

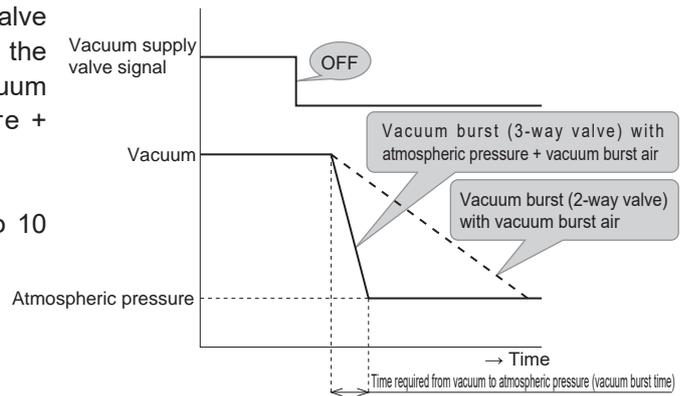
Vacuum switching unit which is lightweight and compact in appearance and has a high-cycle vacuum system

VSXP Series

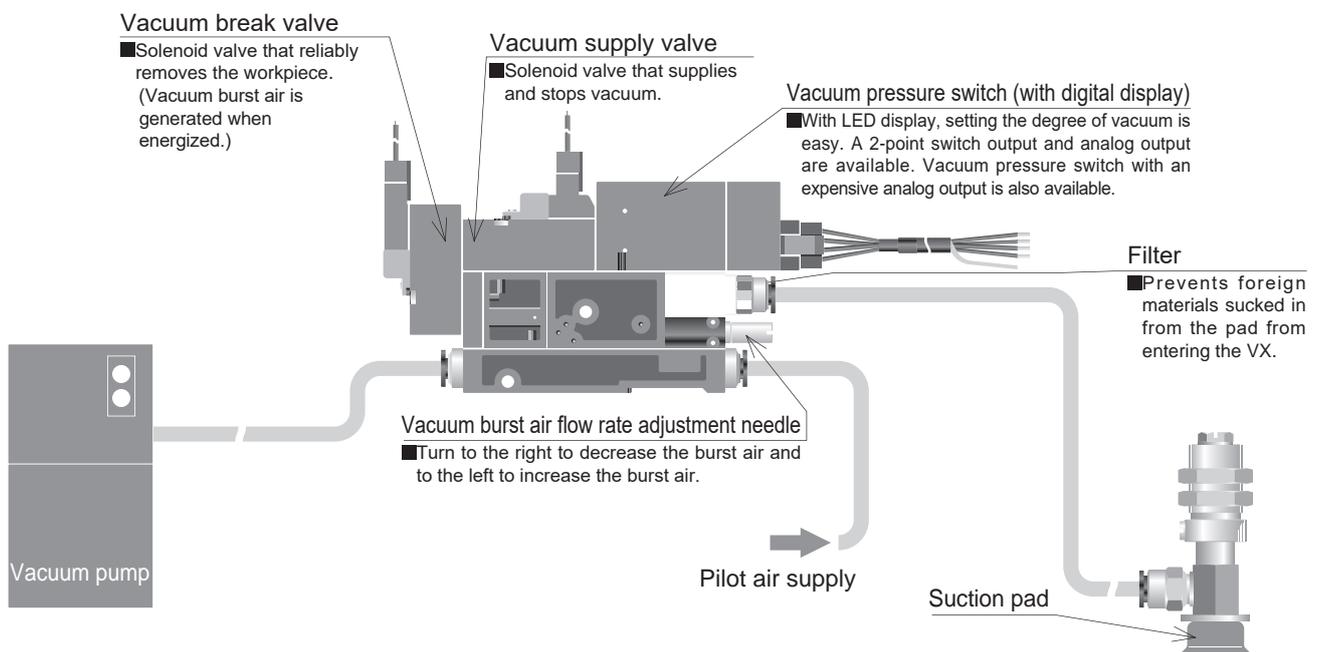


Features

- A lightweight, compact vacuum unit that meets market needs.
- Vacuum unit VSXP fixing methods include direct mount, fixable from the side with screws, etc., and DIN rail mount for mounting on a DIN rail. Select the mounting method according to the application.
- Vacuum pressure switches include those with digital display for good visibility and those with an inexpensive analog output only type. A 2-point switch output and analog output are available for the vacuum pressure switch with digital display. Select according to various applications and cost. In addition, wiring layout can be done easily using a connector system.
- Vacuum pump system compatible 3-way valve specification has greatly reduced the time required to go from vacuum to atmospheric pressure (vacuum break time) by using a 3-way valve for the vacuum supply main valve. (Since the 2-way valve (VSXP-D) retains vacuum immediately after the main valve is turned OFF, vacuum break takes place only with vacuum burst air. In the 3-way valve specification (VSXP-T type), air can be introduced into the vacuum circuit when the main valve is OFF, and vacuum break can be performed by atmospheric pressure + vacuum burst air.)
- The manifold piping specifications are such that up to 10 stations can be attached.



Vacuum pump system compatible application examples



Specifications

Descriptions	VSXP
Working fluid	Air
Working pressure MPa	0.3 to 0.7
Ambient/fluid temperatures °C	5 to 50
Vacuum pressure kPa	-101 to 0

Solenoid valve specifications

● Pilot 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 suppressor	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 operation	Non-locking push			
Operation display	At coil excitation operation: Red LED lights			
Connection	Connector: 500 mm			
	Red: 24 VDC Black: COM	Blue	Red: 24 VDC Black: COM	Blue

● Switching valve 2-way valve specifications VSXP-D

Descriptions	Vacuum supply valve
Valve and operation	Direct acting poppet valve
Proof pressure MPa	1.05
Valve	Normally closed
Lubrication	Not required
Effective cross-sectional area mm ²	Air supply port size ø4: 3.5
	Air supply port size ø6: 4.5

● Switching valve 3-way valve specifications VSXP-T

Descriptions	Vacuum generating valve
Valve and operation	Direct acting poppet valve
Proof pressure MPa	1.05
Valve	Normally closed
Lubrication	Not required
Effective cross-sectional area mm ²	Vacuum supply port size ø4: 3.0
	Vacuum supply port size ø6: 3.6

Vacuum pump system

VSJP
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Vacuum pressure switch specifications

Item	With digital display		Without display
	With 2-point switch output (-DW)	With analog output (-DA)	Analog output only (-A0)
Default pressure kPa	-50 (SW1), -10(SW2)	-50	-
Current consumption mA	40 or less		15 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 condensation)		
Power supply voltage V	12 to 24 DC ±10% ripple (P-P) 10% or less		
Degree of protection	IEC standards IP40 or equivalent		
Output points	2	1	-
Repeatability	±3% F.S. max.(at Ta=25°C)		-
Hysteresis	Fixed (2% F.S. or less)	Variable (Approx. 0 to 15% F.S.)	-
Switch output	NPN transistor open collector output 30V 80mA or less Residual voltage 0.8V 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.
Display kPa	-99 to 0 (2-digit red LED display)		-
Display frequency	Approx. 4 cycles/second		-
Display accuracy	±3% F.S. ±2digit		-
Resolution	1digit		-
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 set trimmer (Approx. 0 to 15% F.S.)	-

Vacuum break function specifications

● 2-way valve specifications VSXP-D

Valve	Burst air flow rate ℓ/min (ANR)
Normally closed	0 to 11.0

*1: Value at supply pressure of 0.5 MPa.

*2: The vacuum break air flow rate will vary with the diameter and length (piping resistance, etc.) of the vacuum side piping.

● 3-way valve specifications VSXP-T

Valve	Burst air flow rate ℓ/min (ANR)
Normally closed	0 to 7.5

*1: Value at supply pressure of 0.5 MPa.

*2: The vacuum break air flow rate will vary with the diameter and length (piping resistance, etc.) of the vacuum side piping.

Vacuum filter specifications

Item	Vacuum filter
Element material	PVF (Polyvinyl formal)
Filtration rating μm	10
Filtration area mm ²	502
Replacement filter element model No.	VSX-E

Weight table

● Single unit

Model No.	Unit contents	Weight (g)
VSXP-D□□□□-D□	Vacuum switching unit 2-way valve specification (vacuum pressure switch with digital display)	85
VSXP-D□□□□-A0	Vacuum switching unit 2-way valve specification (vacuum pressure switch with analog output)	82
VSXP-D□□□□-□	Vacuum switching unit 2-way valve specification (without vacuum pressure switch)	75
VSXP-T□□□□-D□	Vacuum switching unit 3-way valve specification (vacuum pressure switch with digital display)	88
VSXP-T□□□□-A0	Vacuum switching unit 3-way valve specification (vacuum pressure switch with analog output)	85
VSXP-T□□□□-□	Vacuum switching unit 3-way valve specification (without vacuum pressure switch)	78

*1 : DIN rail mount is heavier than the above weight by approx. 5 g.

● Manifold

Model No.	Manifold mounting unit content	Weight (g)
VSXPM-D□□□□-D□-2	Vacuum switching unit 2-way valve specification Vacuum sensor with digital display 2-station manifold	340
VSXPM-T□□□□-D□-2	Vacuum switching unit 3-way valve specification Vacuum sensor with digital display 2-station manifold	350

*1 : 95g heavier with each station increase.

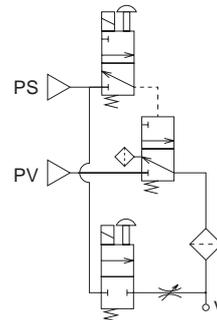
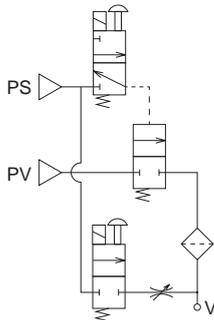
*1 : 100g heavier with each station increase.

*2 : The above weight is for the type equipped with vacuum pressure switch and LED display. Vacuum pressure switch with analog output built in (vacuum pressure switch without display) is lighter than the above weight by 3 g/station, while the type without vacuum pressure switch is lighter than the above weight by 10 g/station.

Circuit diagram

● Normally closed 2-way valve specification

● Normally closed 3-way valve specification



Vacuum pump system

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How to order (discrete)

● 10.5mmWidth integrated vacuum switching unit Discrete type

VSXP - D 6 6 6 - 3 - DW - D

A Valve

B Vacuum port (V)

C Air supply port (PS)

D Vacuum supply port (PV)

E Solenoid valve voltage

F Vacuum pressure switch specifications

G Mounting method

Code	Content
A Valve	
D	2-way valve specifications
T	3-way valve specifications
B Vacuum port (V)	
4	ø4 push-in fitting
6	ø6 push-in fitting
C Air supply port (PS)	
4	ø4 push-in fitting
6	ø6 push-in fitting
D Vacuum supply port (PV)	
4	ø4 push-in fitting
6	ø6 push-in fitting
E Solenoid valve voltage	
1	100 VAC
3	24 VDC
F Vacuum pressure switch specifications	
Blank	Without vacuum pressure switch
DW	With digital display, NPN output 2 points
DA	With digital display, NPN output 1 point + analog output
AO	Analog output
G Mounting method	
D	DIN rail mount
Blank	Direct mounting

Vacuum pump system

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How to order (manifold)

- 10.5 mm width integrated vacuum switching unit manifold

VSXPM - T 6 10 10 - 3 - 10 - DW

- 10.5 mm width integrated vacuum switching unit manifold single unit

VSXPM - T 6 ————— 3 ————— DW

- 10.5 mm width integrated vacuum switching unit manifold only

VSXPM ————— 10 10 ————— 10

Ⓐ Valve

Ⓑ Vacuum port (V)

Ⓒ Air supply port (PS)

Ⓓ Vacuum supply port (PV)

Ⓔ Solenoid valve voltage

Ⓕ Manifold station No.

Ⓖ Vacuum pressure switch specifications

⚠ Precautions for model No. selection

*1 : Indicate on the "mix manifold specifications sheet" in the case of mixed specifications. Refer to pages 258 and 259 for details.

- Maintenance part model No.

· Filter element

VSX-E

· Filter element for valve

VSXP-E

Code	Content	Type		
		Manifold	Single unit for manifold	Manifold only
Ⓐ Valve *1				
D	2-way valve specifications	●	●	
T	3-way valve specifications	●	●	
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	●	●	
CX	For mixed fittings (indicate the breakdown on the specs sheet)	●		
Ⓒ Air supply port (PS)				
4	ø4 push-in fitting	●		●
6	ø6 push-in fitting	●		●
8	ø8 push-in fitting	●		●
10	ø10 push-in fitting	●		●
Ⓓ Vacuum supply port (PV)				
4	ø4 push-in fitting	●		●
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			●
Ⓖ Vacuum pressure switch specifications *1				
Blank	Without vacuum pressure switch	●	●	
DW	With digital display, NPN output 2 points	●	●	
DA	With digital display, NPN output 1 point + analog output	●	●	
AO	Analog output	●	●	
Z	For mixed specs (indicate the breakdown on the specs sheet)	●		

Vacuum pump system

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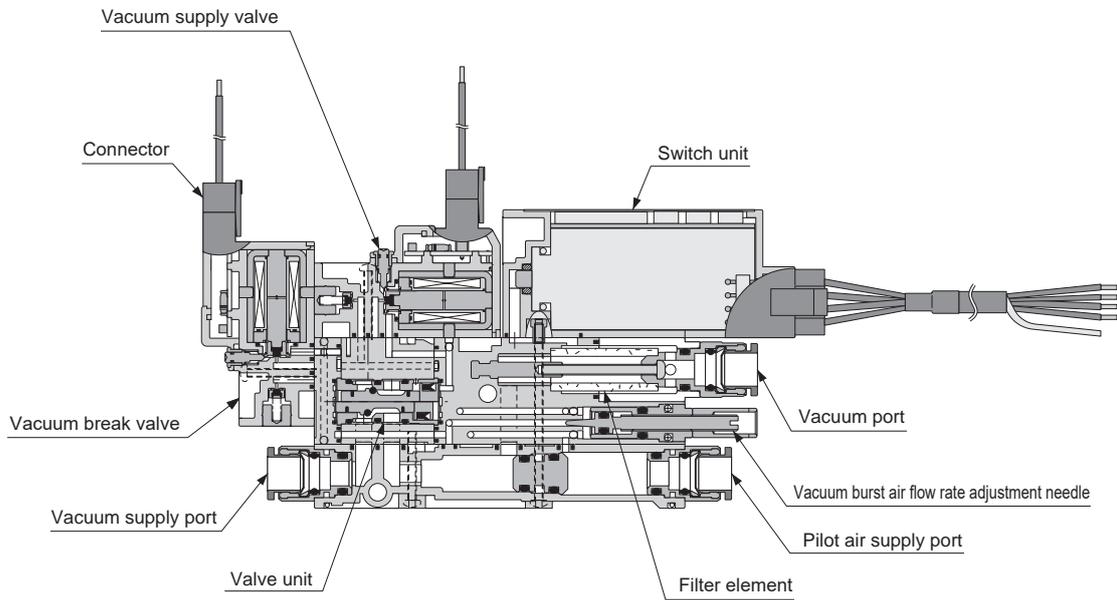
VSZPM

Internal structure (single unit)

● 2-way valve specifications VSXP-D

Example) VSXP-D□□□□□□

With vacuum pressure switch



Vacuum pump system

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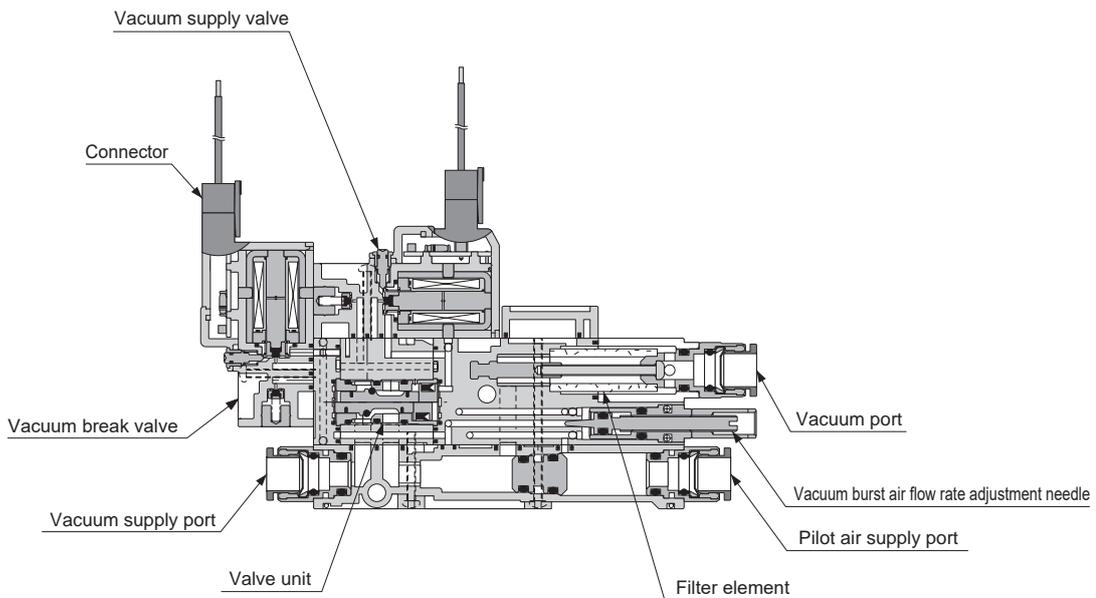
VSXP
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Example) VSXP-D□□□□□□

Without vacuum pressure switch

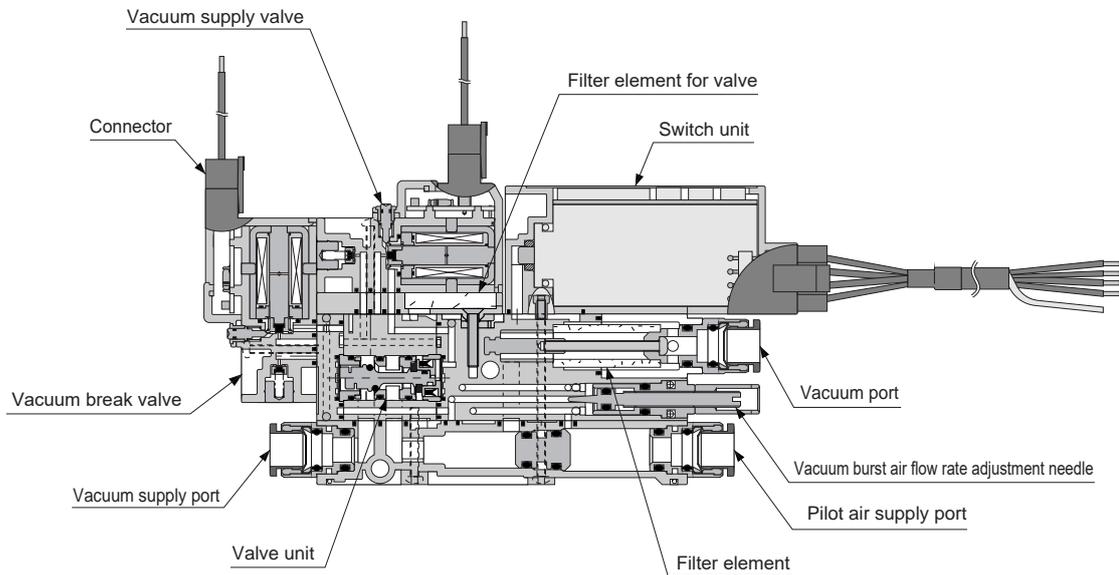


Internal structure (single unit)

● 3-way valve specifications VSXP-T

Example) VSXP-T□□□□□□

With vacuum pressure switch



Vacuum pump system

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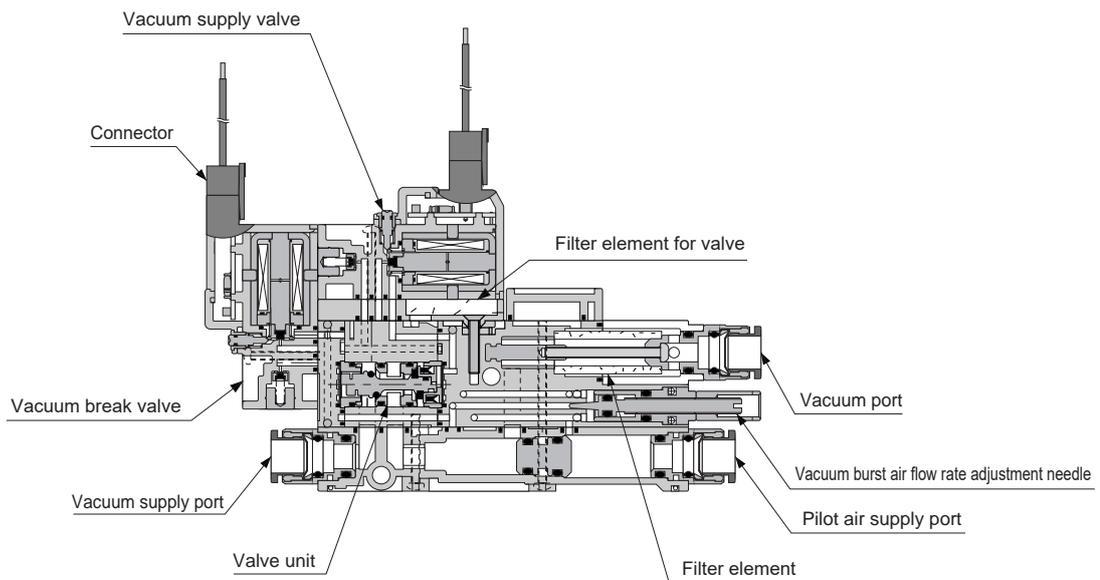
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Example) VSXP-T□□□□□□

Without vacuum pressure switch

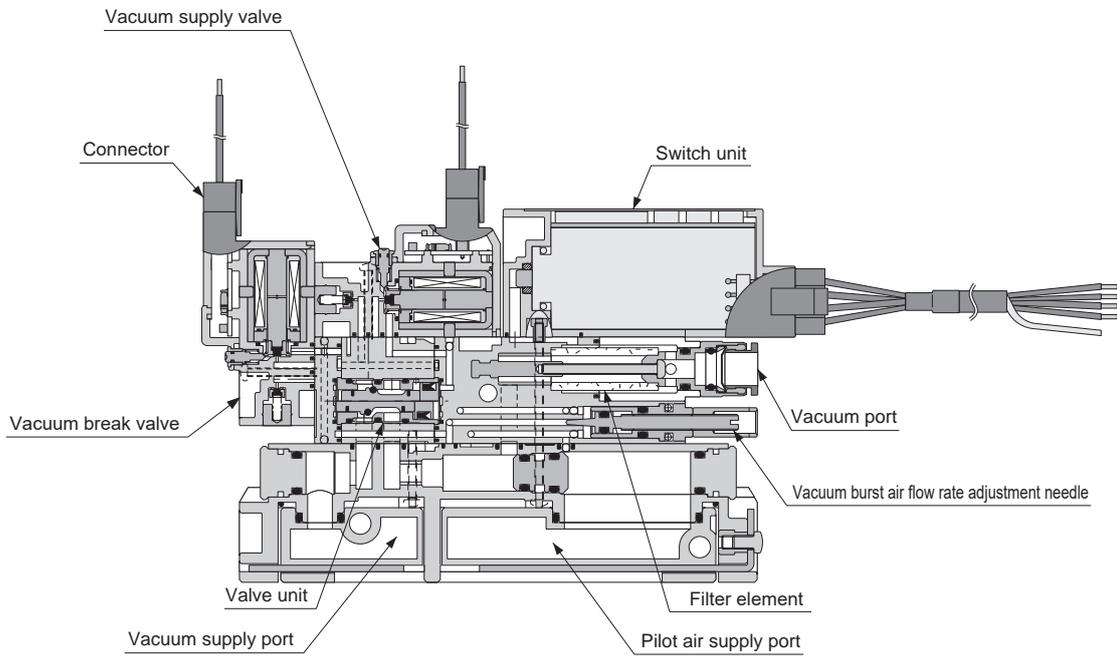


Internal structure (manifold)

● 2-way valve specifications VSXPM-D

Example) VSXPM-D□□□□□□□□

With vacuum pressure switch



Vacuum pump system

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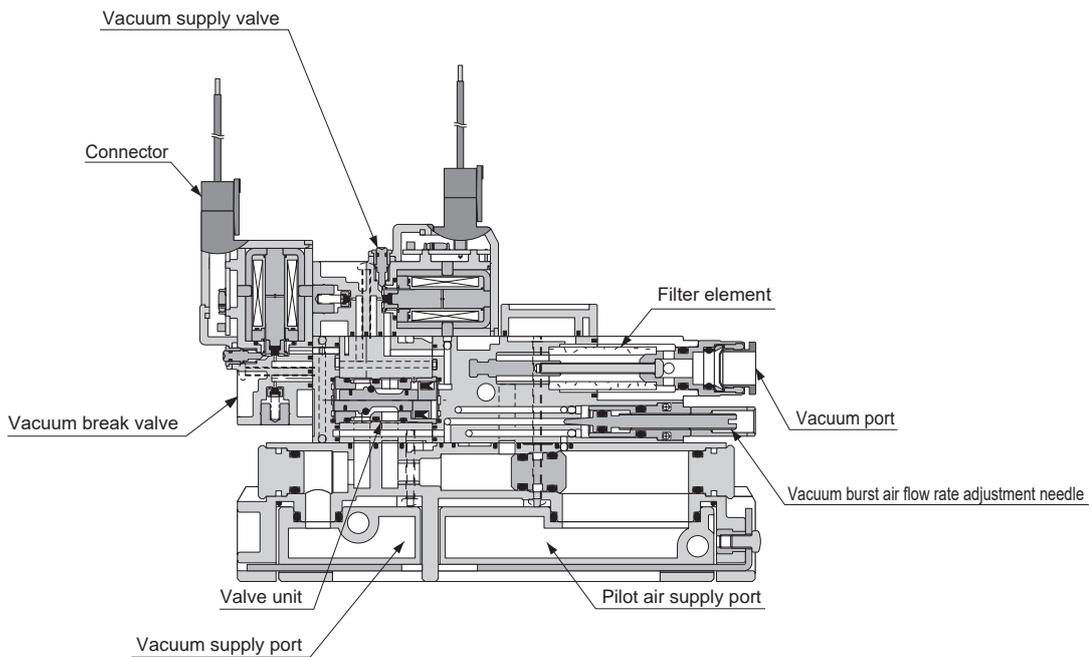
VSXP
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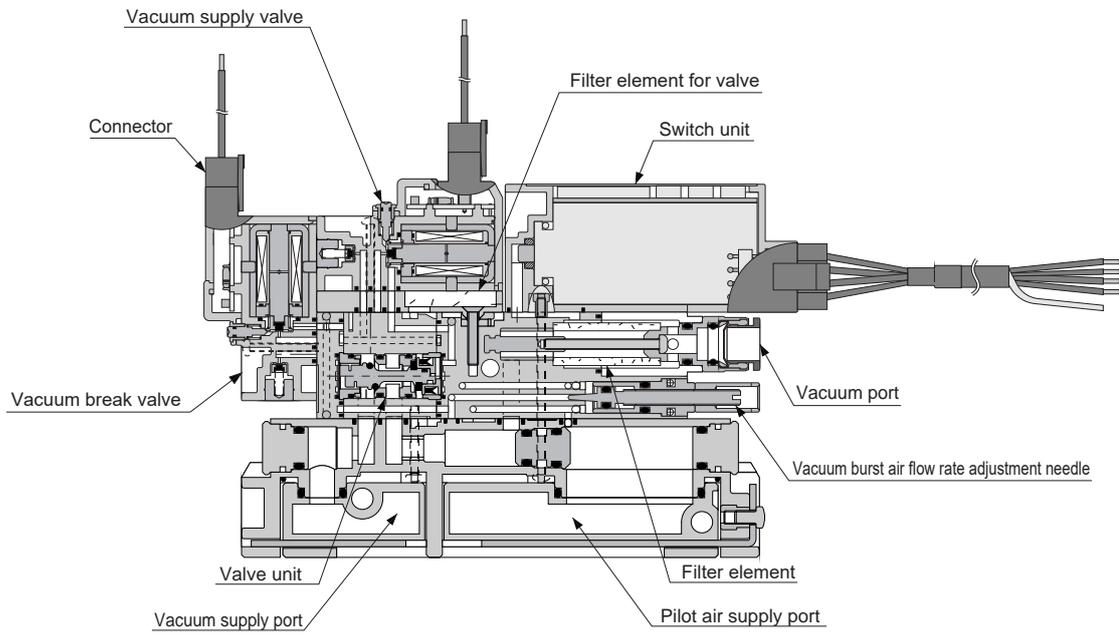
Example) VSXPM-D□□□□□□□□

Without vacuum pressure switch

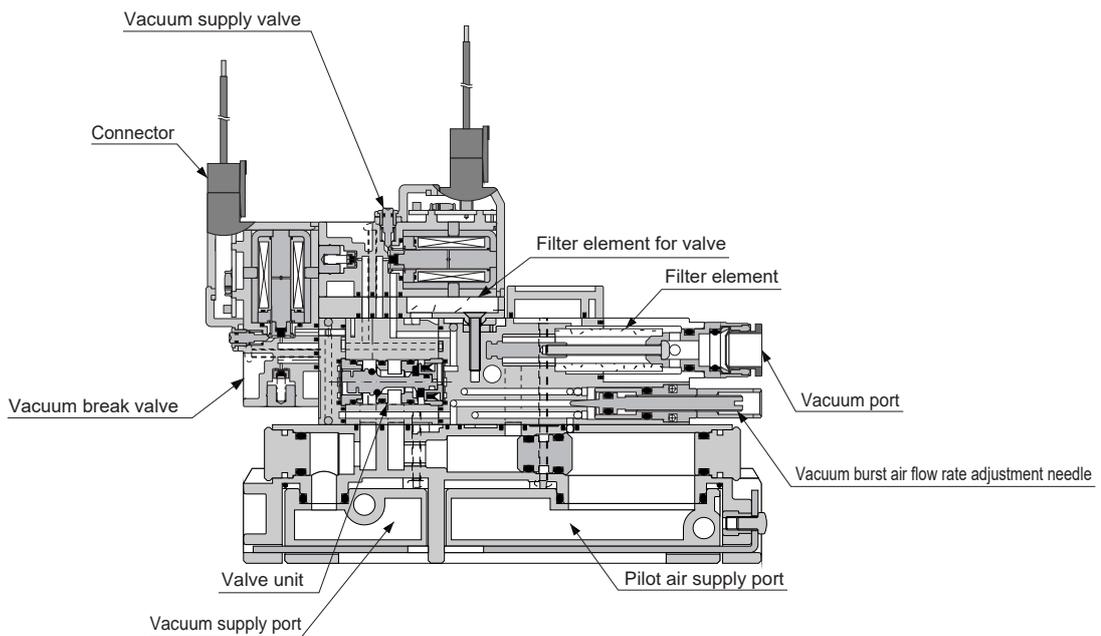


Internal structure (manifold)

- 3-way valve specifications VSXPM-T
Example) VSXPM-T□□□-□□□□
With vacuum pressure switch



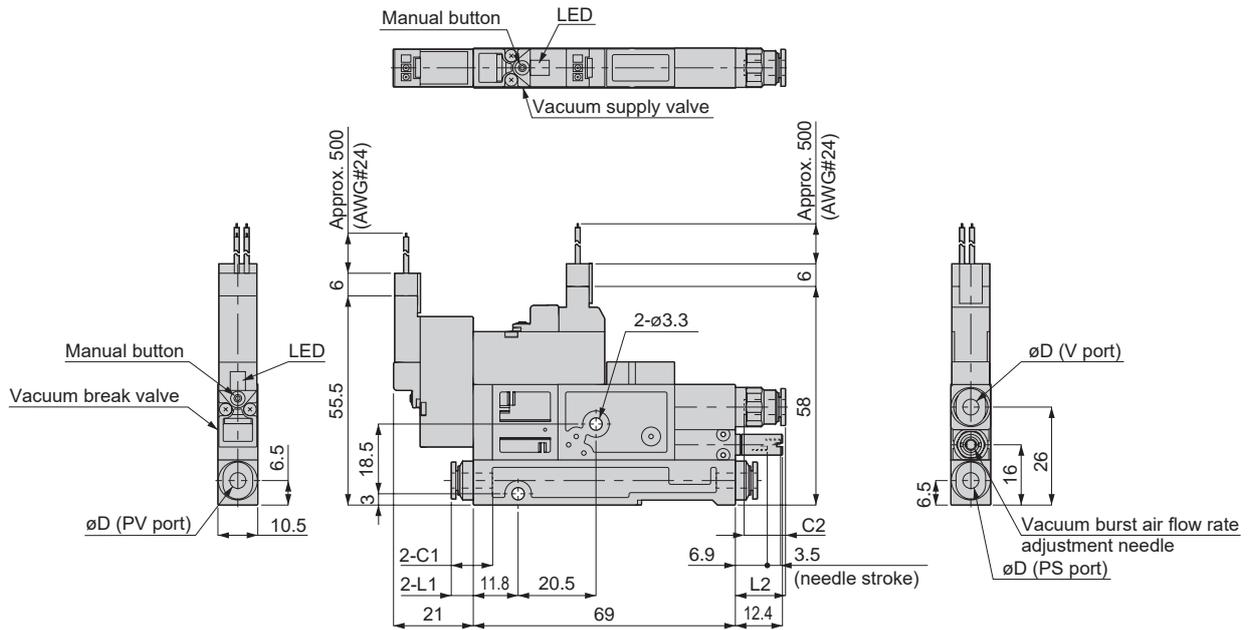
- Example) VSXPM-T □□□□-□□□□
Without vacuum pressure switch



Vacuum pump system
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Dimensions (single unit, 2-way valve specifications, without vacuum pressure switch)

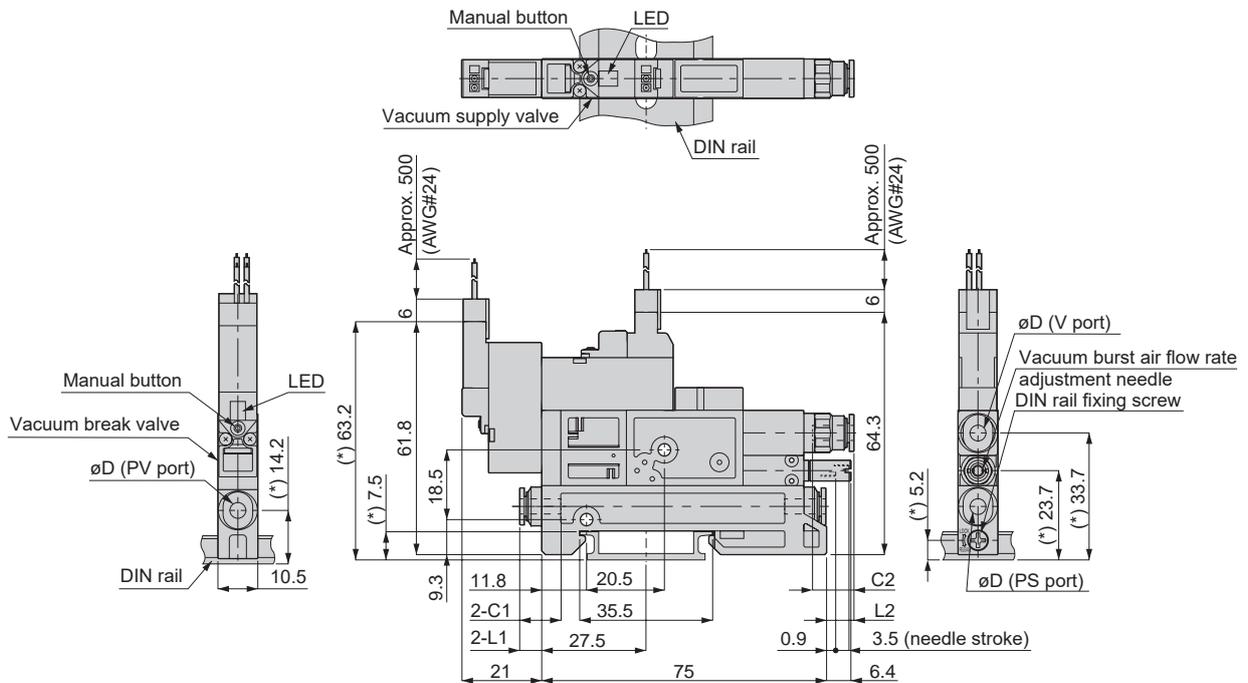
● Direct mounting



Unit: mm

Model No.	Tube O.D. (øD)	C1	C2	L1	L2
VSXP-D□□□□□	4	11.2	11.2	6.1	13.5
	6	11.9	11.9	8.9	13.7

● DIN rail mounting



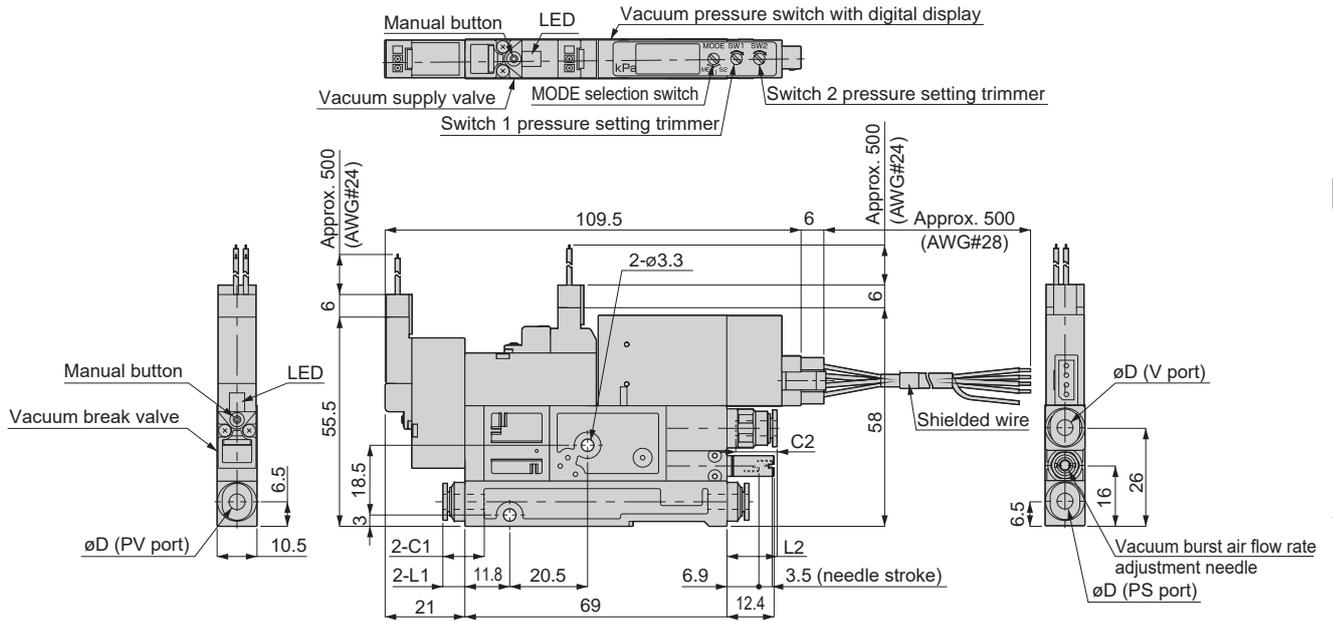
Note) Dimensions of the part with (*) mark are the values when DIN rail height is 7.5 mm.

Unit: mm

Model No.	Tube O.D. (øD)	C1	C2	L1	L2
VSXP-D□□□□□-D	4	11.2	11.2	6.1	7.5
	6	11.9	11.9	8.9	7.7

Dimensions (single unit, 2-way valve specifications, with vacuum pressure switch and 2-point switch output with digital display)

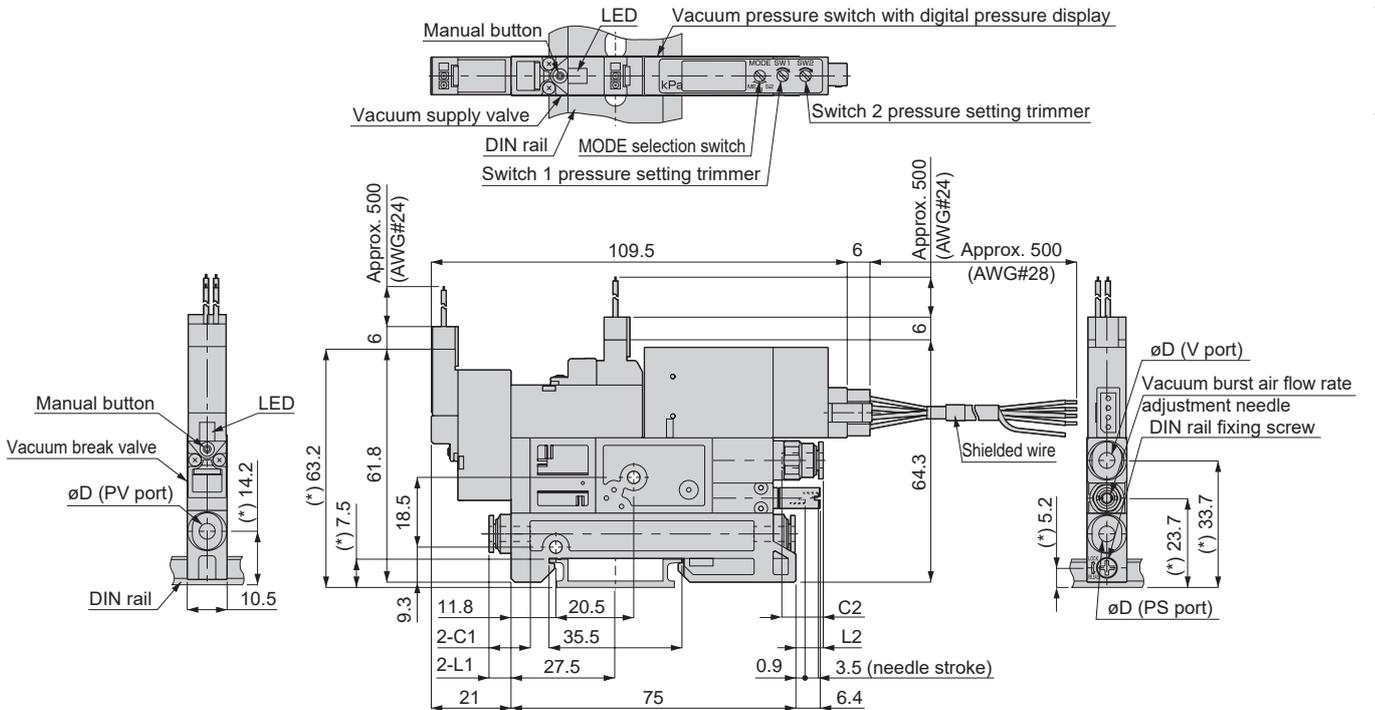
● Direct mounting



Unit: mm

Model No.	Tube O.D. (øD)	C1	C2	L1	L2
VSXP-D□□□□-DW	4	11.2	11.2	6.1	13.5
	6	11.9	11.9	8.9	13.7

● DIN rail mounting



Note) Dimensions of the part with (*) mark are the values when DIN rail height is 7.5 mm.

Unit: mm

Model No.	Tube O.D. (øD)	C1	C2	L1	L2
VSXP-D□□□□-DW-D	4	11.2	11.2	6.1	7.5
	6	11.9	11.9	8.9	7.7

Vacuum pump system

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VSNPM

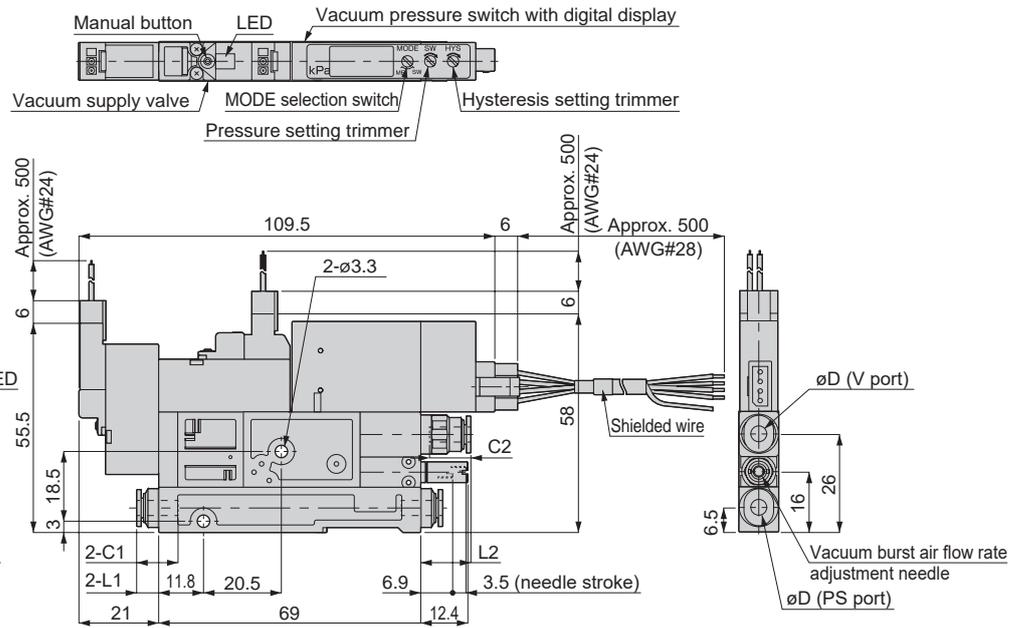
VSXP
VSXPM

VSQP

VSZPM

Dimensions (single unit, 2-way valve specifications, analog output with digital display, and vacuum pressure switch with switch output)

● Direct mounting



Unit: mm

Model No.	Tube O.D. (øD)	C1	C2	L1	L2
VSXP-D□□□□-DA	4	11.2	11.2	6.1	13.5
	6	11.9	11.9	8.9	13.7

Vacuum pump system

VSJP
VSJPM

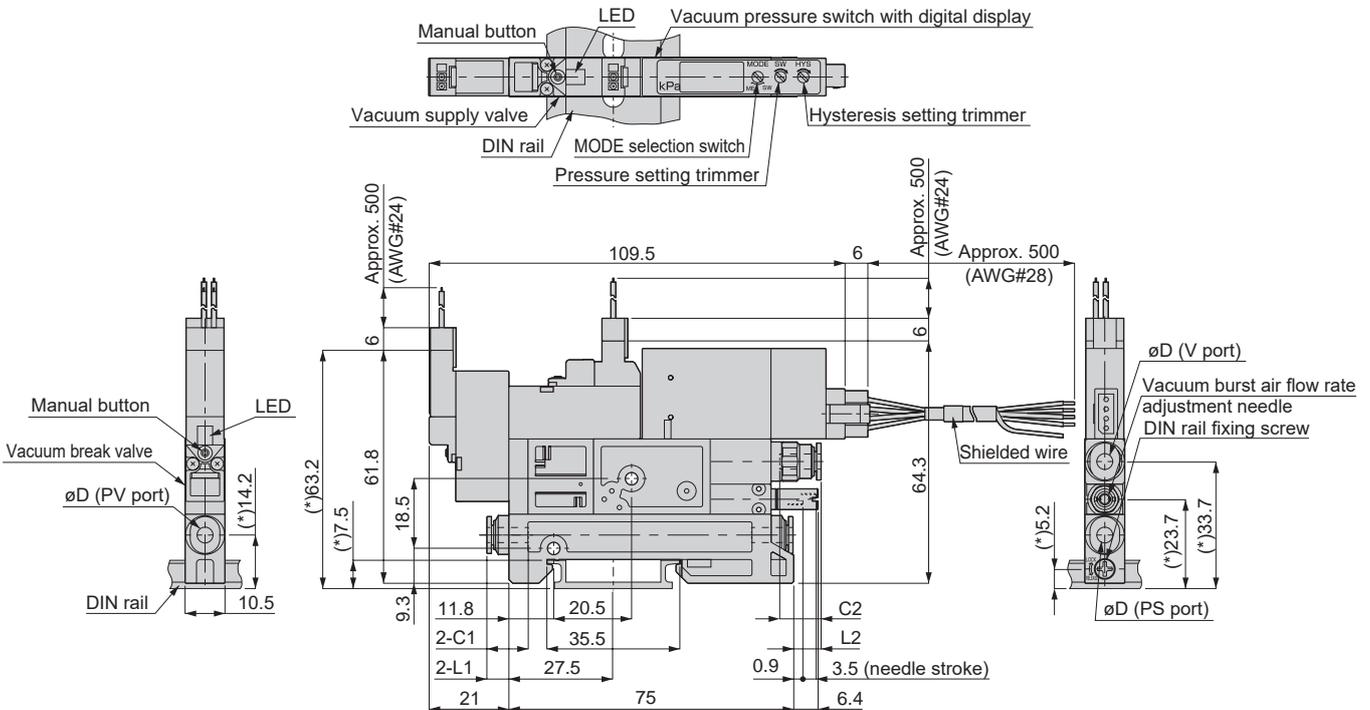
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● DIN rail mounting



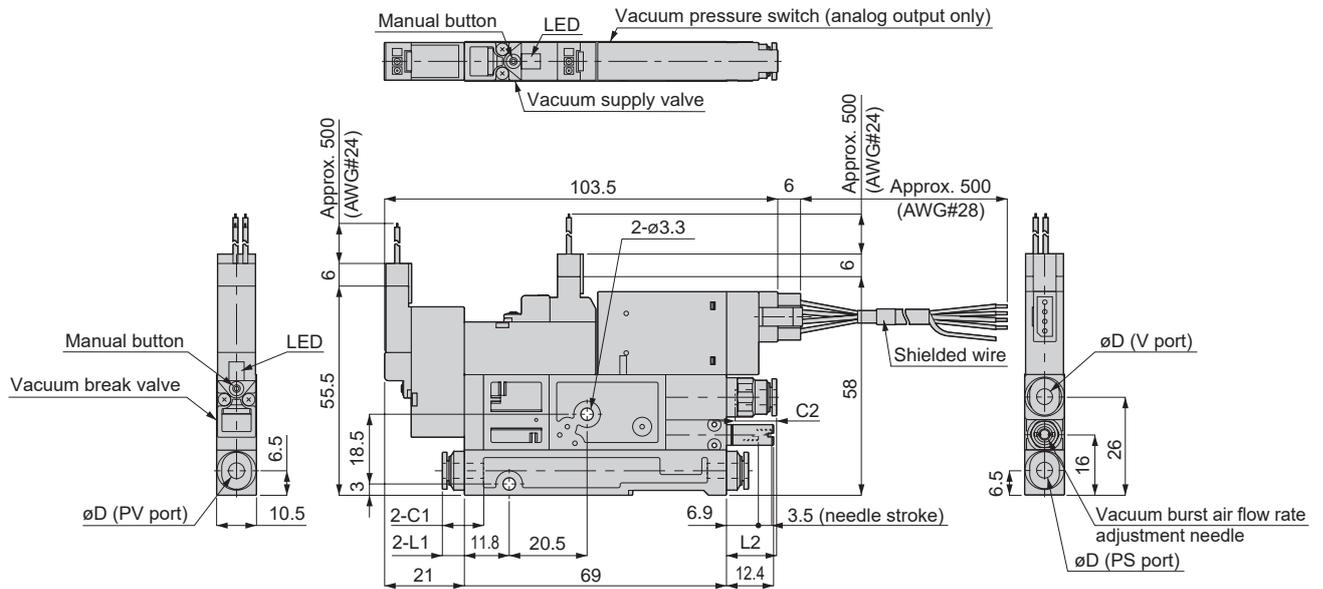
Note) Dimensions of the part with (*) mark are the values when DIN rail height is 7.5 mm.

Unit: mm

Model No.	Tube O.D. (øD)	C1	C2	L1	L2
VSXP-D□□□□-DA-D	4	11.2	11.2	6.1	7.5
	6	11.9	11.9	8.9	7.7

Dimensions (single unit, 2-way valve specifications, with vacuum pressure switch and analog output)

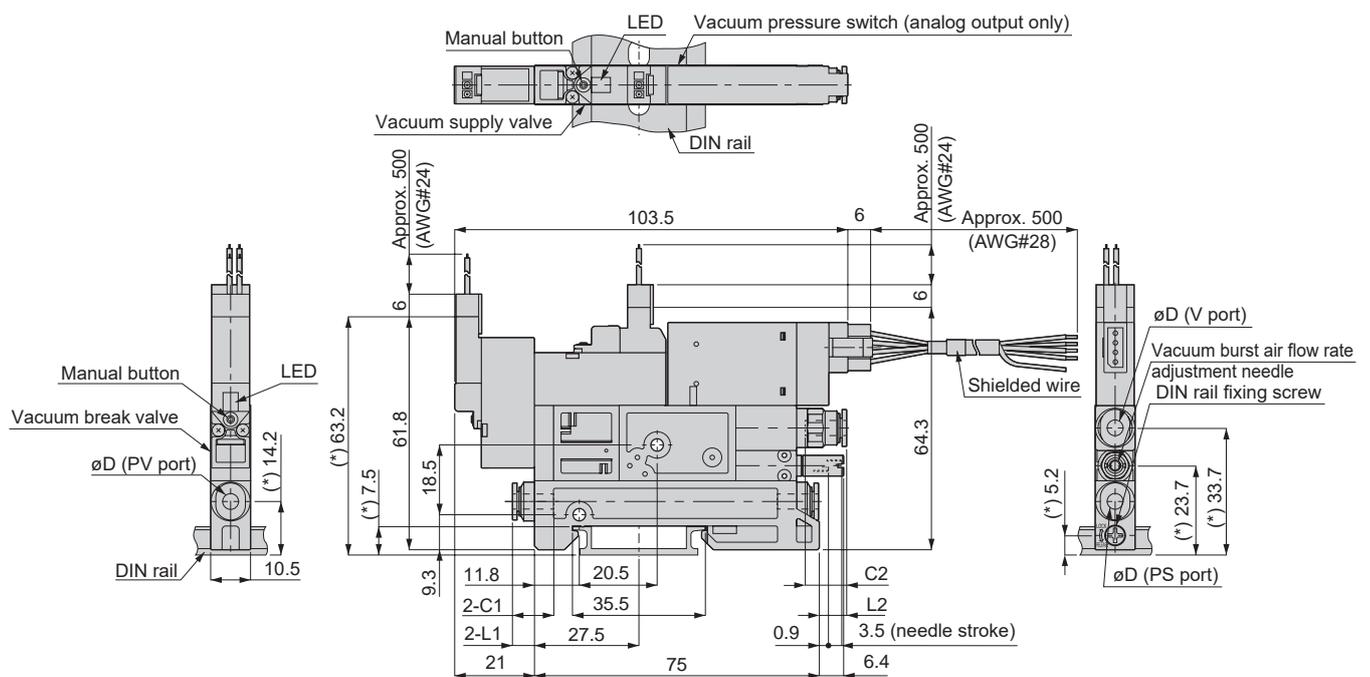
● Direct mounting



Unit: mm

Model No.	Tube O.D. (øD)	C1	C2	L1	L2
VSXP-D□□□□-A0	4	11.2	11.2	6.1	13.5
	6	11.9	11.9	8.9	13.7

● DIN rail mounting



Note) Dimensions of the part with (*) mark are the values when DIN rail height is 7.5 mm.

Unit: mm

Model No.	Tube O.D. (øD)	C1	C2	L1	L2
VSXP-D□□□□-A0-D	4	11.2	11.2	6.1	7.5
	6	11.9	11.9	8.9	7.7

Vacuum pump system

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Dimensions (single unit, 3-way valve specifications, without vacuum pressure switch)

● Direct mounting

Vacuum pump system

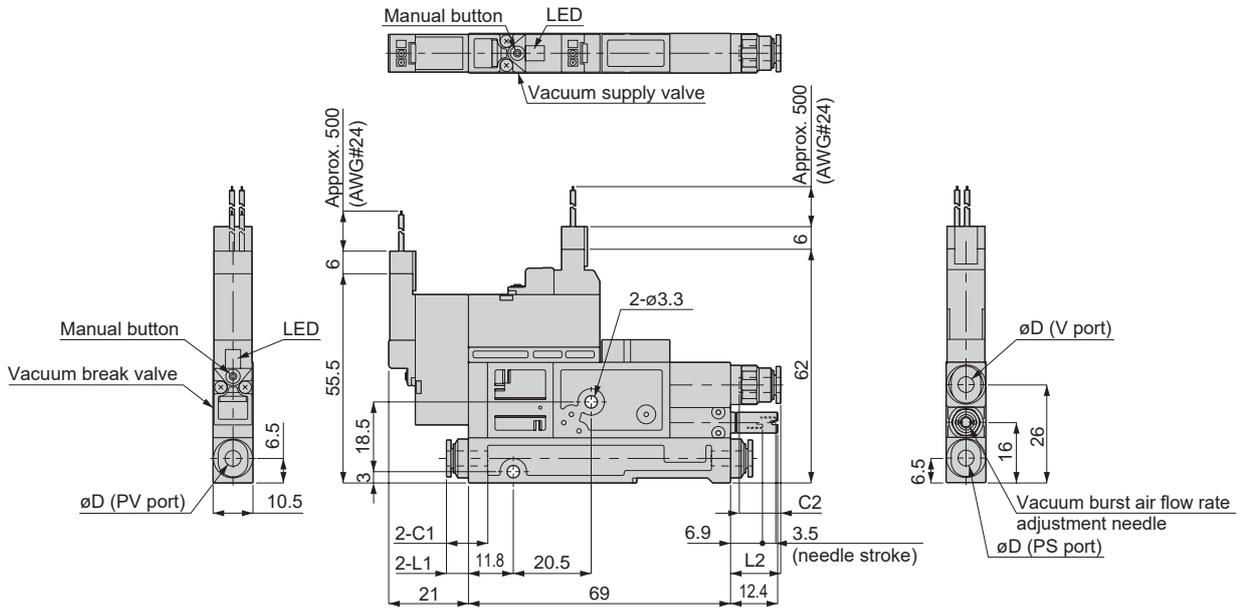
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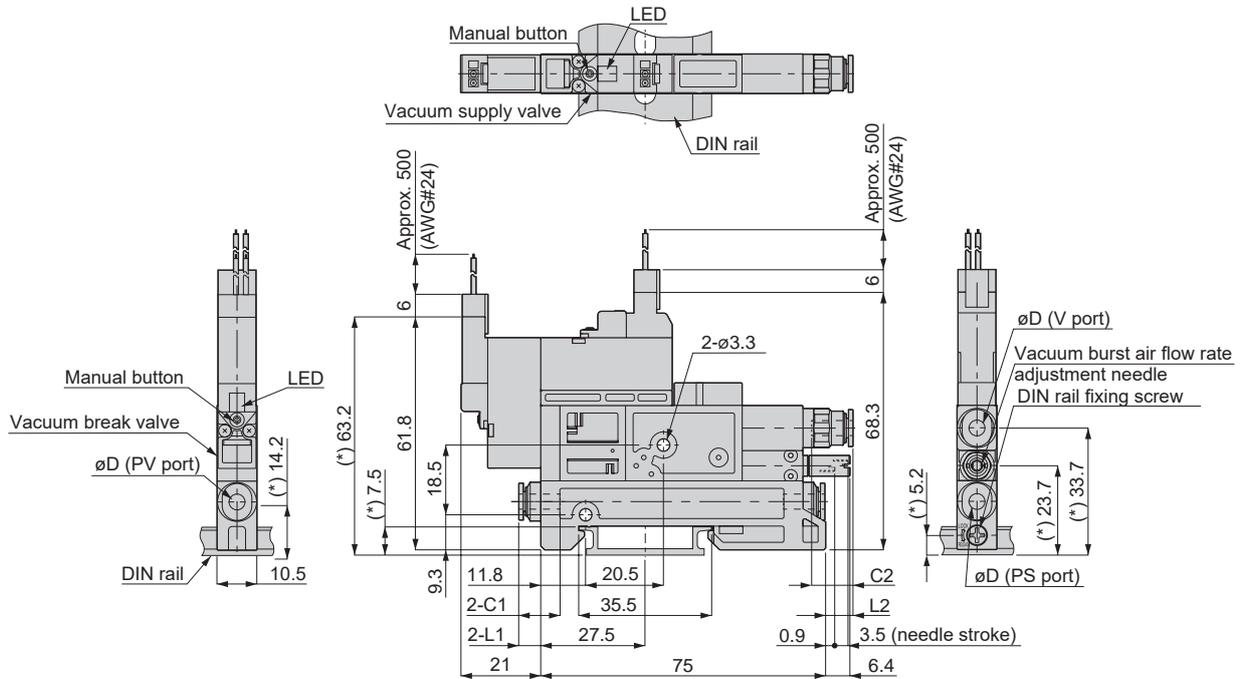
VSZPM



Unit: mm

Model No.	Tube O.D. (øD)	C1	C2	L1	L2
VSXP-T□□□□□	4	11.2	11.2	6.1	13.5
	6	11.9	11.9	8.9	13.7

● DIN rail mounting



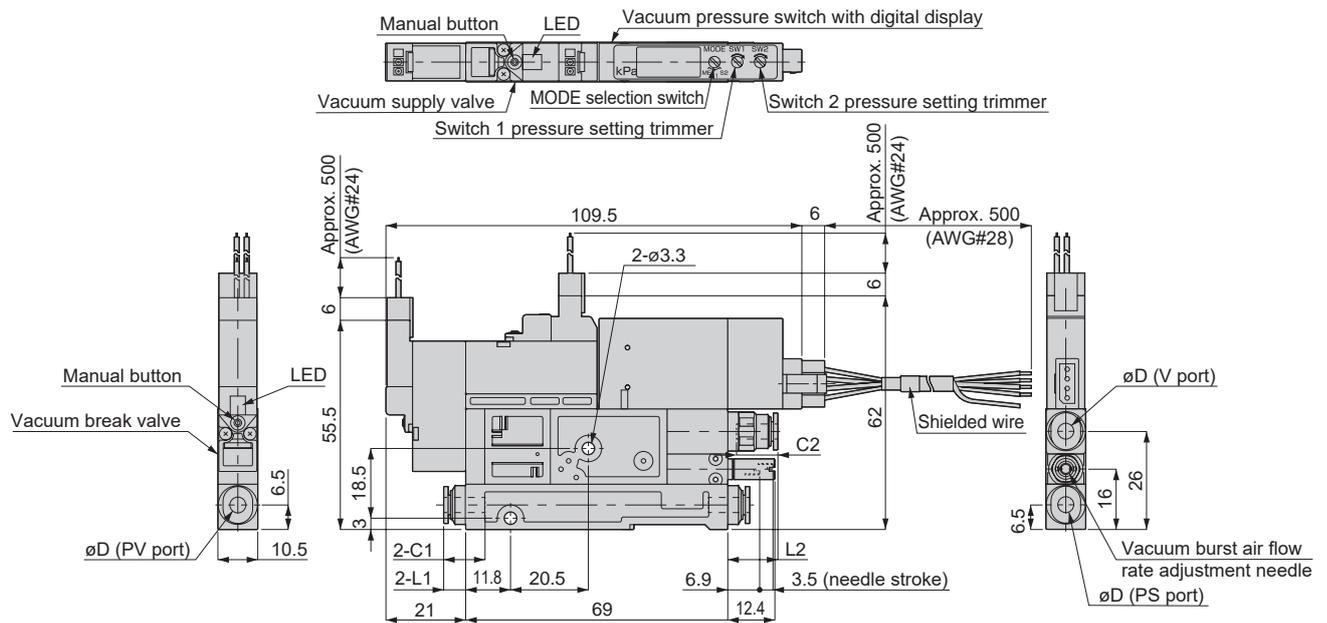
Note) Dimensions of the part with (*) mark are the values when DIN rail height is 7.5 mm.

Unit: mm

Model No.	Tube O.D. (øD)	C1	C2	L1	L2
VSXP-T□□□□□-D	4	11.2	11.2	6.1	7.5
	6	11.9	11.9	8.9	7.7

Dimensions (single unit, 3-way valve specifications, with vacuum pressure switch and 2-point switch output with digital display)

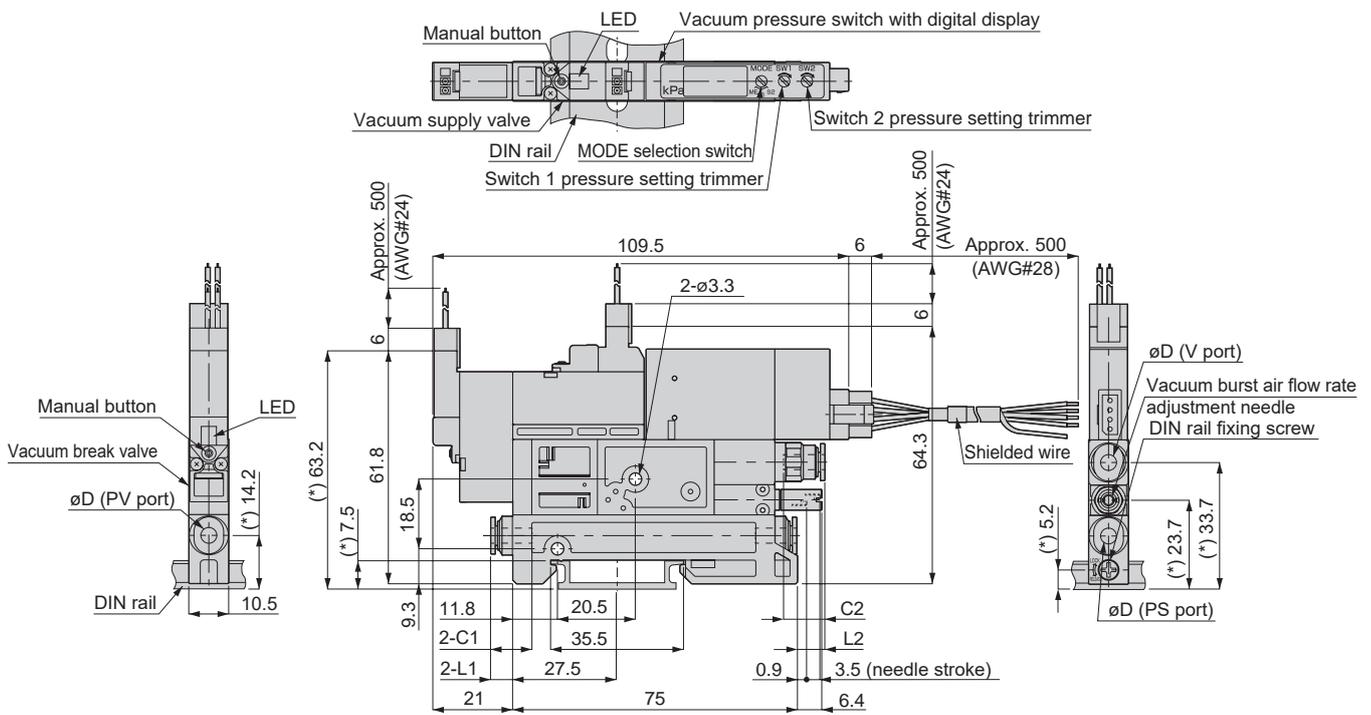
● Direct mounting



Unit: mm

Model No.	Tube O.D. (øD)	C1	C2	L1	L2
VSXP-T□□□□-DW	4	11.2	11.2	6.1	13.5
	6	11.9	11.9	8.9	13.7

● DIN rail mounting



Note) Dimensions of the part with (*) mark are the values when DIN rail height is 7.5 mm.

Unit: mm

Model No.	Tube O.D. (øD)	C1	C2	L1	L2
VSXP-T□□□□-DW-D	4	11.2	11.2	6.1	7.5
	6	11.9	11.9	8.9	7.7

Vacuum pump system

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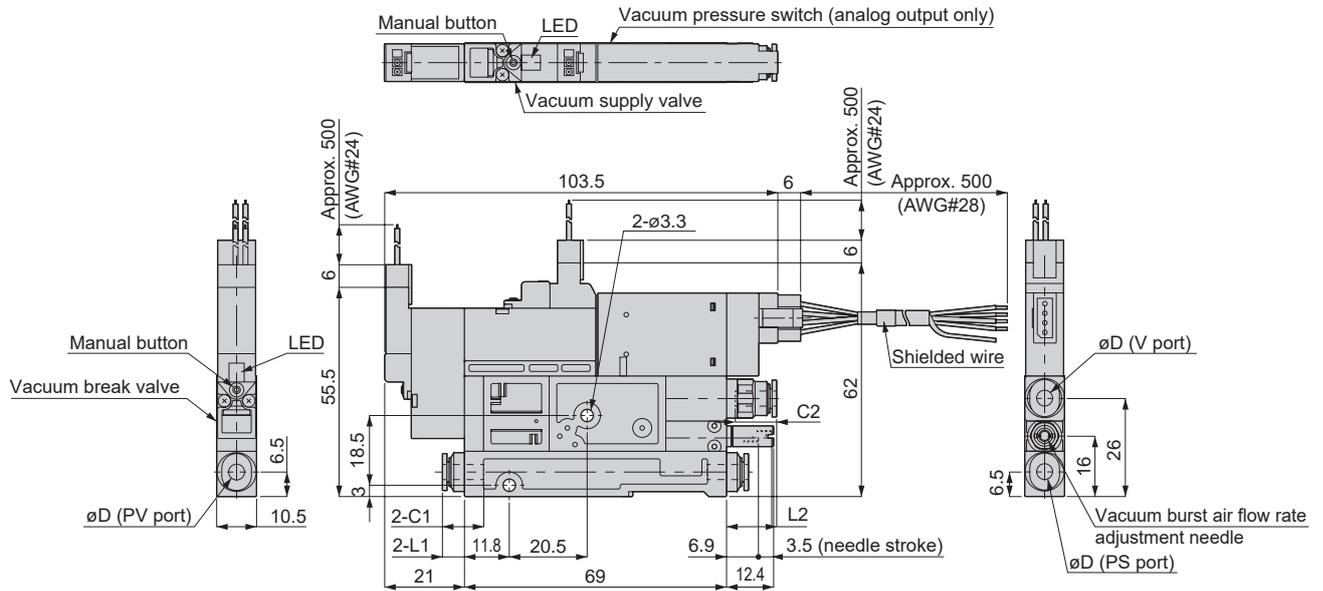
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Dimensions (single unit, 3-way valve specifications, and vacuum pressure switch with analog output)

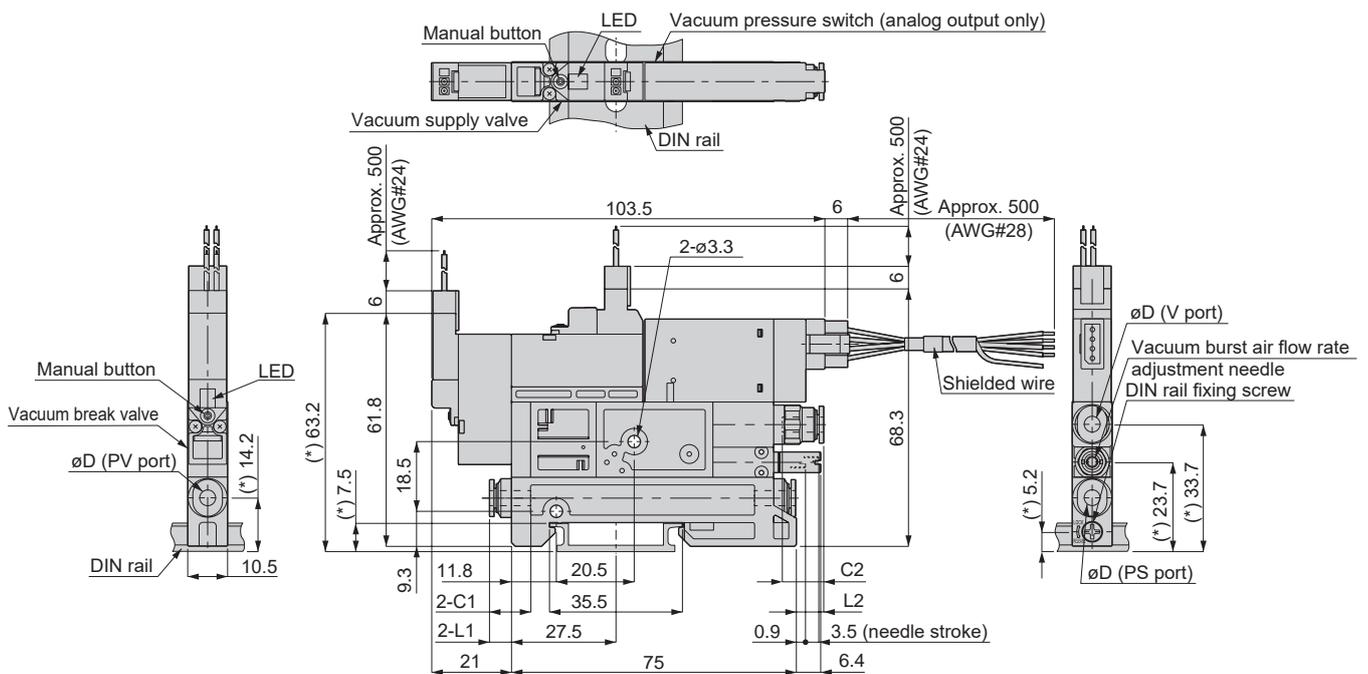
● Direct mounting



Unit: mm

Model No.	Tube O.D. (øD)	C1	C2	L1	L2
VSXP-T□□□□-A0	4	11.2	11.2	6.1	13.5
	6	11.9	11.9	8.9	13.7

● DIN rail mounting



Note) Dimensions of the part with (*) mark are the values when DIN rail height is 7.5 mm.

Unit: mm

Model No.	Tube O.D. (øD)	C1	C2	L1	L2
VSXP-T□□□□-A0-D	4	11.2	11.2	6.1	7.5
	6	11.9	11.9	8.9	7.7

Vacuum pump system

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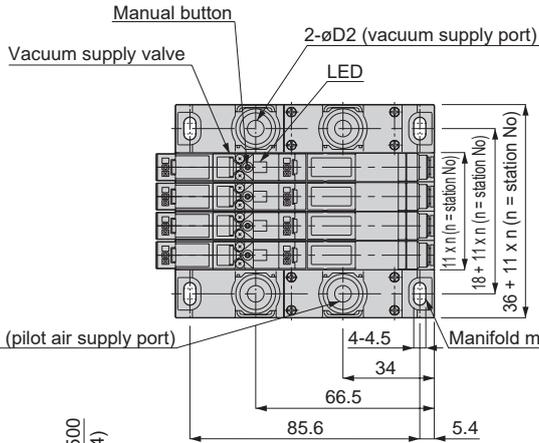
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VSQP

VSZPM

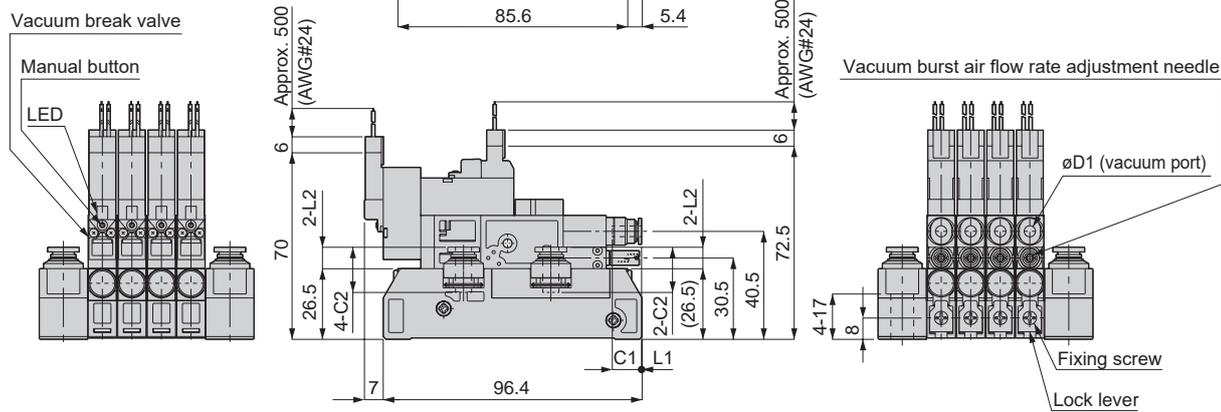
Dimensions (manifold, 2-way valve specifications VSXPM-D)

● Without vacuum pressure switch

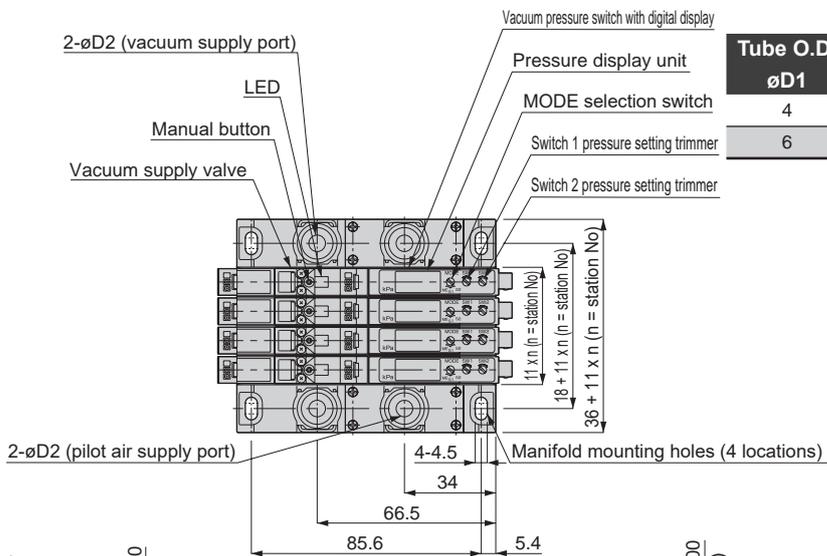


Unit: mm

Tube O.D. øD1	C1	L1	Tube O.D. øD2	C2	L2
4	11.2	0.1	4	15.2	3.8
6	11.9	0.3	6	17.2	8.3
			8	18.2	9.6
			10	20.7	13.2

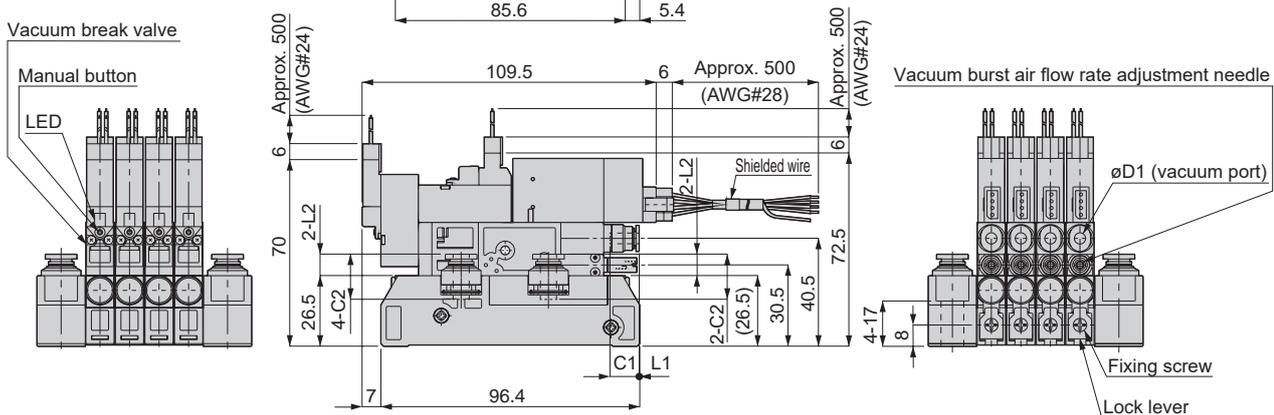


● With vacuum pressure switch and 2-point switch output with LED display



Unit: mm

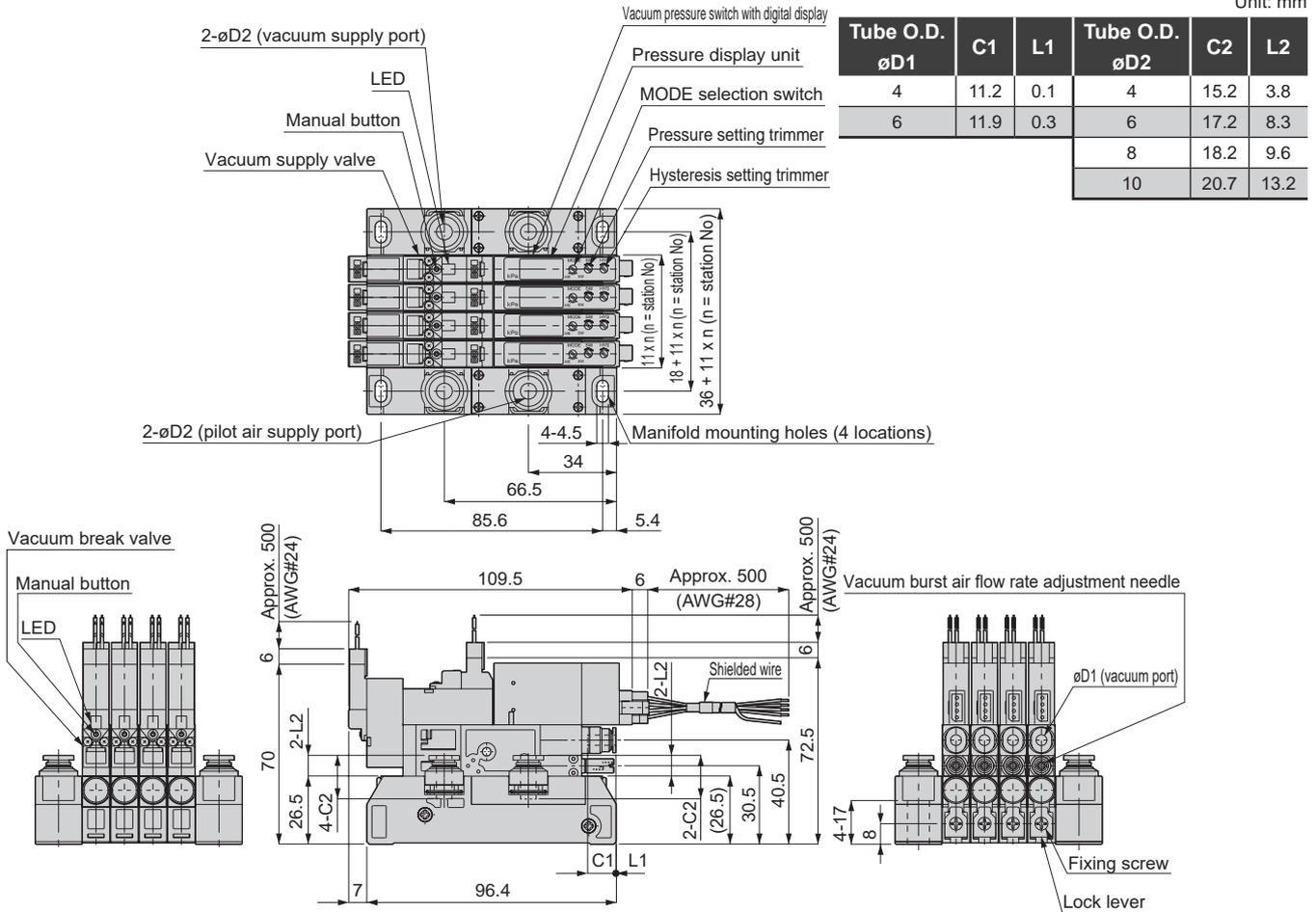
Tube O.D. øD1	C1	L1	Tube O.D. øD2	C2	L2
4	11.2	0.1	4	15.2	3.8
6	11.9	0.3	6	17.2	8.3
			8	18.2	9.6
			10	20.7	13.2



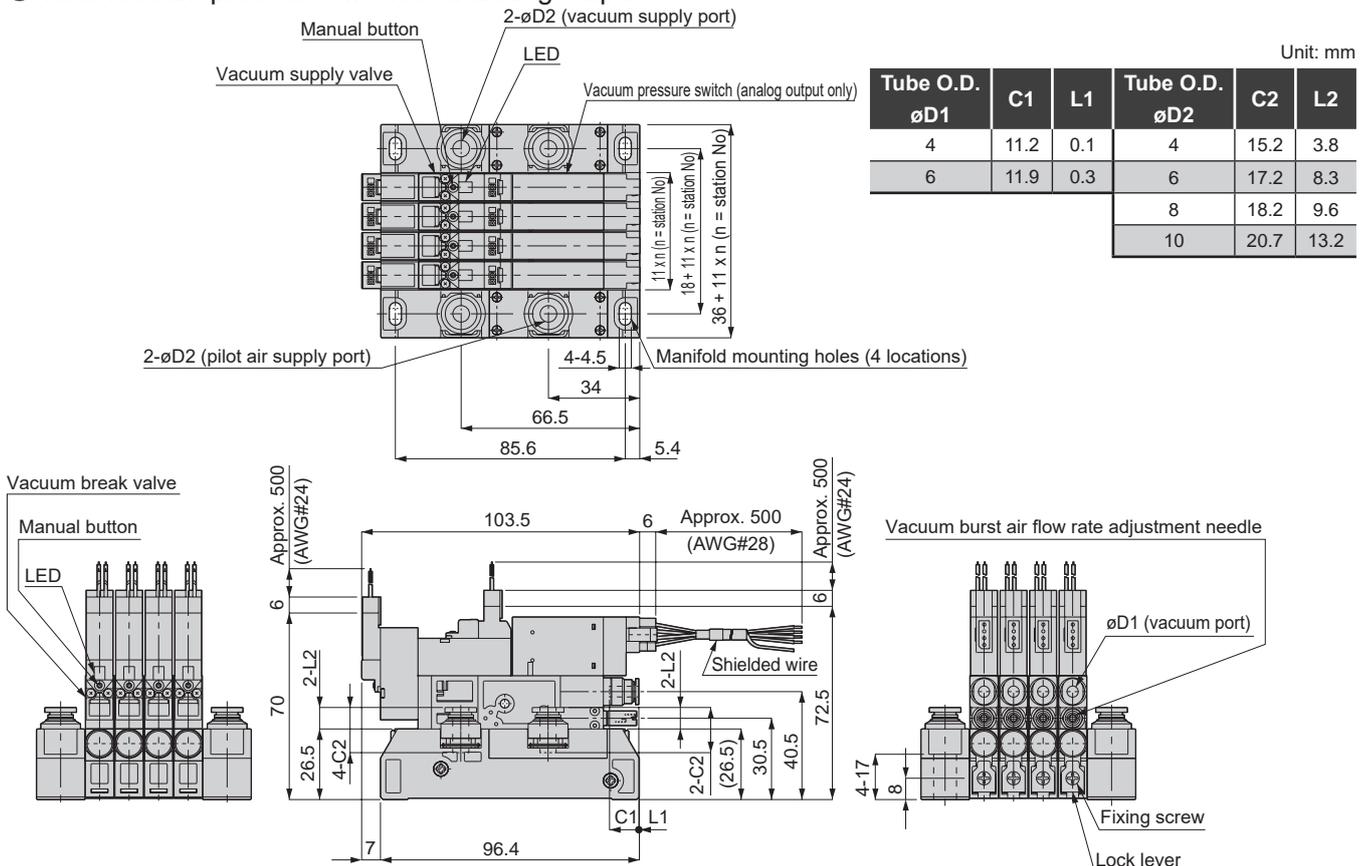
Dimensions (manifold, 2-way valve specifications, VSXPM-D)

- Analog output with LED display, and vacuum pressure switch with switch output

Unit: mm



- With vacuum pressure switch and analog output



Vacuum pump system

VSJP
VSJPM

VSNP
VSNPM

VSXP
VSXPM

VSQP

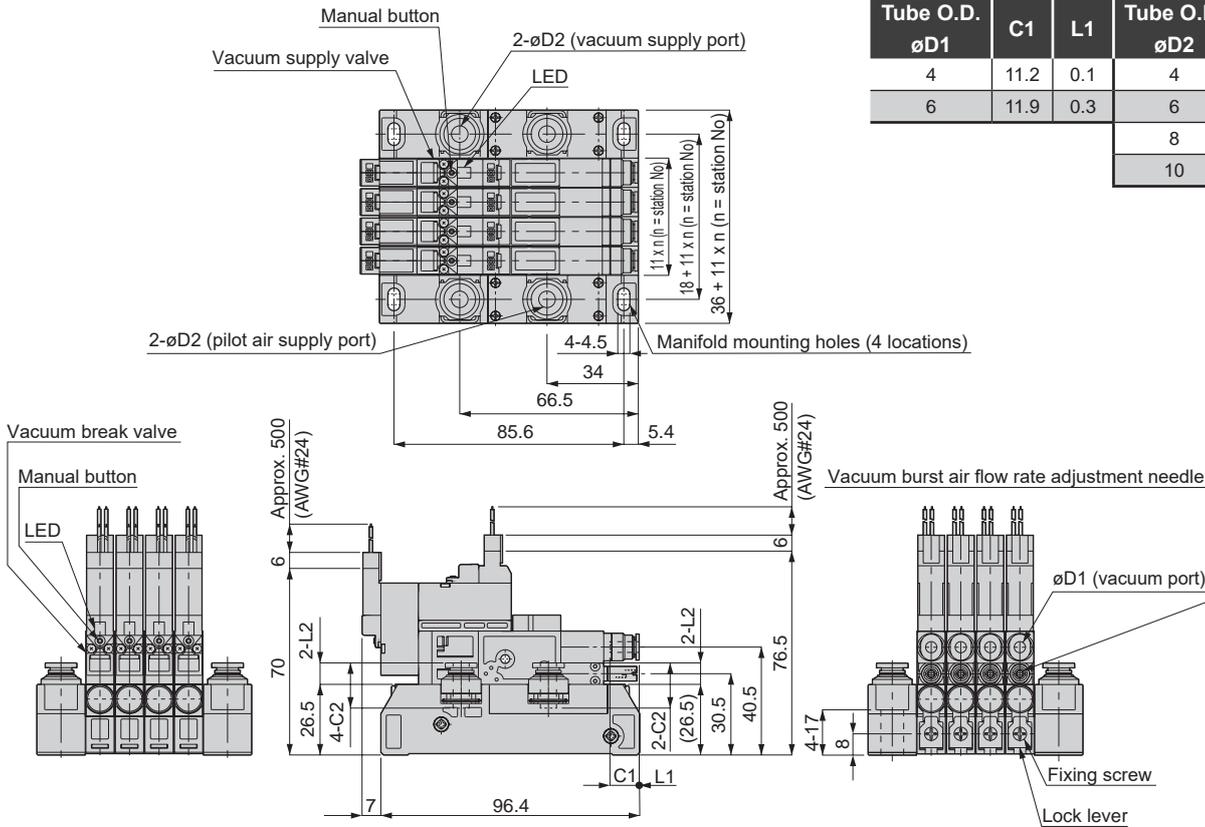
VSZPM

Dimensions (manifold, 3-way valve specifications VSXPM-T)

● Without vacuum pressure switch

Unit: mm

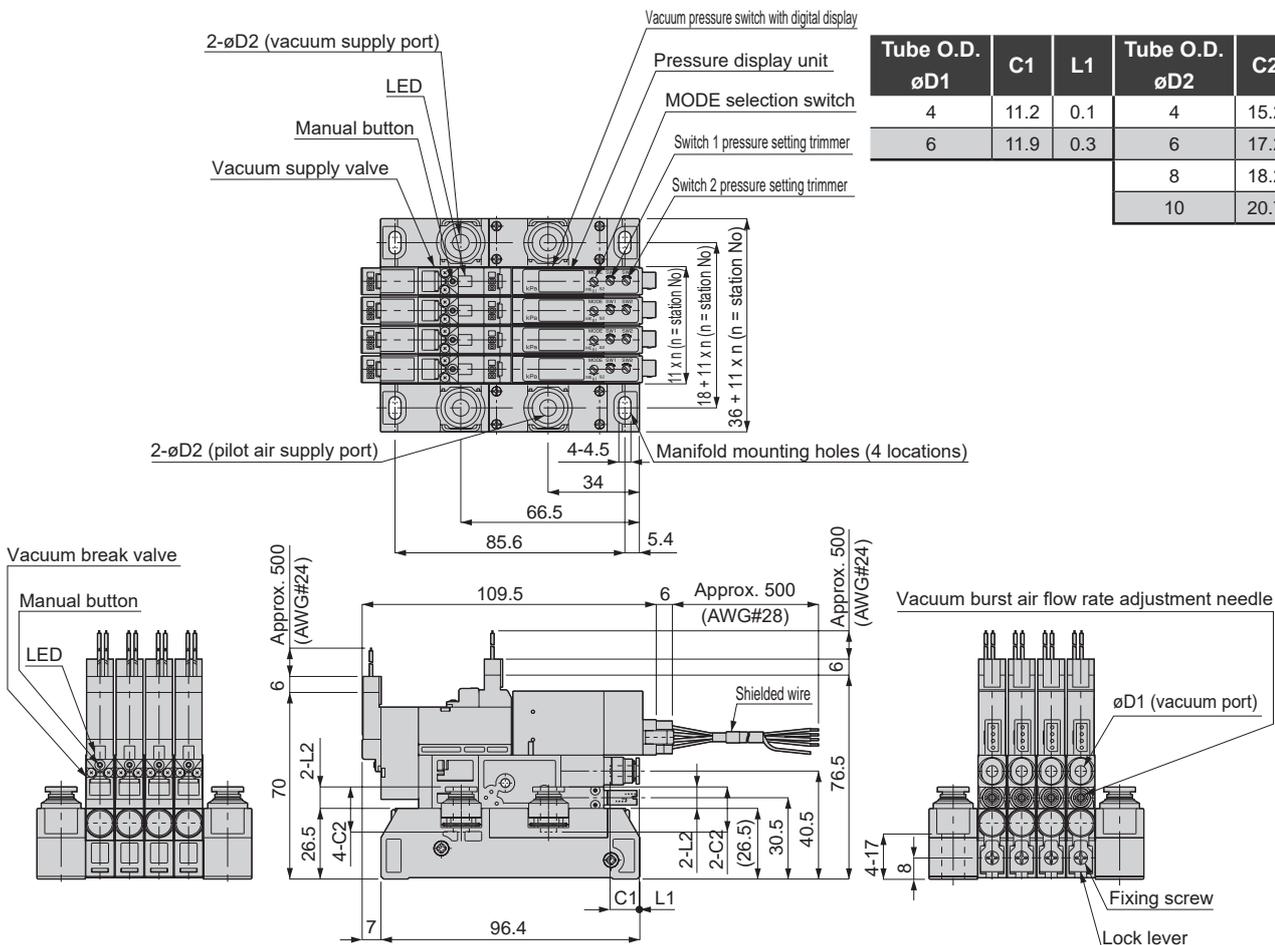
Tube O.D. øD1	C1	L1	Tube O.D. øD2	C2	L2
4	11.2	0.1	4	15.2	3.8
6	11.9	0.3	6	17.2	8.3
			8	18.2	9.6
			10	20.7	13.2



● With vacuum pressure switch and 2-point switch output with LED display

Unit: mm

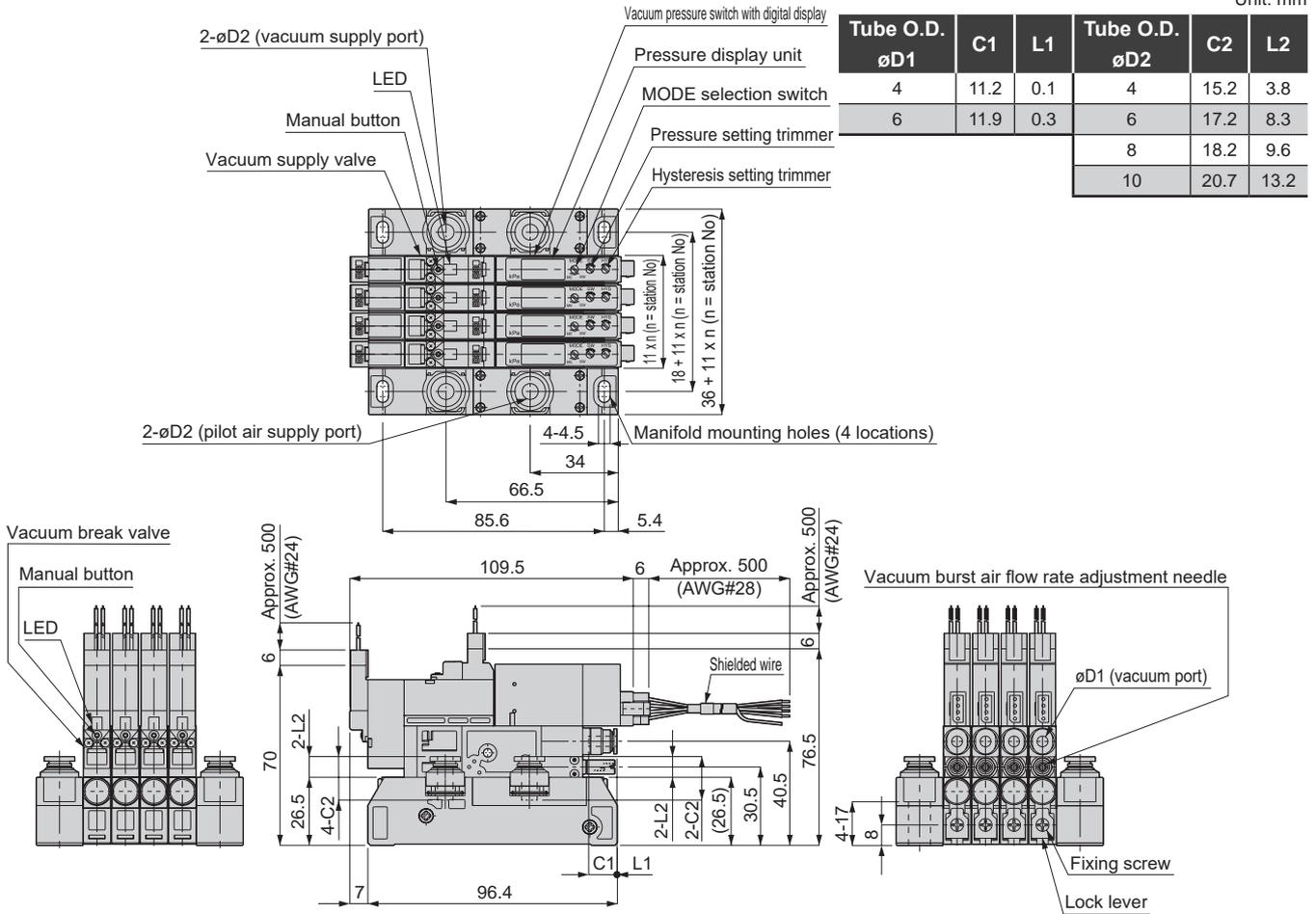
Tube O.D. øD1	C1	L1	Tube O.D. øD2	C2	L2
4	11.2	0.1	4	15.2	3.8
6	11.9	0.3	6	17.2	8.3
			8	18.2	9.6
			10	20.7	13.2



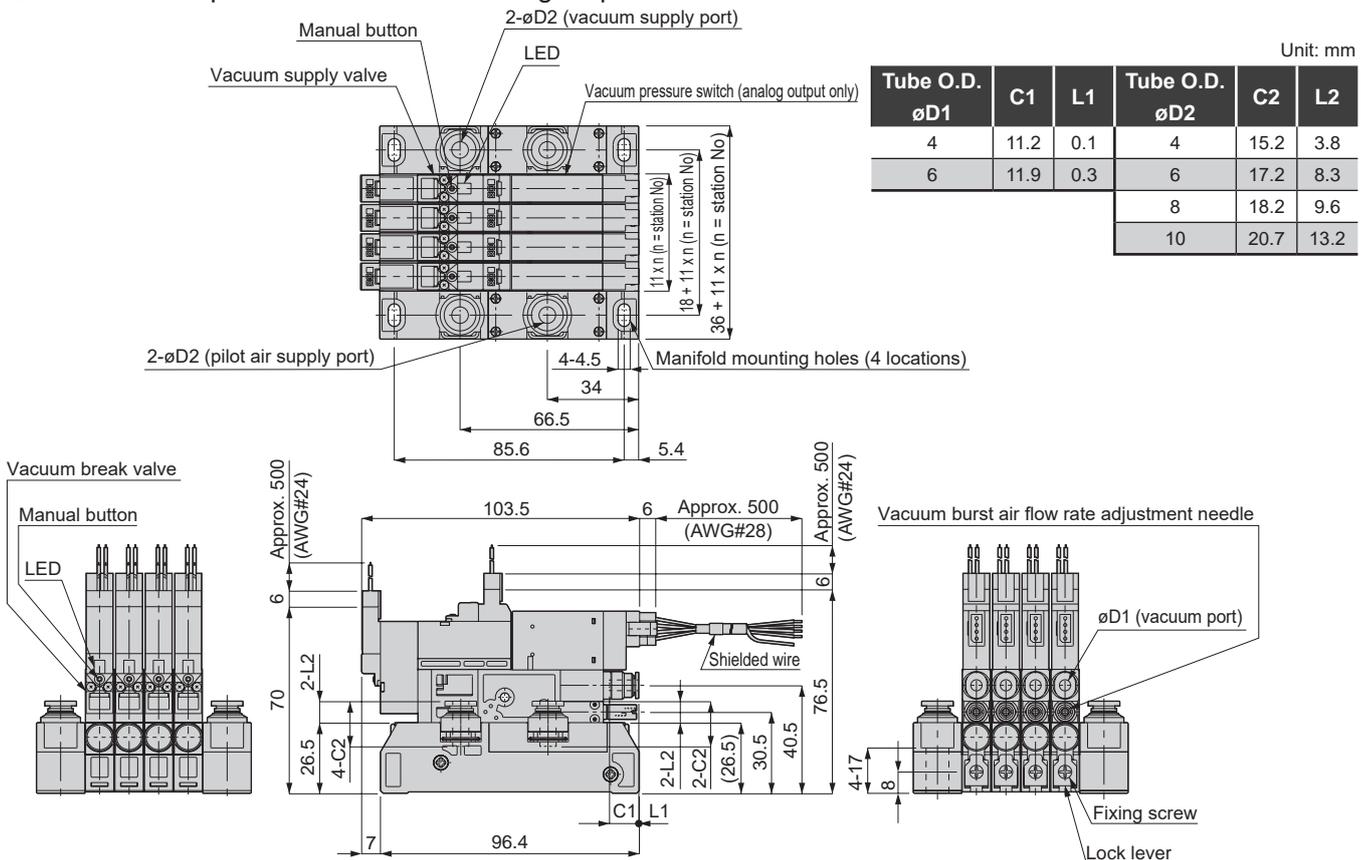
Dimensions (manifold, 3-way valve specifications VSXPM-T)

● Analog output with LED display, and vacuum pressure switch with switch output

Unit: mm



● With vacuum pressure switch and analog output



Vacuum pump system

VSJP
VSJPM

VSNP
VSNPM

VSXP
VSXPM

VSQP

VSZPM