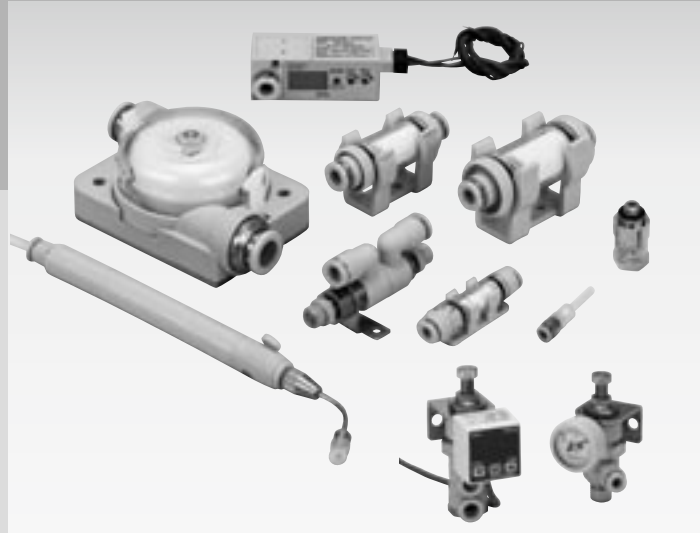


Related vacuum products


■ Vacuum component



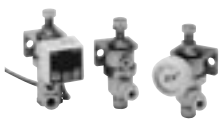
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(Position locking valve)

Series	Model no.	Port size		Remarks	Page
		Vacuum generator side	Workpiece side		
VSECV Series · Separate circuit workpiece maintains vacuum even if workpiece deviates. · This is applicable for vacuum pads.		VSECV-M3	M3		422
		VSECV-M4	M4		
		VSECV-M5	M5		
		VSECV-M6	M6		
		VSECV-6A	R (c) 1/8		

(Compact vacuum regulator)

Series	Model no.	Port size		Remarks	Page	
		ø6	ø8			
VSRVV Series · Terminal pressure can be controlled in addition to main pressure. · Select either a vacuum pressure switch with a digital indicator or a vacuum pressure gauge.		VSRVV-*A*	○	○	Elbow (Output: male thread)	426
		VSRVV-*B*	○	○	Elbow (Supply: male thread)	
		VSRVV-*U*	○	○	Union type	

(Vacuum break unit)




Series	Model no.	Port size		Remarks	Page
		Vacuum generator side	Workpiece side		
VSLF Series · Control vacuum break air while maintaining vacuum characteristics of vacuum ejector. · Reduction of vacuum break time realized by vacuum break circuit relief function.		VSLF-44	ø4	ø4	436
		VSLF-66	ø6	ø6	
		VSLF-46A	ø4	R1/8	
		VSLF-66A	ø6	R1/8	

Related vacuum products


Series variation

(Vacuum filter)


●: Standard, ○: Option

Series	Model no.	Port size						Remarks	Page
		M5	ø4	ø6	ø8	ø10	ø12		
VSFB Series Large volume union type • Dust and water drops are eliminated with the cyclone effect and element. • The entire dust case is removed with a single touch, preventing dust from scattering. 	VSFB-66			●				Filtration area: 20cm ²	440
	VSFB-88				●			Filtration area: 20cm ²	
	VSFB-1010					●		Filtration area: 20cm ²	
	VSFB-1212						●	Filtration area: 20cm ²	
VSFU Series Compact union type • Tools are not required to replace or clean the element. • In-line types are easily installed in piping. 	VSFU-1S	○	○	○				Filtration area: 2.8cm ²	
	VSFU-1L	○	○	○				Filtration area: 4.7cm ²	
	VSFU-2	○	○	○				Filtration area: 7.5cm ²	
	VSFU-3			○	○	○		Filtration area: 12.5cm ²	
VSFJ Series Compact socket type • This is appropriate for discrete ejector, not integrating vacuum filter. 	VSFJ-44		●					Filtration area: 0.8cm ²	
	VSFJ-66			●				Filtration area: 1.1cm ²	

(Vacuum switch)

Series	Model no.	Port size					Remarks	Page
		M5	ø4	ø6	ø8	direct		
VSUS Series • 2 point output and analog output are available. • Push-in joint, M5 female thread, or direct installation piping connection is available. 	VSUS-NW	○	○	○	○	○	NPN: 2 point output	448
	VSUS-NA	○	○	○	○	○	NPN: Analog output	
	VSUS-PW	○	○	○	○	○	PNP: 2 point output	
	VSUS-PA	○	○	○	○	○	PNP: Analog output	

(Air tweezers)

Series	Model no.	Pad diameter				Rubber Material	Holder shape	Page
		ø2	ø4	ø6	ø8			
VST Series • Vacuum pad and ejector are integrated into a pen shape component. • Appropriate for assembly, etc., of small part • A package type is also available. 	VAT-A*N	○	○	○	○	Nitrile rubber	Type without valve	454
	VAT-A*S	○	○	○	○	Silicon rubber	Type without valve	
	VAT-B*N	○	○	○	○	Nitrile rubber	Valve integrated type	
	VAT-B*S	○	○	○	○	Silicon rubber	Valve integrated type	

Related vacuum products

VSECV

VSRVV

VSLF

VSFB-VSFU
VSFJ

VSUS

VST



Separate circuit workpiece maintains vacuum even if workpiece deviates
Position locking valve

VSECV Series

● Port size: M3, M4, M5, M6, R1/8



Features

- When using several pads, even if pads are not sucking properly, pads sucking properly will reduce the drop in vacuum, preventing a workpiece correctly picked up from dropping.

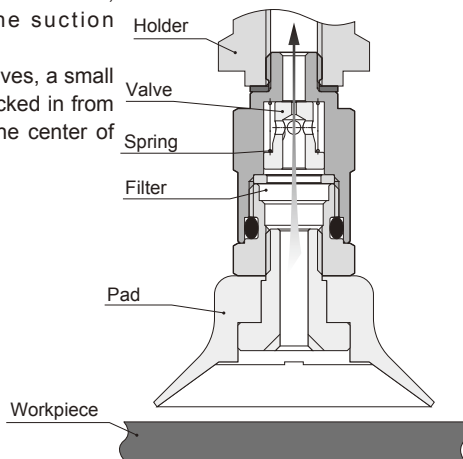
Specifications

Descriptions		VSECV
Working fluid		Air
Working pressure range	Positive pressure MPa	0 to 0.7
	Negative pressure kPa	-100 to 0 Note 1
Ambient temperature range °C		0 to 60

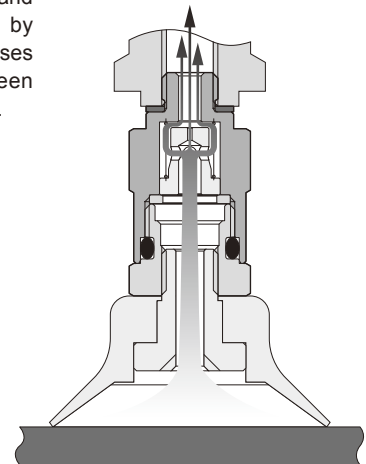
Note 1: Limited to when using for vacuum break applications.

Operational explanation of position locking valve

- Position locking valve operational status
If the workpiece is dislocated from the vacuum pad, the valve is pressed up by the flow of air, thus plugging the suction passage.
When the valve moves, a small amount of air is sucked in from the small hole at the center of the valve.

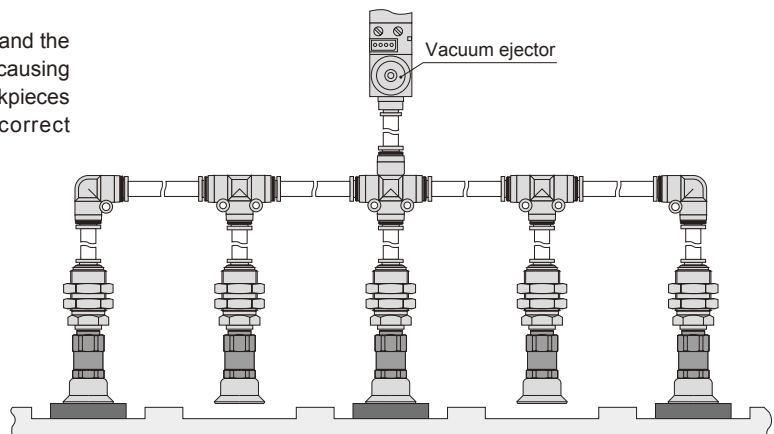


- Workpiece suction state
When the workpiece is seated against the vacuum pad, the vacuum suction flow drops and the valve is pressed down by the spring. This action releases the suction passage between the valve and main element.



Example of piping

- When using several vacuum pads with one vacuum ejector or a vacuum pump, a drop in suction is automatically reduced when the workpiece dislocates from the pad, within a normal range, or when the pad does not contact the workpiece. This reduces the vacuum drop in the entire system, preventing problems such as stoppage in handling work is prevented.
When incorporating this system, it is necessary to understand the number of workpieces dislocated from the pad without causing problems in transfer. Configure the system so that if workpieces obstructing transfer are picked up, a judgment of incorrect processing is issued and safety measures are taken.



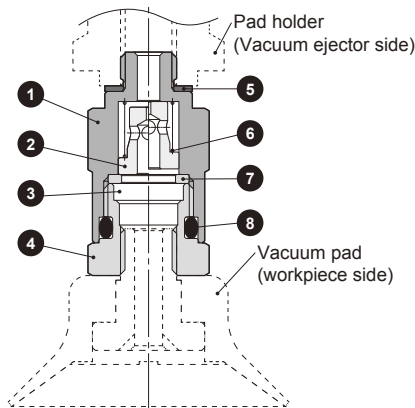
How to order

● Position locking valve
VSECV - M4

Ⓐ Port thread size

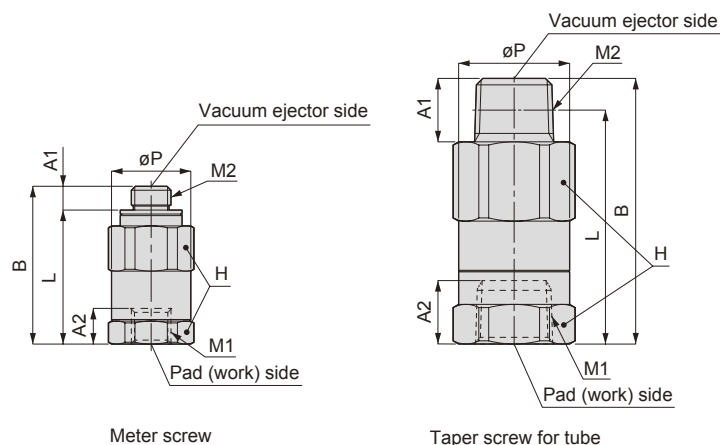
Symbol	Descriptions
Ⓐ Port thread size	
M3	M3 x 0.5
M4	M4 x 0.7
M5	M5 x 0.8
M6	M6 x 1
6A	R1/8

Internal structure



No.	Parts name	Material				
		VSECV-M3	VSECV-M4	VSECV-M5	VSECV-M6	VSECV-6A
1	Metal A	Stainless steel		Brass, electroless nickeling		Aluminum, electroless nickeling
2	Valving element	Aluminum				
3	Filter	PVF				
4	Metal B	Brass, electroless nickeling			Aluminum, electroless nickeling	
5	Gasket	SUS304 + NBR				
6	Spring	SUS304				
7	Stopper	Brass, electroless nickeling				
8	O ring	NBR				

Dimensions



Model no.	M1	M2	A1	A2	B	L	øP	Opposite side H	Min. operational suction rate of valve element (ℓ/min. (ANR))	Effective sectional area (mm ²)		Weight (g)
										Free flow	Controlled flow	
VSECV-M3	M3 x 0.5	M3 x 0.5	2.5	4.5	18.4	15.9	8	8	2	0.7	0.09	4.9
VSECV-M4	M4 x 0.7	M4 x 0.7	2.9	4.5	19.9	16.9	10	10	5	1.6	0.09	7.9
VSECV-M5	M5 x 0.8	M5 x 0.8	3	4.5	19.9	16.9	10	10	5	1.6	0.09	6.6
VSECV-M6	M6 x 1	M6 x 1	4	4.9	28.1	24.1	12	12	13	4.0	0.09	12.4
VSECV-6A	Rc1/8	R1/8	8	8	33.5	29.5	14	14	13	4.8	0.1	10.0

Applicable vacuum pad list

Model no.	Pad shape	Pad size (mm)	Holder shape (including long stroke)						
			VSP-A	VSP-B	VSP-C	VSP-D	VSP-E	VSP-F	
			VSP-MA	VSP-MB	-	-	VSP-ME	-	
VSECV-M3	Standard type	ø1.5, ø2, ø3, ø4		-				○	-
VSECV-M4	Standard type	ø10, ø15		○				-	○
	Bellows type	ø10		○				-	○
	Multistage bellows type	ø10		○				-	○
	Soft type	ø4, ø6, ø8, ø10, ø15		○				-	○
	Soft bellows type	ø6, ø8, ø10, ø15		○				-	○
	Nonskid type	ø10		○				-	○
VSECV-M5	Standard type	ø6, ø8		-				○	-
VSECV-M6	Standard type	ø20, ø25, ø30, ø40, ø50		○				-	○
	Sponge type	ø10, ø15, ø20, ø25, ø30, ø35, ø50		○				-	○
	Bellows type	ø20, ø30, ø40, ø50		○				-	○
	Multistage bellows type	ø20, ø30, ø40, ø50		○				-	○
	Oval type	4 x 10 to 8 x 30		○				-	○
	Soft type	ø20, ø30, ø40		○				-	○
	Soft bellows type	ø20		○				-	○
	Nonskid type	ø20, ø30, ø40, ø50		○				-	○

(How to order)

Examp□



Symbol V: With position locking valve

⚠ Note on model no. selection (common for all models)

Note 1: If free holder (F1, F2) is selected, position locking valve (symbol V) can not be selected.

Note 2: The vacuum pad shape, pad size, and holder shapes applying when this option is selected follow the range given above in "Target vacuum pads".

Safety precautions

⚠ WARNING

- This is not a check valve, so vacuum is not held unless there is a hold function at the vacuum source. Do not use this for purposes involving holding the vacuum.
- This system is designed to hold several vacuum pads on one ejector, but performance should be confirmed with the actual machine before starting use.
- When using the sponge pad when leakage exceeds the valve's working suction flow, the valve could operate and cause the workpiece to drop.

⚠ CAUTION

■ Precautions for installing and removing the valve

- ① Use appropriate tools to install and remove this valve.
- ② Refer to the recommended tightening torque for each screw size (table) when installing the valve.

Table Recommended tightening torque

Thread size	Tightening torque
M3 x 0.5	0.7N·m
M4 x 0.7	0.9 to 1.1N·m
M5 x 0.8	1.0 to 1.5N·m
M6 x 1	1.8 to 2.3N·m
M6 x 0.75	0.8 to 1.0N·m
M8 x 0.75	1.0 to 2.0N·m
M10 x 1	3.0 to 4.0N·m
R1/8	7.0 to 9.0N·m

■ Precautions for valve screw tightening position

- ① When installing the male screw of the position locking valve on the device or holder, use the opposite hexagon side on the male screw to tighten, and confirm that no play exists. Refer to the recommended tightening torque in the table above.
- ② When installing the female screw of the position locking valve on the device or pad, use the opposite hexagon side on the female screw to tighten, and confirm that no play exists. Refer to the recommended tightening torque in the table above.
- ③ When tightening the main screws during element replacement, refer to the recommended tightening torque in the table above.

■ This product has a slight pressure drop even when the workpiece is not sucked, so when checking the suction with a pressure gauge, etc., check carefully with the actual machine. If the filter element is clogged, the pressure drop could be even smaller when the workpiece is not sucked, so check when setting the pressure sensor, etc.

■ Check the product configuration drawing when replacing the element. Take care not to lose any of the position locking valve configuration parts when replacing.

Selection method

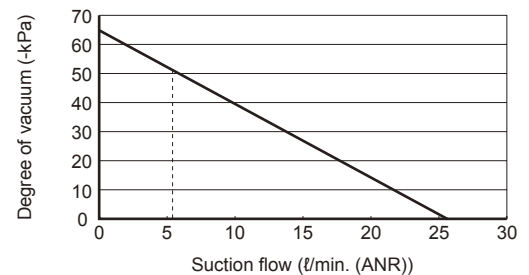
Using the following valving element operation minimum suction flow and the graph example, calculate how many position locking valve can be installed on one vacuum generator.

Descriptions	VSECV-M3	VSECV-M4	VSECV-M5	VSECV-M6	VSECV-6A
Valving element operation minimum suction flow ℓ/min. (ANR)	2.0	5.0	5.0	13.0	13.0
Vacuum drop when not sucking kPa	2.0	2.0	2.0	2.0	2.0

Example 1. VSJ-L07...
(catalog data)

Ultimate vacuum (-kPa)	Suction flow (ℓ/min. (ANR))
66.5	26

Refer to the right diagram completed with the catalog and use the table of valving element actuation minimum suction flow rate table to calculate the type of usable position locking valve models and maximum usable quantity.



■ Using with a -50 kPa vacuum

The suction flow rate is 6ℓ/min (ANR), so the usable position locking valve model is VSECV-M3, VSECV-M4, or VSECV-M5.

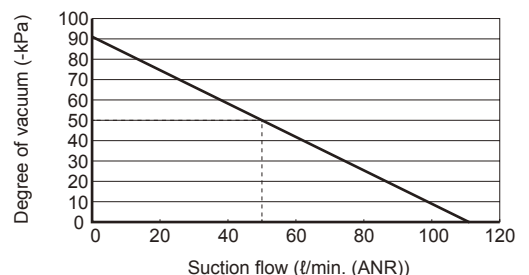
For VSECV-M3, the usable quantity and nonsuction sections: 3 units are acceptable.

For the VSECV-M4 and VSECV-M5, the usable quantity and nonsuction sections: 1 unit is acceptable

Example 2. VSQ-H20...
(catalog data)

Ultimate vacuum (-kPa)	Suction flow (ℓ/min. (ANR))
93	110

Refer to the right diagram completed with the catalog and use the table of valving element actuation minimum suction flow rate table to calculate the type of usable position locking valve models and maximum usable quantity.



■ Using with a -50 kPa vacuum

The suction flow rate is 52ℓ/min (ANR), so the usable position locking valve model is VSECV-M3, VSECV-M4, VSECV-M5, VSECV-M6 or VSECV-6A.

For VSECV-M3, the usable quantity and nonsuction sections: 21 units are acceptable.

For the VSECV-M4 and VSECV-M5, the usable quantity and nonsuction sections: 10 unit is acceptable

For the VSECV-M6 and VSECV-6A, the usable quantity and nonsuction sections: 4 unit is acceptable

*1: When calculated with the suction flow rate alone, the VSECV-M3 can theoretically handle up to 25 units. As indicated, the vacuum drop per unit is -2 kPa, so if all 25 units are in nonsuction, vacuum will be $-93 + (2 \times 25) = -43$ kPa. When used at -50 kPa, then $-93 + (2 \times x) \leq -50 \times x \leq 21.5$ Maximum nonsuction locations are 21 units.