Series variation

Ejector system
Single unit

Model	Series		Single unit width (mm)	Single unit/weight (g)	Manifold	Components: With valve: For generation	Components: With valve: Breaking the vacuum	Components: With switch: Mechanical	Components: With switch: Switch output	Components: With switch: Analog output
Ejector system / Single unit	**VSY Series** With vacuum burst function · Ejector and vacuum burst function are integrated · Compact and lightweight, it can be used at the end of vacuum piping		11	19 to 25.5						
	VSH Series Solenoid valve direct mounting (supply port thread) · Air supply port size: Solenoid valve can be directly mounted from M5 to R1/4 Series · A wide range of nozzle diameter variations from ø0.5 to ø2.0		ø9.8 to ø28	13 to 116						
	VSU Series Tubular · Installable in the middle of piping since the vacuum port and air supply port form a straight line. · Dedicated bracket is available		ø13	17 to 23						
	VSB Series Square · Square silencer built in, enabling body mounting and fixing · Option for mechanical vacuum switch can be selected.		12.2	17.5 to 48.5				○		
	VSC Series Pad direct mounting (vacuum port thread) · Vacuum port size: Vacuum pads can be directly mounted from M5 to R1/4 Series · A wide range of nozzle diameter variations from ø0.5 to ø2.0		8 to ø24	14.5 to 109						

Ejector characteristics table

Nozzle diameter		Achieved vacuum pressure (-kPa) *1			Intake flow rate (ℓ/min (ANR))			Consumption flow rate (ℓ/min (ANR))		
Model No.	(mm)	H	L	E	H	L	E	H	L	E
05	0.5	90 to 91	66 to 67	90 to 92	7	11 to 12	3 to 10	11.5		8 to 17
07	0.7	90 to 93.1			12 to 13	18 to 26	9 to 10.5	23		17
10	1	93			20 to 28	26 to 42	19 to 21	46		34
12	1.2			90.4 to 92	38	50	27	70		47
15	1.5		66	92	63	95	42	100		70
20	2.0				104 to 110	174 to 180	82 to 84	200		150

*1: Supply pressure of H and L is 0.5 MPa and supply pressure of E is 0.35 MPa.
*2. H High vacuum/medium flow = high vacuum
L Medium vacuum/large flow = large flow
E High vacuum/low flow = low supply pressure, High vacuum (energy saving)

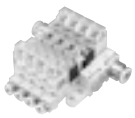
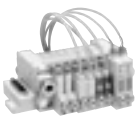
●: Standard equipment ○: Option

Components				Nozzle diameter (mm)								Achieved vacuum pressure (-kPa) *1			Intake flow rate (ℓ/min (ANR))			Consumption flow rate (ℓ/min (ANR))			Page
With vacuum filter	With silencer	Common exhaust	With check valve	04 (0.4)	05 (0.5)	06 (0.6)	07 (0.7)	10 (1.0)	12 (1.2)	15 (1.5)	20 (2.0)	H	L	E	H	L	E	H	L	E	
○	○	○			○							90	66	90	7	12	3	11.5		8	6
							○								12.5	18/21	9	23		17	
	○	○			○							90	66	92	7	12		11.5			14
							○					93			13	26	10.5	23		17	
								○							28	42	21	46		34	
									○						38		27	70		47	
										○					63	95	42	100		70	
											○				104	174	82	200		150	
●	○	○			○							90	66	90	7	12	10	11.5		17	14
							○					92			12.5	20/22		23			
	●				○							90	66	92	7	12		11.5			14
							○					93			13	26	10.5	23		17	
								○							28	42	21	46		34	
									○						38		27	70		47	
	○	○			○							90	66	92	7	11		11.5			14
							○					93			13	26	10.5	23		17	
								○							28	42	21	46		34	
									○						38		27	70		47	
										○					63	95	42	100		70	
											○				110	180	84	200		150	

*1: Supply pressure of H and L is 0.5 MPa and supply pressure of E is 0.35 MPa.
*2. Values in ( ) for the VSQ twin nozzle are for small bore size nozzle.

Series variation

Ejector system
Unit combination

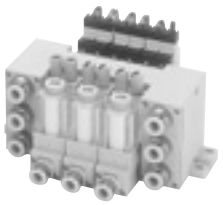
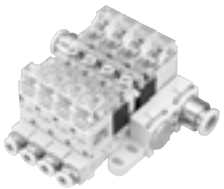
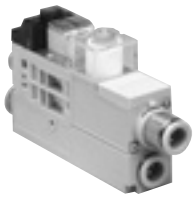
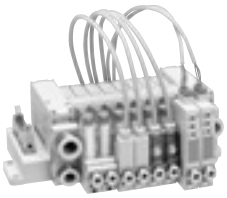
Model	Series		Single unit/width dimension (mm)	Single unit/weight (g)	Manifold	Components: With valve: For generation	Components: With valve: Breaking the vacuum	Components: With switch: Mechanical	Components: With switch: Switch output	Components: With switch: Analog output
Ejector system / Unit combination	**VSG Series** Comprehensive type that emphasizes basic performance · Dedicated single unit · Valve, vacuum pressure switch and filter are unitized. Select according to your application.		20	47 to 128		●	●		○	○
	VSK/VSKM Series Ample variations are available · Modularization of each unit enables optimal unit selection. · Built-in check valve and vacuum burst valve with air timer can be selected.		16	60 to 153	○	○	○	○	○ (A model with digital display can also be selected)	○
	VSJ/VSJM Series Preventing workpieces from being blown away due to burst air flow rate and pressure control · A self-hold model that supports power saving in vacuum generating valve is also available. · Vacuum burst circuit relief function realizes shortening of vacuum burst time.		20	156 to 175.5	○	●	●		○ (With digital display)	○
	VSN/VSNM Series Fast and stable response · Compact and lightweight. The height dimension is made especially compact. · A direct acting valve is used as the main valve to achieve ON/OFF responsivity of 5 msec or less		10.3	50.5 to 171	○	●	●		○	○ (Digital display type can be selected)
	VSX/VSXM Series Lightweight and compact · Direct mount and DIN rail are available for mounting. · A self-hold model that supports power saving in vacuum generating valve is also available.		10.5	71 to 84	○	●	●		○ (The type with a digital display can also be selected)	○
	VSQ Series Large vacuum unit ideal for controlling large flow rates · Standardized three types of nozzle: single, double and twin · A self-hold model that supports power saving in vacuum generating valve is also available (single nozzle only).		31.5	400 to 470		●	●		○ (With digital display)	
	VSZM Series Dedicated manifold, reduced wiring (flat cable/D sub-connector) compatible · With atmospheric pressure relief valve installed, atmosphere burst at high flow rate is possible, shortening the vacuum burst time · Self-hold energy-saving type is also available, with valve power consumption of 0.55 W		11	Contact CKD for details.	●	●	●		○ (The type with a digital display can also be selected)	○

●: Standard equipment ○: Option

Components				Nozzle diameter (mm)								Achieved vacuum pressure (-kPa) *1			Intake flow rate (ℓ/min (ANR))			Consumption flow rate (ℓ/min (ANR))			Page
With vacuum filter	With silencer	Common exhaust	With check valve	04 (0.4)	05 (0.5)	06 (0.6)	07 (0.7)	10 (1.0)	12 (1.2)	15 (1.5)	20 (2.0)	H	L	E	H	L	E	H	L	E	
●	●				○		○	○				90	66	90	7	12		11.5			32
												93			13	26	10.5	23		17	
															27	40	21	46		34	
●	○	○	○		○		○	○				91	67		7	11		11.5			40
												93		91	13	26		23			
															27	40	21	46		34	
									○						38	50	27	70		47	
●	○	○			○		○					90.4	66.5		7	11		11.5			66
												93.1		90.4	13	26	10.5	23		17	
															27	40	21	46		34	
															38		27	70		47	
	○	○		○													2			6	86
					○							90.4		90.4	7		3	11.5		8	
						○									9.5		4.5	16		12	
●	○	○			○		○					90.4	66.5	90.4	7	12	3	11.5		8	112
								○				93.1			13	24/22	10.5	23		17	
															24/20	26	20/19	46		34	
●	○	○								○	○	93	66	92	63	95	42	100		70	142
															110	180	84	200		150	
							○	2-stage nozzle				93			24			23			
								○	2-stage nozzle						36			46			
									○	2-stage nozzle					40			70			
					Twin nozzle		○			○					40 (24) *2			100 (23) *2			
						Twin nozzle		○			○				70 (36) *2			200 (46) *2			
●	○	○			○							90.4	66.5		7	12		11.5			170
							○					93.1		90.4	13	24	10	23		17	
								○							24		20	46		34	

Series variation

Vacuum pump system

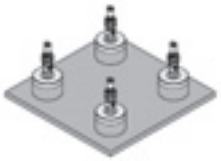
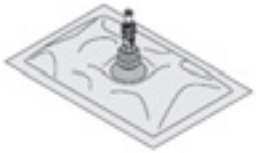
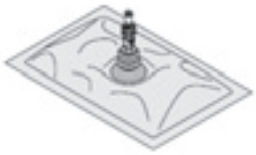
Model		Series	
Vacuum pump system	Vacuum switching unit	**VSJP/VSJPM Series** Preventing workpieces from being blown away due to burst air flow rate and pressure control · A self-hold model that supports power saving in vacuum generating valve is also available. · Vacuum burst circuit relief function realizes shortening of vacuum burst time.	
		VSNP/VSNPM Series Fast and stable response · Compact and lightweight. The height dimension is made especially compact. · A direct acting valve is used as the main valve to achieve ON/OFF responsivity of 5 msec or less	
		VSXP/VSXPM Series Lightweight and compact · Direct mount and DIN rail are available for mounting. · 3-way valve specification realizes a substantial reduction of vacuum burst time by using a 3-way vacuum supply valve.	
		VSQP Series Large vacuum unit ideal for controlling large flow rates · Normally open and normally closed types are available for vacuum supply valves.	
		VSZPM Series Manifold dedicated, reduced wiring (flat cable/D sub-connector) compatible · With atmospheric pressure relief valve installed, atmosphere burst at high flow rate is possible, shortening the vacuum burst time · Self-hold energy-saving type is also available, with valve power consumption of 0.55 W	

●: Standard equipment ○: Option

Single unit/width dimension (mm)	Single unit/ weight (g)	Manifold	Components: With valve: For generation	Components: With valve: Breaking the vacuum	Components: With switch: Switch output	Components: With switch: Analog output	Components: With filter	Components: With silencer	Components: Check valve	Effective cross-sectional area of vacuum valve	Page
20	125.5 to 158.5	●	●	●	○	○	●			3.5 mm^2(ø4), 5 mm^2(ø6)	194
10.3	52.5 to 171	●	●	●	○	○ (Digital display type can be selected)				0.4 mm^2	210
10.5	78 to 88	●	●	●	○ (A model with a digital display can also be selected)	○	●			2-way valve specification: 3.5 mm^2 (ø4), 4.5 mm^2(ø6) 3-way valve specification: 3.0 mm^2 (ø4), 3.6 mm^2(ø6)	230
31.5			●	●	○ (With digital display)		●			16.5 mm^2	260
11		○	●	●	○	○	●			4.5 mm^2	272

Series variation

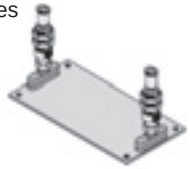
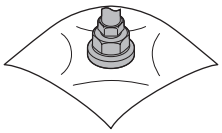
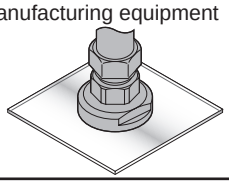
Suction pad

Pad shape	Applications	Pad diameter guideline				
			0.7 to 10	15 to 50	60 to 100	150 to 200
Compact standard 	Thick and flat workpieces 					
Deep 	Spherical workpieces such as round balls 					
Sponge 	Workpieces with uneven surface such as outer walls 					
Bellows 	Workpieces containing food, etc. 					
Multi-stage bellows 	Tilted workpieces or plastic packaging products 					

Holder (bracket) shape

MA, A	MB, B	MC, C	MD, D	ME, E	F
Fixed, Vacuum outlet top	Fixed, Vacuum outlet side	Spring, Vacuum outlet top	Spring, Vacuum outlet side	Direct mounting, Fixed	Direct mounting, Spring
					

HC	HD	HE	AE	BE	HDW	HEW
Spring, Vacuum outlet top	Spring, Vacuum outlet side	Direct mounting, Vacuum outlet side	Screw-in, Vacuum outlet top	Screw-in, Vacuum outlet side	Spring, Vacuum outlet both sides	Direct mounting, Vacuum outlet both sides
						

Pad shape	Applications	Pad diameter guideline					
			0.7 to 10	15 to 50	60 to 100	150 to 200	
Oval 	Workpieces with limited suction space such as substrates 						
Soft 	Workpieces that are prone to scratches 						
Soft bellows 	Paper or workpieces that are prone to scratches 						
Anti-slip 	Slippery workpieces with oil adhered, etc. 						
Thin object 	Thin workpieces such as paper and vinyl 						
Flat 	Thin workpieces such as sheets and vinyl 						
Suction mark prevention 	Liquid crystal glass, painting process and semiconductor manufacturing equipment 						

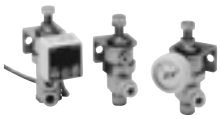
Series variation

Vacuum-related products

[Position locking valve]

Series		Model No.	Port size		Remarks	Page
			Vacuum generator side	Workpiece side		
VSECV Series · Even if the workpiece comes off, vacuum is maintained for workpieces in other circuits. · Compatible with SELVACS suction pad series.		VSECV-M3	M3×0.5			556
		VSECV-M4	M4×0.7			
		VSECV-M5	M5×0.8			
		VSECV-M6	M6×1			
		VSECV-M10	M10×1.5			
		VSECV-6A	R1/8, Rc1/8			

[Compact vacuum regulator]

Series		Model No.	Port size		Remarks	Page
			ø6	ø8		
VSRVV Series · Both source pressure and terminals can be controlled. · Vacuum pressure switch with digital display or pressure gauge for vacuum can also be selected.		VSRVV-*A*	○	○	Elbow (output: male thread)	560
		VSRVV-*B*	○	○	Elbow (supply: male thread)	
		VSRVV-*U*	○	○	Union type	

[Vacuum burst unit]

Series		Model No.	Port size		Remarks	Page
			Vacuum generator side	Workpiece side		
VSLF Series · Controls the vacuum burst air while maintaining the vacuum characteristics of the vacuum ejector. · Vacuum burst circuit relief function realizes shortening of vacuum burst time.		VSLF-44	ø4	ø4		570
		VSLF-66	ø6	ø6		
		VSLF-46A	ø4	R1/8		
		VSLF-66A	ø6	R1/8		

[Vacuum filter]

●: Standard equipment ○: Optional selection

Series	Model No.	Port size M5	ø4	ø6	ø8	ø10	ø12	Remarks	Page
VSFB Series Large capacity union · Dust and water droplets are removed by cyclone effect and element. · Dust scattering is prevented because the entire dust case can be detached with one touch. 	VSFB-66			●				Filtration area: 20 cm^2	574
	VSFB-88				●			Filtration area: 20 cm^2	
	VSFB-1010					●		Filtration area: 20 cm^2	
	VSFB-1212						●	Filtration area: 20 cm^2	
VSFU Series Compact union · Replacement and cleaning of element requires no tools. · Inline type that can be easily installed in the middle of the 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 · Ideal for single ejector without built-in vacuum filter. 	VSFJ-44		●					Filtration area: 0.8cm^2	
	VSFJ-66			●				Filtration area: 1.1cm^2	
FSL Series Inline · Compact, lightweight and space saving inline type · Use either positive or negative pressure 	FSL100		●	●				Filtration area: 4.7cm^2	582
	FSL200		●	●				Filtration area: 7.5cm^2	
	FSL500			●	●	●		Filtration area: 12.7cm^2	

[Vacuum pressure switch]

Series	Model No.	Port size M5	ø4	ø6	ø8	Direct mount	Remarks	Page
VSUS Series · 2-point output and analog output are available. · Three types of pipe connection are available: push-in fitting, M5 female thread and direct mount. 	VSUS-NW	○	○	○	○	○	NPN: 2-point output	586
	VSUS-NA	○	○	○	○	○	NPN: Analog output	
	VSUS-PW	○	○	○	○	○	PNP: 2-point output	
	VSUS-PA	○	○	○	○	○	PNP: Analog output	

[Air tweezers]

Series	Model No.	Pad diameter ø2	ø4	ø6	ø8	Pad rubber material	Holder type	Page
VST Series · Built-in suction pad and ejector in pen type body. · Ideal for assembling small parts. · Package type is also available. 	VAT-A*N	○	○	○	○	Nitrile rubber	No valve	592
	VAT-A*S	○	○	○	○	Silicone rubber	No valve	
	VAT-B*N	○	○	○	○	Nitrile rubber	Integrated valve	
	VAT-B*S	○	○	○	○	Silicone rubber	Integrated valve	