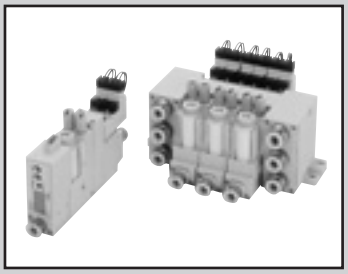


Burst air flow rate & integrated vacuum switching unit
with relief pressure adjustment needle

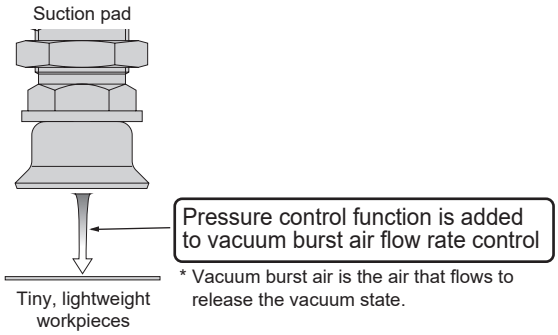
VSJP Series

RoHS

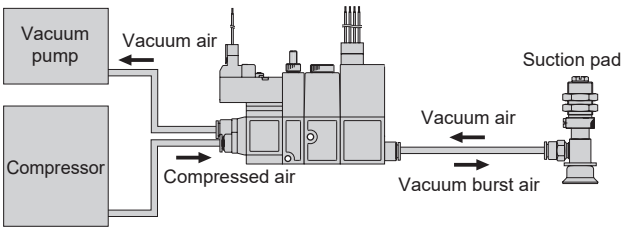
Features

■ Pressure control is added to the conventional flow rate control for vacuum burst air to prevent workpieces from being blown away.

■ Shortening of vacuum burst time is realized by providing a relief function in the vacuum burst circuit (function to relieve extra pressure).



■ Vacuum pump compatible system handles vacuum pumps when a large amount of vacuum air is required or when vacuum generation is required for long periods.



■ Since manifold is also available, reduced piping is possible. There are two types of pipe leadout directions, front side and rear side, which can be selected according to the installation location.

■ Three types of vacuum supply valves are available: self-hold, normally closed and normally open. Power-saving self-hold is ideal for special applications where vacuum must be generated for long periods.

■ Digital display is used for vacuum pressure switch display to improve visibility. A 2-point switch output and analog output are available for the vacuum pressure switch, selectable according to the application. In addition, wiring layout can be done easily using a connector system.

Specifications

Descriptions	VSJP
Working fluid	Air
Working pressure MPa	0.3 to 0.7
Ambient/fluid temperatures °C	5 to 50
Vacuum pressure kPa	-100 to 0

Valve (for vacuum generation, vacuum burst) specifications

● Pilot solenoid valve

Descriptions	Vacuum supply valve		Vacuum break valve	
Valve and operation	Direct acting poppet valve			
Rated voltage V	24 DC	100 AC	24 DC	100 AC
Voltage fluctuation range V	24 DC ±10%	100 AC ±10%	24 DC ±10%	100 AC ±10%
Surge protective circuit	Varistor	Bridge diode	Varistor	Bridge diode
Power consumption	1.2 W (with LED)	1.5 VA (with LED)	1.2 W (with LED)	1.5 VA (with LED)
Manual override	Push non-locking			
Operation display	At coil excitation operation: Red LED lights			
Connection	Connector (cable length: 500 mm)			
	Red: 24 VDC Black: COM	Blue	Red: 24 VDC Black: COM	Blue

● Main valve

Descriptions	Vacuum supply valve		Vacuum break valve
Valve and operation	Pilot operated poppet valve		
Proof pressure MPa	1.05		
Valve	Self-hold, normally closed, normally open		Normally closed
Lubrication	Not required		
Effective cross-sectional area mm^2	Air supply (PS) port size	ø4:3.5	1
		ø6:5	

Vacuum pressure switch specifications with LED display

Descriptions		With 2-point switch output (-W)	With analog output (-A)
Default setting value kPa		-50 (SW1), -10 (SW2)	-50
Current consumption mA		40 or less	
Pressure sensitive element		Diffused semiconductor pressure switch	
Working pressure kPa		-100 to 0	
Set pressure kPa		-99 to 0	
Proof pressure MPa		0.2	
Storage temperature °C		-20 to 80 (atmospheric pressure, humidity 60% RH or less)	
Operating temperature °C		0 to 50 (no freezing)	
Operating humidity		35 to 85% RH (no freezing)	
Power supply voltage V		12 to 24 DC ±10% ripple (P-P) 10% or less	
Degree of protection		IEC standards IP40 or equivalent	
No. of output points		2	1
Repeatability		±3% F. S. max(at Ta=25°C)	
Hysteresis		Fixed (2% F.S. max.)	Variable (approx. 0 to 15% of set value)
Switch output		NPN transistor/open collector output 30 V 80 mA or less Residual voltage 0.8 V or less	
Analog output	Output voltage V	-	1 to 5
	Zero point voltage V	-	1±0.1
	Span voltage V	-	4±0.1
	Output current mA	-	1 or less (load resistance 5 kΩ or more)
	Linearity/hysteresis	-	±0.5% F.S. max.
Responsivity ms		2max.	
Display kPa		-99 to 0 (2-digit red LED display)	
Display frequency		Approx. 4 cycles/second	
Display accuracy		±3% F. S. ±2 digit	
Resolution		1 digit	
Operation display		SW1: Red LED lights at set pressure and over	Red LED lights at set pressure and over
		SW2: Green LED lights at set pressure and over	
Function		1. MODE change-over switch (ME or S1 or S2)	1. MODE change-over switch (ME or SW)
		2. S1 set trimmer (2/3 rotation trimmer)	2. SW set trimmer (2/3 rotation trimmer)
		3. S2 set trimmer (2/3 rotation trimmer)	3.HYS setting trimmer (approx. 0 to 15% of set value)

Vacuum break function specifications

Descriptions	Vacuum burst function
Break air flow rate ℓ/min (ANR)	0 to 50 (supply pressure at 0.5 MPa)
Burst air relief valve structure	Elastic sealing, poppet valve
Relief pressure setting range kPa	-25 to 25

Vacuum filter specifications

Descriptions		Vacuum filter
Element material		PVF (Polyvinyl formal)
Filtration rating	μm	10
Filtration area	mm^2	1130
Replacement filter element model No.	Vacuum	VSG-E
	Vacuum breaking	VSJ-PE

Weight table

①Single unit

VSJP		Weight (g)	Remarks
With sensor	VSJP-□-□□□□-□□-□	152	Vacuum port: ø4, ø6
	VSJP-□-8□□□-□□-□	159	Vacuum port: ø8
Without sensor	VSJP-□-□□□□-□□	126	Vacuum port: ø4, ø6
	VSJP-□-8□□□-□□	132	Vacuum port: ø8

②Manifold intermediate block

	Weight (g)	Remarks
Manifold intermediate block	19	For 1 station

③Manifold side block

VSJP	Weight (g)	Remarks
Vacuum switching unit	106	No. of cartridges used: 6

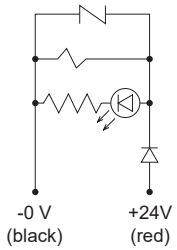
④Cartridge (input/exhaust port)

	Weight (g)	Remarks
Push-in fitting for ø6	12	
Push-in fitting for ø8	10	
Push-in fitting for ø10	13	

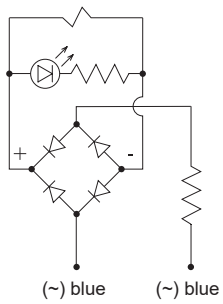
■ Calculate the manifold weight using the formula below.
Manifold weight = (①VSJP single unit + ②manifold intermediate block) × station No. + ③manifold side block + ④cartridge × No. used

Electric circuit (solenoid valve)

● 24 VDC specification Valve for vacuum supply and vacuum burst

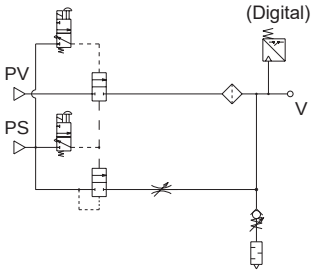


● 100 VAC specification Valve for vacuum supply and vacuum burst

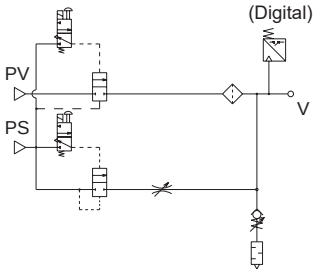


Circuit diagram

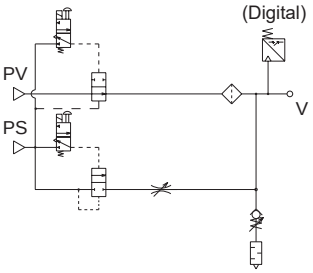
● Self-hold



● Normally closed



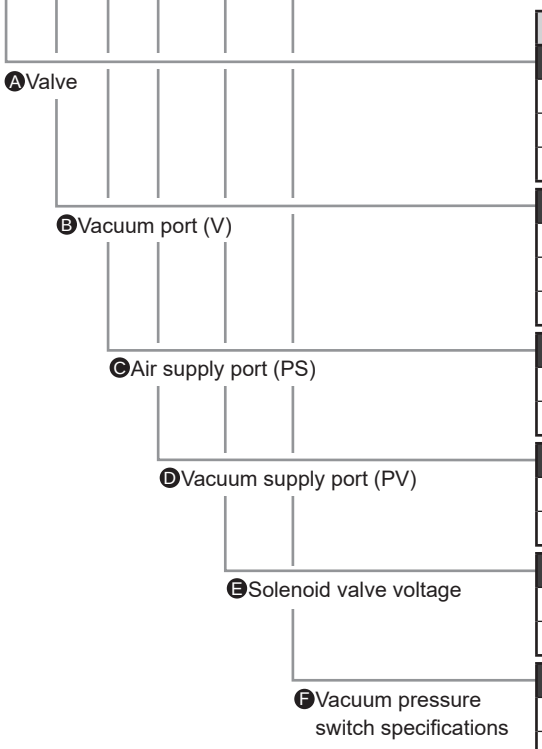
● Normally open



How to order (single unit)

● 20 mm width integrated vacuum switching unit single unit

VSJP - A 6 6 6 - 3 - W



Code	Content
Ⓐ Valve	
A	Normally open (NO)
B	Normally closed
D	Self hold
Ⓑ Vacuum port (V)	
4	ø4 push-in fitting
6	ø6 push-in fitting
8	ø8 push-in fitting
Ⓒ Air supply port (PS)	
4	ø4 push-in fitting
6	ø6 push-in fitting
Ⓓ Vacuum supply port (PV)	
4	ø4 push-in fitting
6	ø6 push-in fitting
Ⓔ Solenoid valve voltage	
1	100 VAC
3	24 VDC
Ⓕ Vacuum pressure switch specifications	
Blank	Without vacuum pressure switch
W	With digital display, NPN output 2 points
A	With digital display, NPN output 1 point + analog output

How to order (manifold)

● 20 mm width integrated vacuum switching unit manifold

VSJPM - D 6 10 10 10 - 3 - 10 A - W

Code	Content
Ⓐ Valve *1	
A	Normally open (NO)
B	Normally closed
D	Self hold
Z	For mixed specs (indicate the breakdown on the specs sheet)
Ⓑ Vacuum port (V) *1	
4	ø4 push-in fitting
6	ø6 push-in fitting
8	ø8 push-in fitting
CX	For mixed fittings (indicate the breakdown on the specs sheet)
Ⓒ Air supply port (PS)	
6	ø6 push-in fitting
8	ø8 push-in fitting
10	ø10 push-in fitting
Ⓓ Exhaust port (EX)	
6	ø6 push-in fitting common exhaust
8	ø8 push-in fitting common exhaust
10	ø10 push-in fitting common exhaust
Ⓔ Vacuum supply port (PV)	
6	ø6 push-in fitting
8	ø8 push-in fitting
10	ø10 push-in fitting
Ⓕ Solenoid valve voltage	
1	100 VAC
3	24 VDC
Ⓖ Manifold station No.	
2	2 stations
to	to
10	10 stations
Ⓗ Common piping leadout direction	
A	Vacuum port side
B	Supply port side
Ⓘ Vacuum pressure switch specifications *1	
Blank	Without vacuum pressure switch
W	With digital display, NPN output 2 points
A	With digital display, NPN output 1 point + analog output
Z	For mixed specs (indicate the breakdown on the specs sheet)

⚠ Precautions for model No. selection

*1: Indicate on the “mix manifold specifications sheet” in the case of mixed specifications. Refer to pages 208 and 209 for details.

● Maintenance part model No.

· Vacuum side filter element

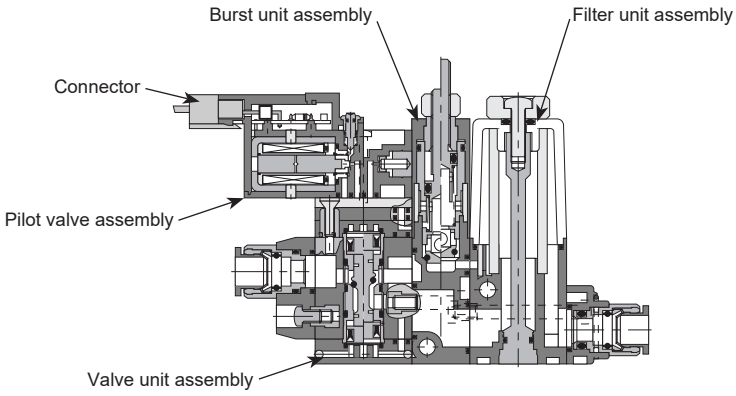
VSG-E

· Burst side filter element

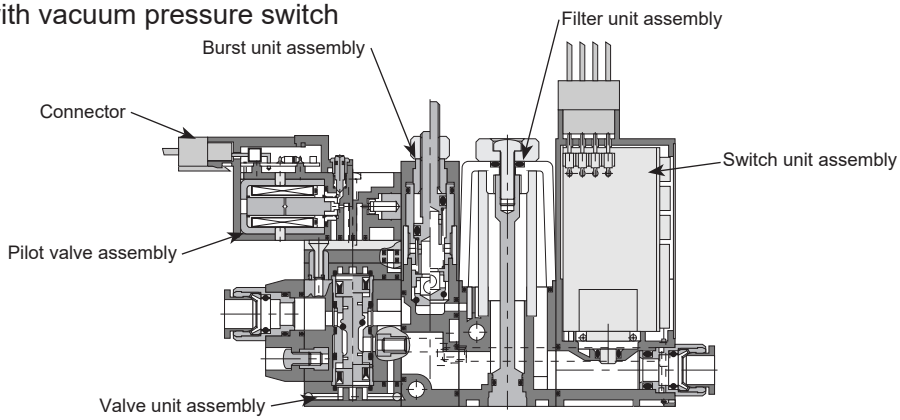
VSJ-PE

Internal structure

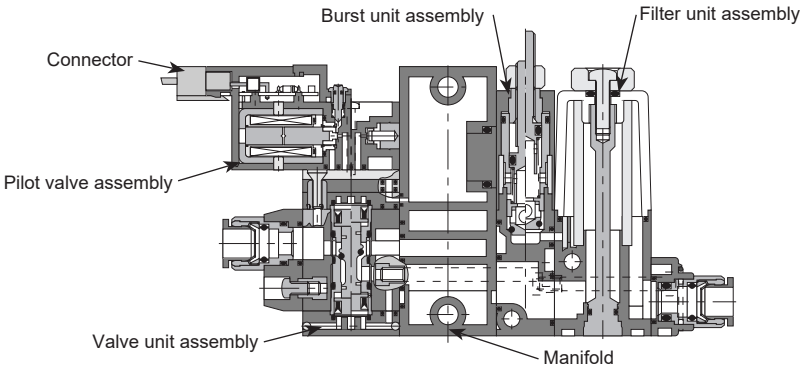
● Single unit, without vacuum pressure switch



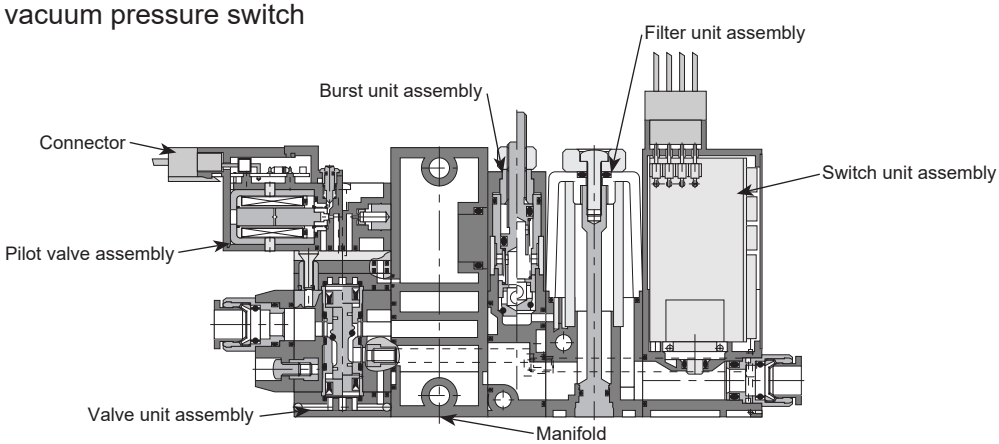
● Single unit, with vacuum pressure switch



● Manifold, without vacuum pressure switch

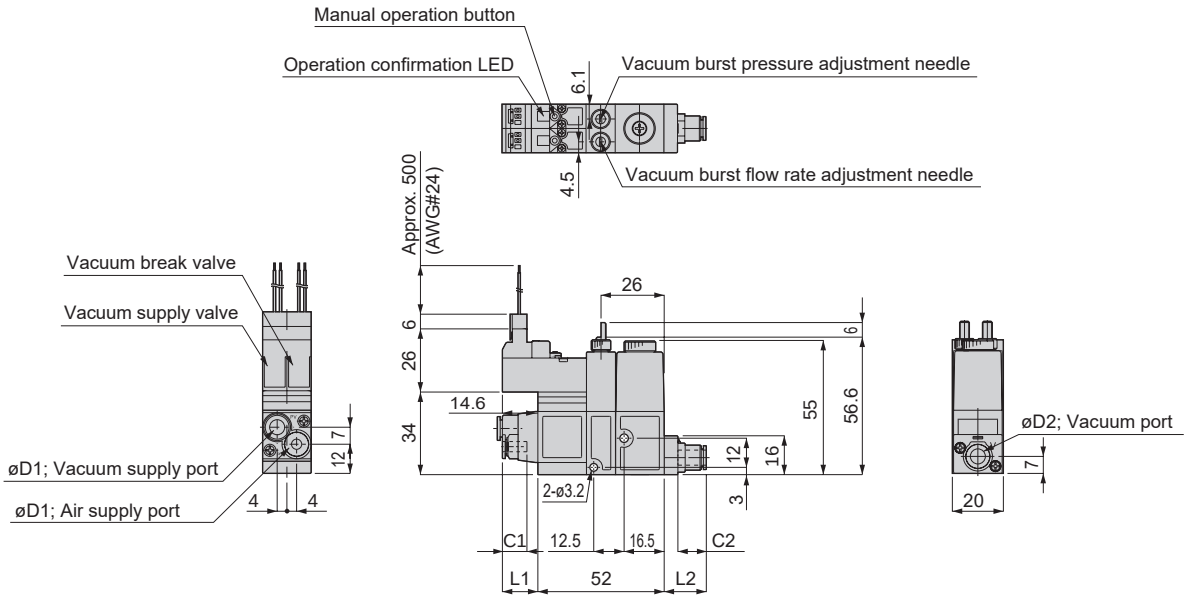


● Manifold, with vacuum pressure switch



Dimensions (single unit)

● Without vacuum pressure switch



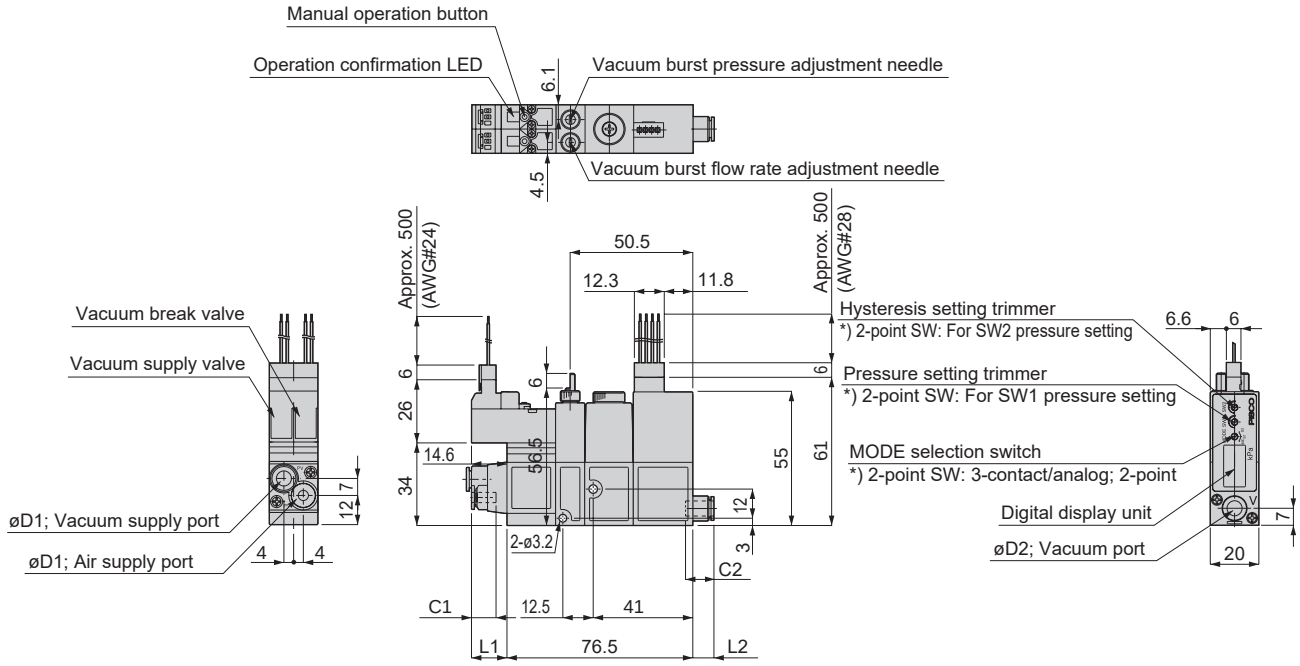
Unit: mm

Air supply port Tube O.D. øD1	C1	L1
4	11.5	14.9
6	11.9	17.3

Unit: mm

Vacuum port Tube O.D. øD2	C2	L2
4	11.2	14.6
6	11.9	17.4
8	18.2	25.8

● With vacuum pressure switch



Unit: mm

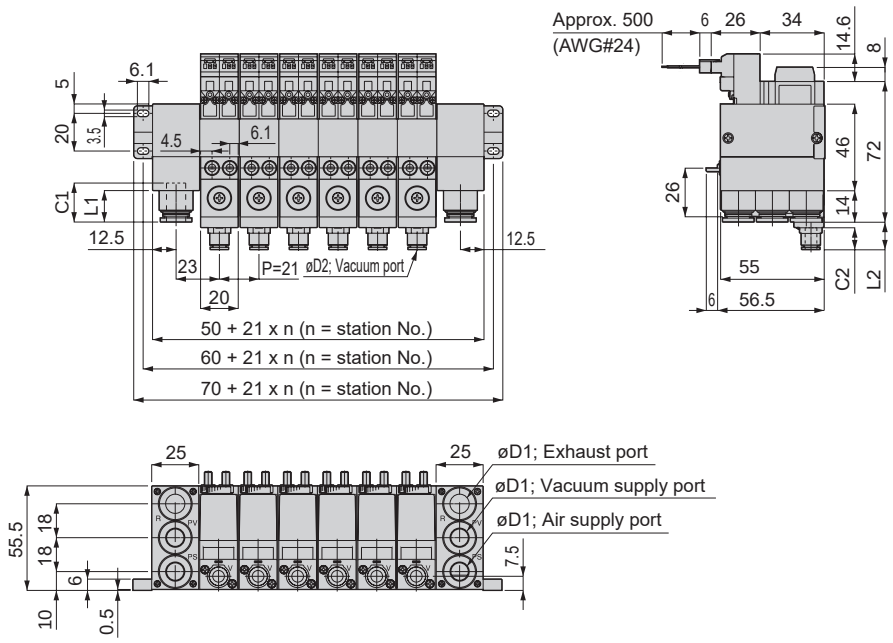
Air supply port Tube O.D. øD1	C1	L1
4	11.5	14.9
6	11.9	17.3

Unit: mm

Vacuum port Tube O.D. øD2	C2	L2
4	11.2	6.1
6	11.9	8.9
8	18.2	17.3

Dimensions (manifold VSJPM)

● Common exhaust, common piping leadout direction on vacuum port side, without vacuum pressure switch



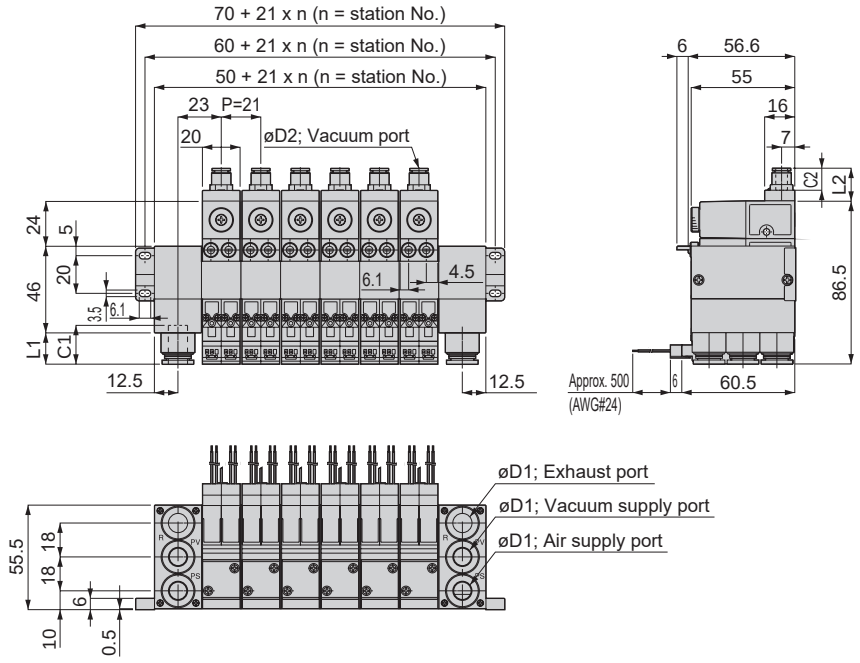
Unit: mm

Air supply port Tube O.D. øD1	C1	L1
6	17	11.6
8	18.2	13.1
10	20.7	16.7

Unit: mm

Vacuum port Tube O.D. øD2	C2	L2
4	11.2	14.6
6	11.9	17.4
8	18.2	23.0

● Common exhaust, common piping leadout direction on supply port side, without vacuum pressure switch



Unit: mm

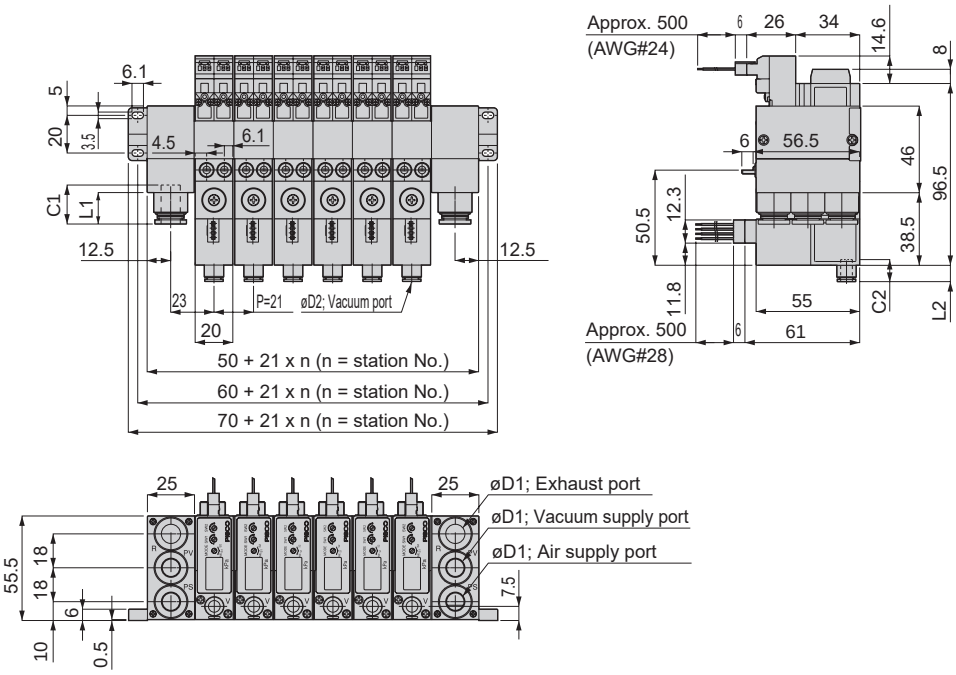
Air supply port Tube O.D. øD1	C1	L1
6	17	11.6
8	18.2	13.1
10	20.7	16.7

Unit: mm

Vacuum port Tube O.D. øD2	C2	L2
4	11.2	14.6
6	11.9	17.4
8	18.2	23.0

Dimensions (manifold VSJPM)

● Common exhaust, common piping leadout direction on vacuum port side, with vacuum pressure switch



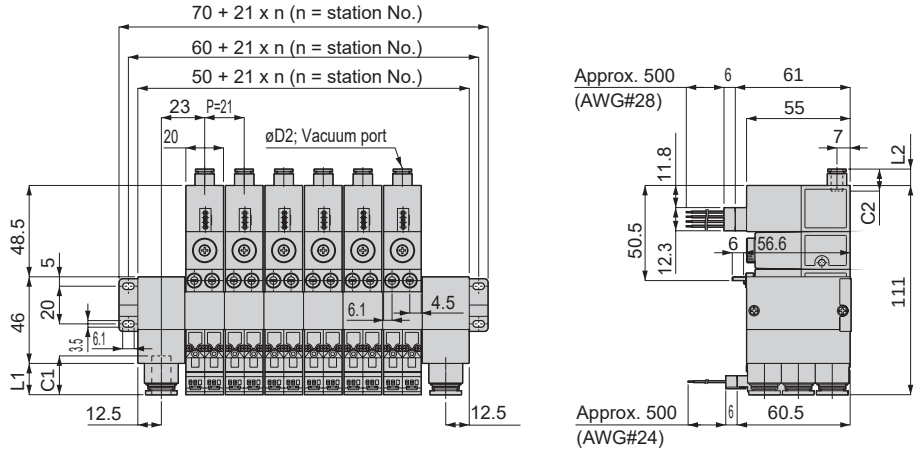
Unit: mm

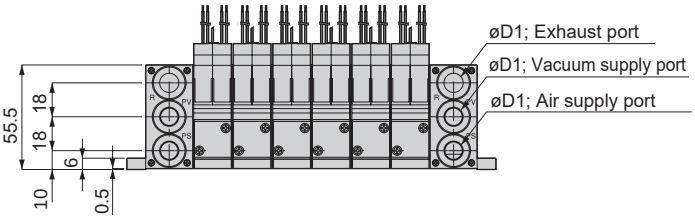
Air supply port Tube O.D. øD1	C1	L1
6	17	11.6
8	18.2	13.1
10	20.7	16.7

Unit: mm

Vacuum port Tube O.D. øD2	C2	L2
4	11.2	6.1
6	11.9	8.9
8	18.2	17.3

● Common exhaust, common piping leadout direction on supply port side, with vacuum pressure switch





Unit: mm

Air supply port Tube O.D. øD1	C1	L1
6	17	11.6
8	18.2	13.1
10	20.7	16.7

Unit: mm

Vacuum port Tube O.D. øD2	C2	L2
4	11.2	6.1
6	11.9	8.9
8	18.2	17.3