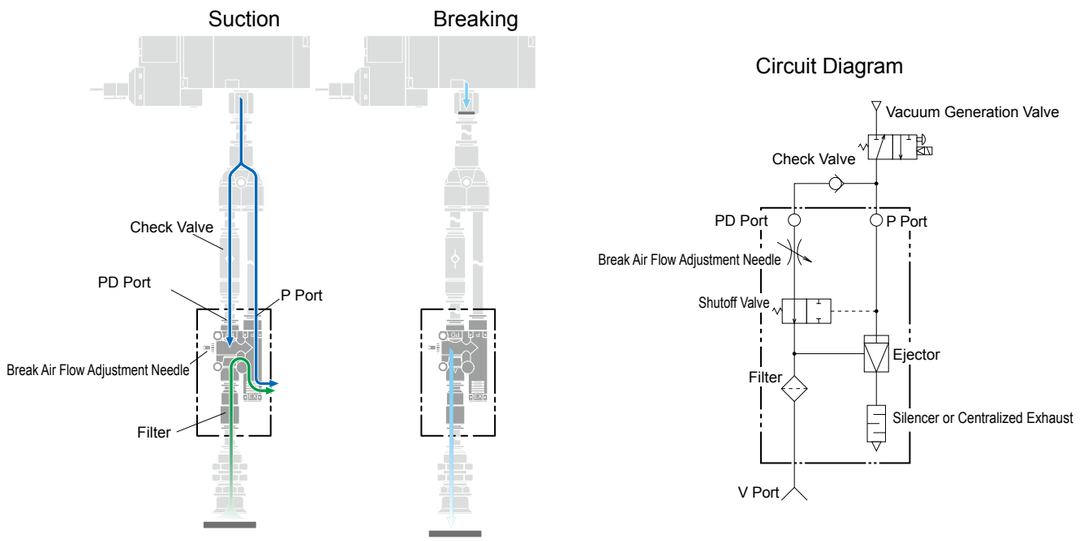
Flow Characteristics



1. The supply pressure in the characteristics above is during vacuum generation.
2. Achieved vacuum pressure with the characteristics described above produces abnormal noise (soft clicking sound) at supply pressure just before reaching the peak value. In this state with abnormal noise, performance is unstable and noise level increases. Also, it may affect sensors, etc., causing trouble, so reset the supply pressure.
   (Ex. 1: For an H-type vacuum ejector with source pressure 0.5 MPa, during ejector operation, the supply pressure drops to 0.43 MPa due to pressure drop, causing abnormal noise.) → Reset the supply pressure during ejector operation to 0.5 MPa.)
3. Select piping or equipment using an effective cross-sectional area approximately 3 times the nozzle diameter cross-sectional area as a guideline. If sufficient supply air flow rate is not secured, satisfactory vacuum characteristics cannot be obtained.
   (Gurgling sound occurs even at the set pressure. Insufficient suction flow rate, failure to reach ultimate vacuum pressure, etc.)
   (Ex. 2: For an H-type vacuum ejector, abnormal noise occurs even though the pressure during ejector operation is 0.5 MPa.) → Insufficient supply air flow rate. (Supply air flow rate is restricted before the vacuum ejector due to piping resistance, etc., preventing the supply air flow rate required for satisfactory characteristics from being obtained.) → Select a pipe components that can secure the required effective cross-sectional area.))
   (Ex. 3: For a vacuum ejector with a 0.7 mm nozzle diameter, cross-sectional area 0.352 × π = 0.785 mm² × 3 = 1.15 mm². Therefore, select piping and equipment to secure an effective cross-sectional area of 1.1 mm² or more.)

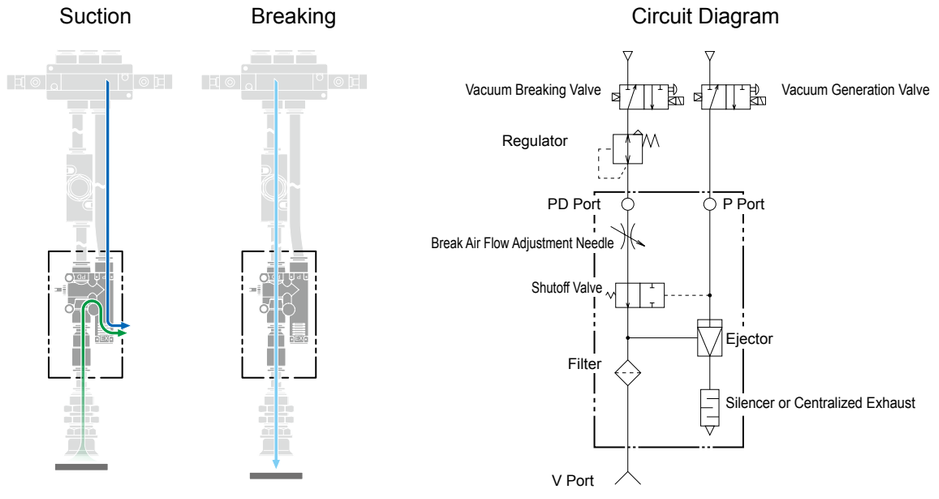
How to Use

[Example 1]



Connect the P port and PD port with a check valve (purchased separately), and use the residual pressure between the check valve and the PD port as break air. Adjust the break air flow rate with the break air flow adjustment needle, and adjust the break time by the length of the tube connecting the check valve and the PD port.

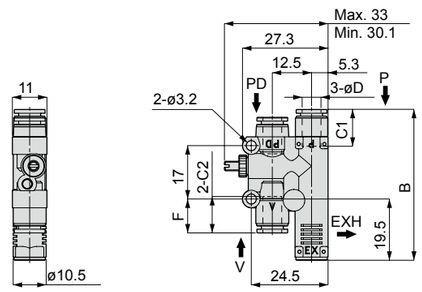
[Example 2]



When wanting to instantly release the workpiece with vacuum break air, adjust the break air pressure and flow rate, but be careful as it may blow the workpiece away. The diagram above is an example of using different pressures for the vacuum generation supply air and the vacuum breaking supply air, such as when wanting to lower the pressure of the vacuum breaking air. (However, Vacuum Generation Supply Pressure ≥ Vacuum Breaking Supply Pressure.)
Adjust the vacuum break air flow rate with the break air flow adjustment needle, and adjust the break time through control of the vacuum breaking valve, etc.

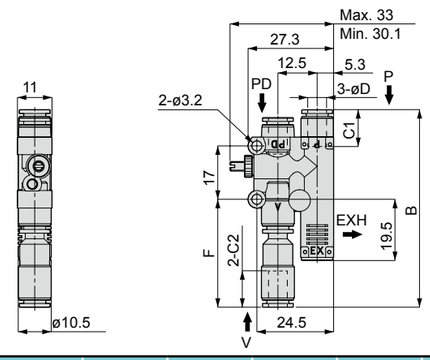
External Dimension Drawings

●VSY-□S(Atmospheric release with silencer)



Model No.	Bore size øD	B	F	C1	C2	Nozzle Diameter	Rated Pressure (MPa)	Ultimate Vacuum Pressure (-kPa)	Suction Flow Rate (L/min (ANR))	Air Consumption (L/min (ANR))	Weight (g)
VSY-H05-444S	4	45.4	10.7	11.2	11.3	0.5	0.5	90	7	11.5	19
VSY-H05-666S	6	48.2	11	11.9	11.8						20
VSY-H07-444S	4	45.4	10.7	11.2	11.3	0.7		92	12.5	23	20
VSY-H07-666S	6	48.2	11	11.9	11.8						
VSY-L05-444S	4	45.4	10.7	11.2	11.3	0.5		66	12	11.5	19
VSY-L05-666S	6	48.2	11	11.9	11.8						20
VSY-L07-444S	4	45.4	10.7	11.2	11.3	0.7			18	23	19
VSY-L07-666S	6	48.2	11	11.9	11.8				21		20
VSY-E05-444S	4	45.4	10.7	11.2	11.3	0.5	0.35	90	3	8	19
VSY-E05-666S	6	48.2	11	11.9	11.8						20
VSY-E07-444S	4	45.4	10.7	11.2	11.3	0.7			9	17	20
VSY-E07-666S	6	48.2	11	11.9	11.8						20

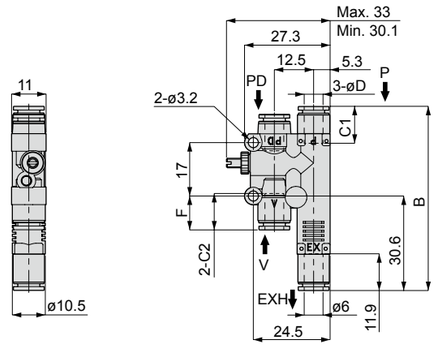
●VSY-□S-F(Atmospheric release with silencer, with vacuum filter)



Model No.	Bore size øD	B	F	C1	C2	Nozzle Diameter	Rated Pressure (MPa)	Ultimate Vacuum Pressure (-kPa)	Suction Flow Rate (L/min (ANR))	Air Consumption (L/min (ANR))	Weight (g)
VSY-H05-444S-F	4	60.3	34.4	11.2	11.3	0.5	0.5	90	7	11.5	21
VSY-H05-666S-F	6	63.3	34.6	11.9	11.8						22
VSY-H07-444S-F	4	60.3	34.4	11.2	11.3	0.7		92	12.5	23	21
VSY-H07-666S-F	6	63.3	34.6	11.9	11.8						22
VSY-L05-444S-F	4	60.3	34.4	11.2	11.3	0.5		66	12	11.5	21
VSY-L05-666S-F	6	63.3	34.6	11.9	11.8						22
VSY-L07-444S-F	4	60.3	34.4	11.2	11.3	0.7			18	23	21
VSY-L07-666S-F	6	63.3	34.6	11.9	11.8				21		22
VSY-E05-444S-F	4	60.3	34.4	11.2	11.3	0.5	0.35	90	3	8	21
VSY-E05-666S-F	6	63.3	34.6	11.9	11.8						22
VSY-E07-444S-F	4	60.3	34.4	11.2	11.3	0.7			9	17	21
VSY-E07-666S-F	6	63.3	34.6	11.9	11.8						22

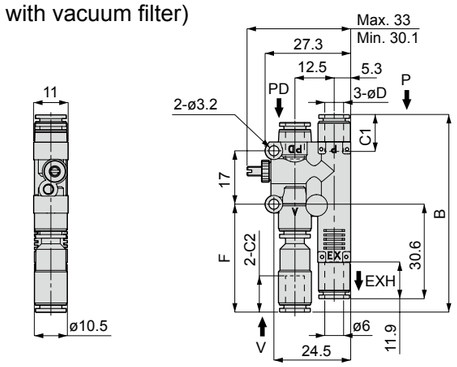
External Dimension Drawings

●VSY-□J(common exhaust)



Model No.	Bore size øD	B	F	C1	C2	Nozzle Diameter	Rated Pressure (MPa)	Ultimate Vacuum Pressure (-kPa)	Suction Flow Rate (L/min (ANR))	Air Consumption (L/min (ANR))	Weight (g)
VSY-H05-444J	4	56.3	10.7	11.2	11.3	0.5	0.5	90	7	11.5	23
VSY-H05-666J	6	59	11	11.9	11.8						
VSY-H07-444J	4	56.3	10.7	11.2	11.3	0.7		92	12.5	23	
VSY-H07-666J	6	59	11	11.9	11.8						
VSY-L05-444J	4	56.3	10.7	11.2	11.3	0.5		66	12	11.5	23
VSY-L05-666J	6	59	11	11.9	11.8						23
VSY-L07-444J	4	56.3	10.7	11.2	11.3	0.7			18	23	23
VSY-L07-666J	6	59	11	11.9	11.8				21		23
VSY-E05-444J	4	56.3	10.7	11.2	11.3	0.5	0.35	90	3	8	23
VSY-E05-666J	6	59	11	11.9	11.8						
VSY-E07-444J	4	56.3	10.7	11.2	11.3	0.7			9	17	
VSY-E07-666J	6	59	11	11.9	11.8						24

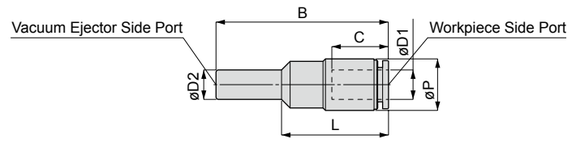
●VSY-□J-F(common exhaust, with vacuum filter)



Model No.	Bore size øD	B	F	C1	C2	Nozzle Diameter	Rated Pressure (MPa)	Ultimate Vacuum Pressure (-kPa)	Suction Flow Rate (L/min (ANR))	Air Consumption (L/min (ANR))	Weight (g)
VSY-H05-444J-F	4	60.3	34.4	11.2	11.3	0.5	0.5	90	7	11.5	24
VSY-H05-666J-F	6	63.3	34.6	11.9	11.8						25
VSY-H07-444J-F	4	60.3	34.4	11.2	11.3	0.7		92	12.5	23	24
VSY-H07-666J-F	6	63.3	34.6	11.9	11.8						25
VSY-L05-444J-F	4	60.3	34.4	11.2	11.3	0.5		66	12	11.5	24
VSY-L05-666J-F	6	63.3	34.6	11.9	11.8						25
VSY-L07-444J-F	4	60.3	34.4	11.2	11.3	0.7			18	23	24
VSY-L07-666J-F	6	63.3	34.6	11.9	11.8				21		25
VSY-E05-444J-F	4	60.3	34.4	11.2	11.3	0.5	0.35	90	3	8	24
VSY-E05-666J-F	6	63.3	34.6	11.9	11.8						25
VSY-E07-444J-F	4	60.3	34.4	11.2	11.3	0.7			9	17	25
VSY-E07-666J-F	6	63.3	34.6	11.9	11.8						26

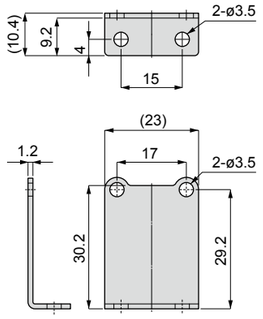
External Dimension Drawings

●VSY-F(replacement vacuum filter)



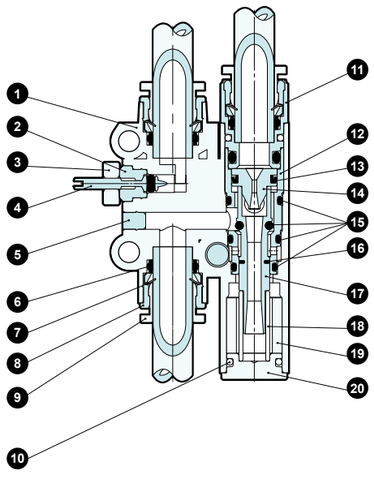
Model No.	Bore size øD1	Applicable Fitting Size øD2	B	L	C	øP	Filtration Area (cm²)	Weight (g)
VSY-F-44M	4	4	35	21.8	11.3	8	0.8	1.5
VSY-F-66M	6	6	35.4	22	11.8	10.5	1.1	2.5

●VSY-B(dedicated bracket)



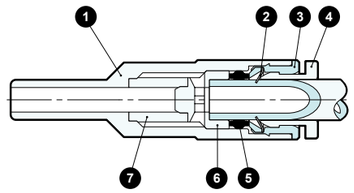
Internal Structure Diagram/Materials

●VSY



Part No.	Part Name	Material
1	Resin Body	Polybutylene terephthalate resin
2	Upper Plug	Brass, Electroless nickel plating
3	Lock Nut	Aluminum alloy
4	Breaking Needle	Stainless steel
5	Plug 2	Brass, Electroless nickel plating
6	Elastomer Sleeve	Nitrile rubber
7	Locking Finger	Stainless steel
8	Guide Ring	Brass, Electroless nickel plating
9	Release Ring	Acetal Resin
10	Spring Pin	Stainless steel
11	Cartridge	-
12	Sleeve	Brass, Electroless nickel plating
13	Y-Packing	Nitrile rubber
14	Nozzle Piston	Brass, Electroless nickel plating
15	O-ring	Nitrile rubber
16	Spool Packing	Special Nitrile Rubber
17	Diffuser Spool	Brass, Electroless nickel plating
18	Diffuser Spring	Stainless steel
19	Silencer Element	-
20	End Plug	Brass, Electroless nickel plating

●Vacuum Filter



Part No.	Part Name	Material
1	Resin Body	Polypropylene resin
2	Locking Finger	Stainless steel
3	Guide Ring	Brass, Electroless nickel plating
4	Release Ring	Acetal Resin
5	Elastomer Sleeve	Nitrile rubber
6	Element Retainer	Acetal Resin
7	Filter Element	Polyvinyl formal

Pneumatic Components

To Use This Product Safely

Be sure to read this before use.
For general pneumatic components precautions, Intro 15 for details.

Individual Precautions: VSY Series

Design / Selection

Warning

■Read the catalog carefully regarding the piping method of VSY vacuum ejector. Incorrect piping methods can potentially cause personal injury or equipment damage.

■Since the filter body material is PP, the resin may deteriorate due to direct sunlight or ultraviolet rays.

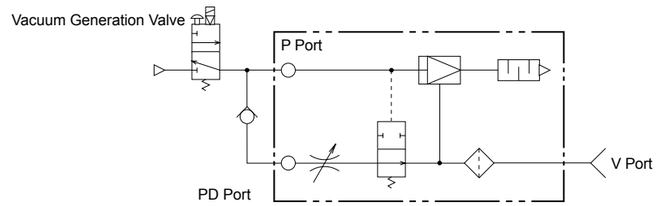
Caution

■Read the catalog carefully regarding flow rate adjustment and burst time adjustment for burst air.

■The built-in vacuum filter cannot be replaced with an element Discrete. When replacement is necessary during maintenance inspections, etc., the entire filter body must be replaced.

■When using different pressures for supply air for vacuum generation and vacuum burst, be sure to set the pressure for vacuum burst lower than that of vacuum generation. If it is higher than the vacuum generation supply air pressure, it may lead to leaks.

■When using the following piping method, burst air may enter instantaneously from the check valve and be emitted from the V port until the shut-off valve completely switches over.



For precautions regarding mounting, installation, adjustment, operation, and maintenance, please refer to the CKD Equipment Product Site (https: //www.ckd.co.jp/kiki/en/) → 'model No.' → Instruction Manual