Integral Fitting Type (Hyper Fittings)
Series LVC

How to Order Valves (Single Type)

LVC 2 0 – S 06 [ ] [ ] – [ ] [ ]

Body class

Symbol	Body class	Orifice dia.
2	2	ø4
3	3	ø8
4	4	ø10
5	5	ø16
6	6	ø22

Valve type

0	N.C.
1	N.O.
2	Double acting

Note) Refer to variations in the table below for valve type combinations.

Option

Nil	None
1	With flow rate adjustment
2	With by-pass
3	With flow rate adjustment & by-pass
4	With indicator

Note) Refer to "Variations" in the table below for option combinations. Options can not be combined each other.

Material

Symbol	Body	Actuator section: End plate	Dia-phragm	Applicable option 1	2	3	4	Note
Nil	PFA	PPS	PTFE	●	●	●	●	–
F	PFA	PVDF	PTFE					Hydrofluoric acid compatible (Only LVC40, 50 type)
N	PFA	PPS	PTFE	●	●	●	●	Ammonium hydroxide compatible

Applicable tubing size

Symbol	Connecting tubing O.D.	Body class 2	3	4	5	6
Metric sizes						
04	ø4	●				
06	ø6	○	●			
08	ø8		●			
10	ø10		○	●		
12	ø12			○	●	
19	ø19				○	●
25	ø25					○
Inch sizes						
03	1/8	●				
05	3/16	●				
07	1/4	○	●			
11	3/8		○	●		
13	1/2			○	●	
19	3/4				○	●
25	1					○

○ Basic size ● With reducer

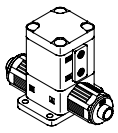
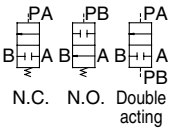
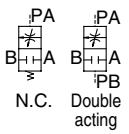
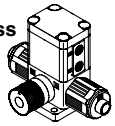
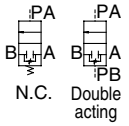
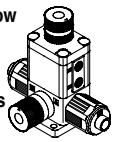
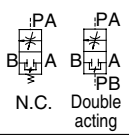
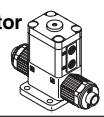
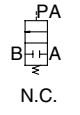
Port B (OUT) different dia. size

Symbol	Application
Nil	Ports A & B same size
Refer to the applicable tubing table to the left.	Different diameter tubings can be selected within the same body class.

Pilot port thread type

Symbol	Body class	Thread type
Nil	2	M5
	3, 4, 5, 6	Rc 1/8
N	3, 4, 5, 6	NPT 1/8

Variations

Type	Symbol	Valve type	Model: Orifice diameter / Tubing O.D. (Metric / Inch)	LVC20: ø4 / 4, 6 / 1/8, 3/16, 1/4	LVC30: ø8 / 6, 8, 10 / 1/4, 3/8	LVC40: ø10 / 10, 12 / 3/8, 1/2	LVC50: ø16 / 12, 19 / 1/2, 3/4	LVC60: ø22 / 19, 25 / 3/4, 1
Basic type 	 N.C. N.O. Double acting	N.C.		○	○	○	○	○
		N.O.		○	○	○	○	○
		Double acting		○	○	○	○	○
With flow rate adjust-ment 	 N.C. Double acting	N.C.		○	○	○	○	○
		Double acting		○	○	○	○	○
With by-pass 	 N.C. Double acting	N.C.		—	○	○	○	—
		Double acting		—	○	○	○	—
With flow rate adjust-ment & by-pass 	 N.C. Double acting	N.C.		—	○	○	○	—
		Double acting		—	○	○	○	—
With indicator 	 N.C.	N.C.		○	○	○	○	○

Standard Specifications

Model		LVC20	LVC30	LVC40	LVC50	LVC60
Tubing O.D.	Metric size	6	10	12	19	25
	Inch size	1/4	3/8	1/2	3/4	1
Orifice diameter		ø4	ø8	ø10	ø16	ø22
Flow characteristics	Av x 10^{-6}m²	8.4	40.8	60	144	192
	Cv	0.35	1.7	2.5	6	8
Withstand pressure (MPa)		1				
Operating pressure (MPa)		0 to 0.5			0 to 0.4	
Back pressure (MPa)	N.C./N.O.	0.3 or less			0.2 or less	
	Double acting	0.4 or less			0.3 or less	
Valve leakage (cm³/min)		0 (with water pressure)				
Pilot air pressure (MPa)		0.3 to 0.5				
Pilot port size		M5	Rc 1/8, NPT 1/8			
Fluid temperature (°C)		0 to 100				
Ambient temperature (°C)		0 to 60				
Weight (kg)		0.09	0.23	0.42	0.86	1.00

Note 1) Contact SMC if the valve is to be used with vacuum and B → A flow.

Different Diameter Tubing Applicable with Reducer

Different diameter tubing can be selected (within a body class) by using a nut and insert bushing (reducer).

● With reducer

Body class	Tubing O.D.													
	Metric sizes							Inch sizes						
	4	6	8	10	12	19	25	1/8	3/16	1/4	3/8	1/2	3/4	1
2	●	○	—	—	—	—	—	●	●	○	—	—	—	—
3	—	●	●	○	—	—	—	—	—	●	○	—	—	—
4	—	—	—	●	○	—	—	—	—	—	●	○	—	—
5	—	—	—	—	●	○	—	—	—	—	—	●	○	—
6	—	—	—	—	—	●	○	—	—	—	—	—	●	○

Note) Refer to page 29 for information on changing tubing sizes.

⚠ Specific Product Precautions

Be sure to read before handling. Refer to page 17-6-3 for Safety Instructions and 17-5-41 to 17-5-42 for High Purity Chemical Valve Precautions.

Piping

⚠ Caution

1. Connect tubing with special tools.

Refer to pages 17-5-35 through 17-5-37 regarding tubing connection and special tools.

2. Tighten the nut to the end surface of the body. As a guide, refer to the proper tightening torques shown below.

Tightening torque for piping

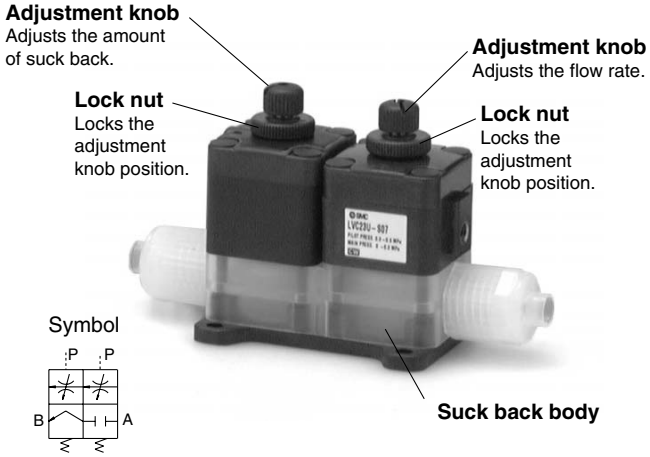
Body class	Torque (Nm)
2	0.3 to 0.4
3	0.8 to 1.0
4	1.0 to 1.2
5	2.5 to 3.0
6	5.5 to 6.0

Suck Back

A change of volume inside the suck back valve pulls in liquid at the end of the nozzle to prevent dripping.

Single type

Unit type



Standard Specifications

Model		LVC23	LVC23U
Tubing O.D. Note 1)	Metric sizes	(4), 6	
	Inch sizes	(1/8), (3/16), 1/4	
Orifice diameter		—	ø3
Flow characteristics	Av x 10^{-6}m²	—	4.8
	Cv	—	0.2
Withstand pressure (MPa)		1	
Operating pressure (MPa)		0 to 0.2	
Maximum suck back volume (cm³)		0.1	
Pilot air pressure (MPa)		0.3 to 0.5	
Pilot port size		M5	
Fluid temperature (°C)		0 to 100	
Ambient temperature (°C)		0 to 60	
Weight (kg)		0.08	0.16

Note 1) Different diameter tubing shown in ( ) can be selected when used with a reducer. Refer to page 17-5-35 for details.

How to Order

LVC 2 3 □ – S 06 □

Body class

Symbol	Body class
2	2

Valve type

3	Suck back valve

Body type

Nil	Single type
U	Unit type with 2 way valve

Port B (OUT) different dia. size

Symbol	Application
Nil	Ports A & B same size
Refer to the applicable tubing in the table below.	Different diameter tubing can be selected within the same body class.

Applicable tubing size

Symbol	Connecting tubing O.D.	Body class 2
Metric sizes		
04	ø4	○
06	ø6	◎
Inch sizes		
03	1/8	○
05	3/16	○
07	1/4	◎

◎ Basic size ○ With reducer

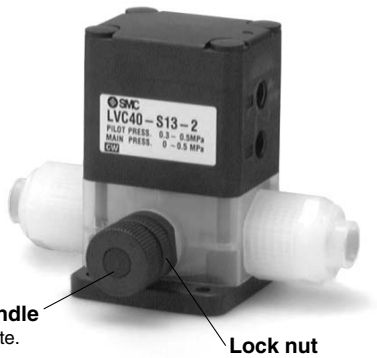
Options

■ With flow rate adjustment

The flow rate is adjusted by controlling the diaphragm stroke.

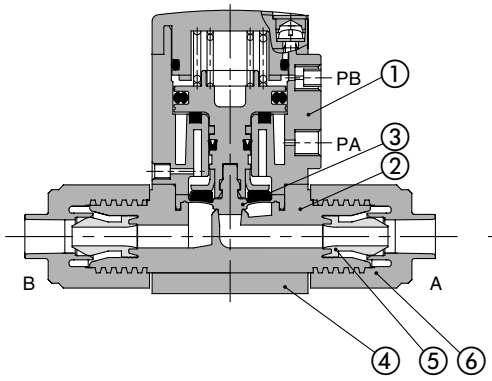
■ With by-pass

A small amount of fluid from the inlet side is allowed to flow continuously to the outlet side by providing a by-pass inside the body.

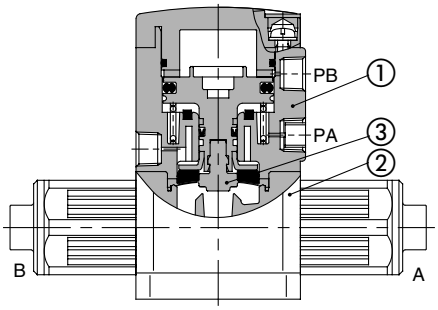


Construction

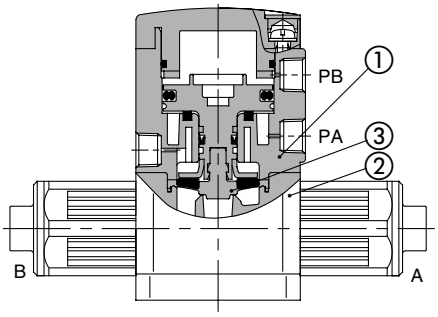
Standard type
N.C. type



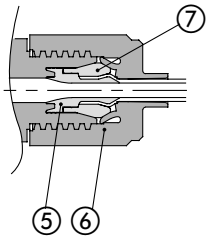
N.O. type



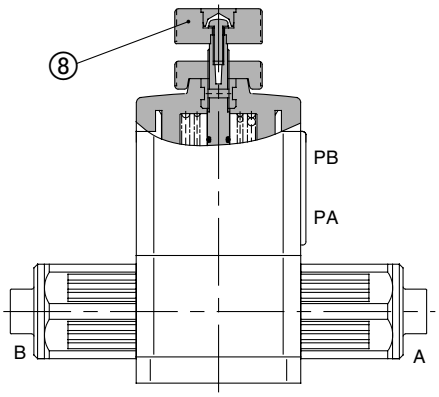
Double acting type



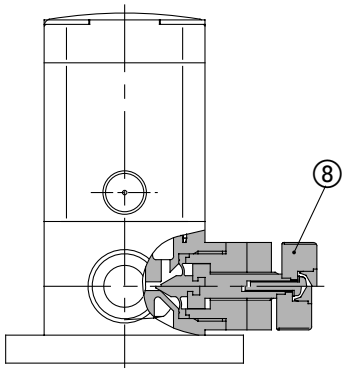
With reducer



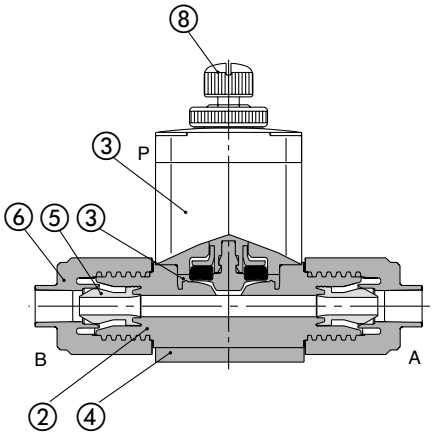
With flow rate adjustment



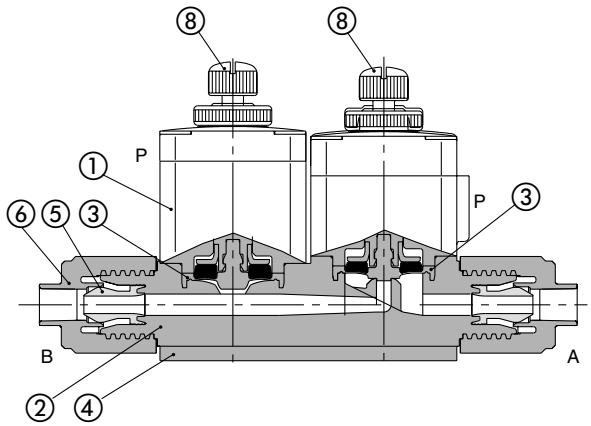
With by-pass



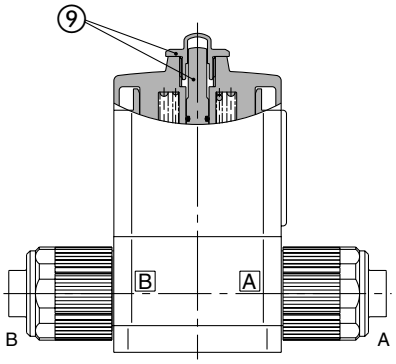
Suck back (single type)



Suck back (unit type)



With indicator

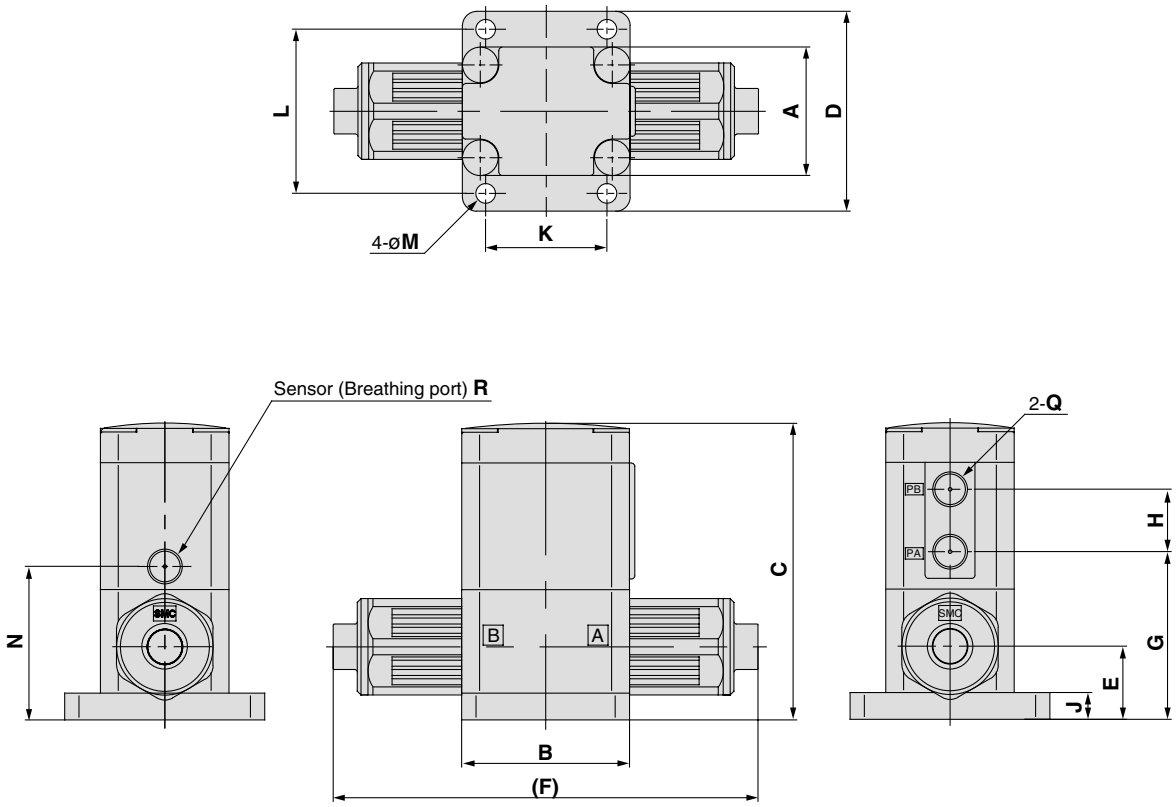


Parts list

No.	Description	Material	Option
1	**Actuator section**	PPS	PVDF
2	**Body**	PFA	—
3	**Diaphragm**	PTFE	—
4	**End plate**	PPS	PVDF
5	**Insert bushing**	PFA	—
6	**Nut**	PFA	—
7	**Collar**	PFA	—
8	**Flow rate adjuster section**	PPS	—
9	**Indicator**	PP	—

Dimensions

Basic type



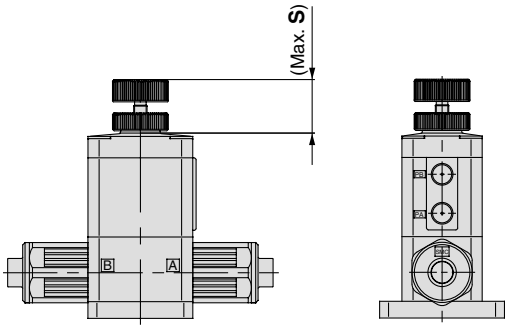
Dimensions

(mm)

Model	A	B	C	D	E	F	G	H	J	K	L	M	N	Q	R
LVC2□	30	30	54.5	44	11	79	28.5	13	4	20	37	3.5	23.5	M5 x 0.8	M3 x 0.5
LVC3□	36	47	79	56	16.5	106	43	17.5	7.5	34	46	5.5	39	Rc 1/8 NPT 1/8	Rc 1/8 NPT 1/8
LVC4□	46	60	96	68	22	131	55	18	8	42	57	5.5	48		
LVC5□	58	75	129	84	26	154	68	27.5	8	56	71	6.5	62		
LVC6□	58	75	138	84	32	165	77	27.5	8	56	71	6.5	71		

Dimensions

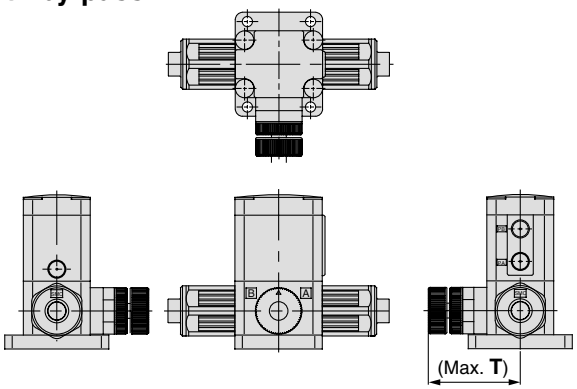
With flow rate adjustment



Dimensions (mm)

Model	S
LVC2□	11.5
LVC3□	24
LVC4□	29
LVC5□	34.5
LVC6□	36

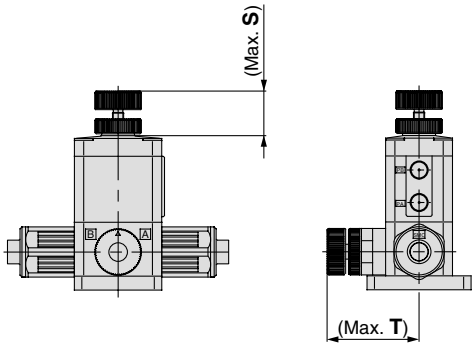
With by-pass



Dimensions (mm)

Model	T
LVC3□	49.5
LVC4□	54.5
LVC5□	60.5

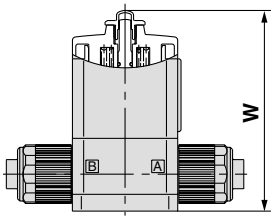
With flow rate adjustment & by-pass



Dimensions (mm)

Model	S	T
LVC3□	24	49.5
LVC4□	29	54.5
LVC5□	34.5	60.5

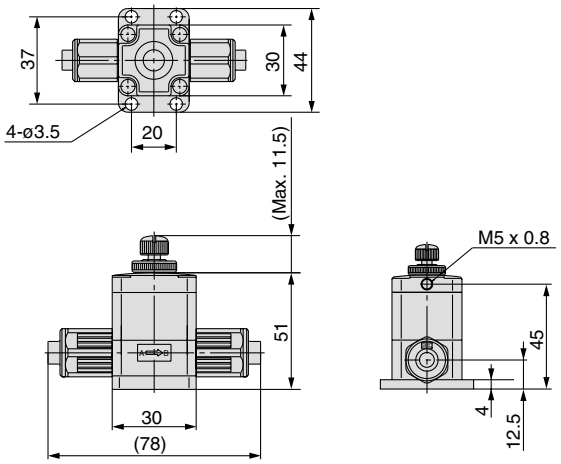
With indicator



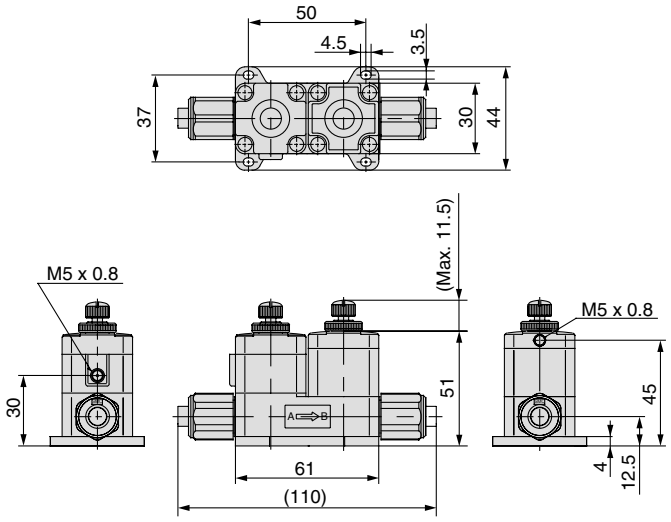
Dimensions (mm)

Model	W
LVC20	64
LVC30	90
LVC40	110.5
LVC50	147
LVC60	156

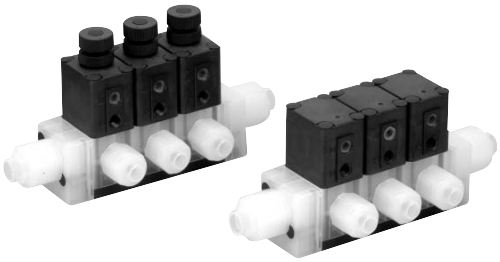
Suck back (Single type)



Suck back (Unit type)



Series LVC
Manifolds



Manifold Specifications

Model	LLC2A	LLC3A	LLC4A	LLC5A
Manifold type	Stacking type			
P (IN), A (OUT) type	Common IN/Individual OUT			
Valve stations	2 to 5 stations			
Tubing size (port P)	3/8	1/2	3/4	3/4
Tubing size (port A)	1/4	3/8	1/2	3/4

Note 1) Contact SMC if the manifold will be used with vacuum and A → P flow.

How to Order Manifold Base

LLC 2 A – 02 – S 11 □

Body class

Symbol	Body class
2	2
3	3
4	4
5	5

Base type

A	Stacking type

Manifold stations

02	2 stations
⋮	⋮
05	5 stations

Tubing size for P port and L side connection

Symbol	Tubing size	Body class
00	Plug	2 to 5
06	Ø6	2
07	1/4"	
08	Ø8	
10	Ø10	
11	3/8"	
10	Ø10	3
11	3/8"	
12	Ø12	
13	1/2"	
12	Ø12	4
13	1/2"	
19	Ø19, 3/4"	
12	Ø12	5
13	1/2"	
19	Ø19, 3/4"	

Tubing size for P port and R side connection

Symbol	Tubing size	Body class
00	Plug	2 to 5
06	Ø6	2
07	1/4"	
08	Ø8	
10	Ø10	
11	3/8"	
10	Ø10	3
11	3/8"	
12	Ø12	
13	1/2"	
12	Ø12	4
13	1/2"	
19	Ø19, 3/4"	
12	Ø12	5
13	1/2"	
19	Ø19, 3/4"	

How to Order Valve

LVC 2 0 A – S07 □ – □ □

Body class

Symbol	Body class	Orifice dia.
2	2	ø4
3	3	ø8
4	4	ø10
5	5	ø16

Valve type

0	N.C.
1	N.O.
2	Double acting

Body type

A	Stacking type for manifold

Tubing size

Symbol	Tubing size	Body class
S03	1/8"	2
S04	Ø4	
S05	3/16"	
S06	Ø6	
S07	1/4"	
S06	Ø6	3
S07	1/4"	
S08	Ø8	
S10	Ø10	
S11	3/8"	
S10	Ø10	4
S11	3/8"	
S12	Ø12	
S13	1/2"	
S12	Ø12	5
S13	1/2"	
S19	Ø19, 3/4"	

Option

Nil	None
1	With flow rate adjustment
4	With indicator

Note) Options can not be combined each other.

Material

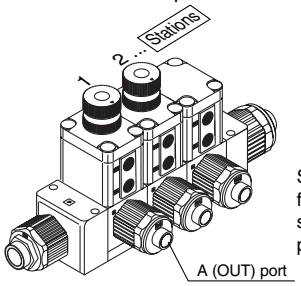
Symbol	Body	Actuator section: End plate	Dia-phragm	Applicable option: 1	Applicable option: 4	Note
Nil	PFA	PPS	PTFE	●	●	–
F	PFA	PVDF	PTFE			Hydrofluoric acid compatible (Only LVC40, 50 type)
N	PFA	PPS	PTFE	●	●	Ammonium hydroxide compatible

Pilot port thread type

Symbol	Body class	Thread type
Nil	2	M5
	3/4/5	Rc 1/8
N	3/4/5	NP T1/8

How to Order Manifold Assembly (Example)

Enter the part number of the valves to be mounted together with the manifold base part number.



Stations are counted from station 1 on the left side, with the A (OUT) ports in front.

<Example>

LLC2A-03-S11 ····· 1set — 1 set Manifold base part no.

∗ LVC20A-S07-1 ····· 2 sets — 2 sets Valve part no. (stations 1 & 2)

∗ LVC20A-S07 ····· 1 set — 1 set Valve part no. (station 3)

• Add the ∗ symbol at the beginning of part numbers for valves, etc. to be mounted.

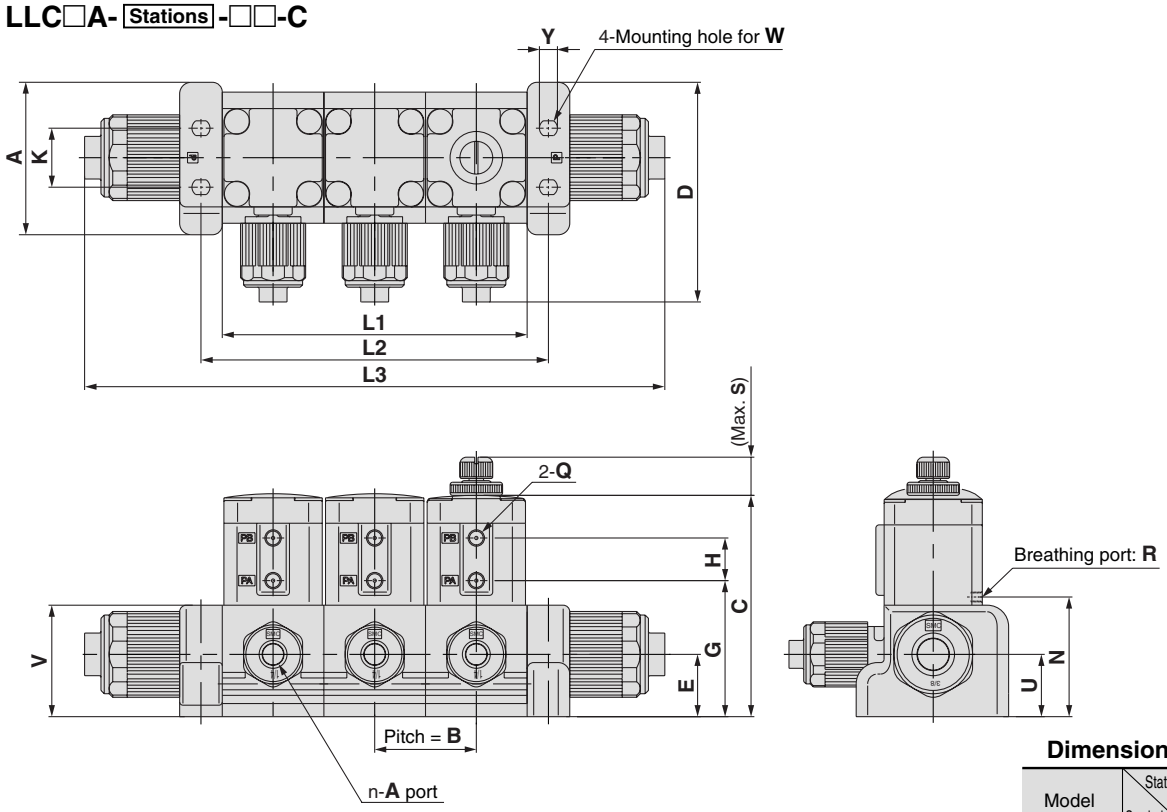
Enter together in order counting from station 1 on the left side, with the A (OUT) ports in front.

Manifold variations

Type	Symbol	Model	LVC20A	LVC30A	LVC40A	LVC50A
		Manifold material	PFA			
		Tubing size	1/4	3/8	1/2	3/4
		Orifice diameter / Valve type	Ø4	Ø8	Ø10	Ø16
Basic type	N.C.	N.C.	○	○	○	○
	N.O.	N.O.	○	○	○	○
	Double acting	Double acting	○	○	○	○
With flow rate adjustment	N.C.	N.C.	○	○	○	○
	Double acting	Double acting	○	○	○	○

Dimensions

LLC□A- Stations -□□-C



Dimensions (mm)

Model	A	B	C	D	E	G	H	K	N	Q	R	S	U	V	W	Y
LLC2A	46.5	31	67.5	67	19	41.5	13	18	36.5	M5 x 0.8	M3 x 0.5	11.5	19	34	M4	5.5
LLC3A	47	36.5	93.5	76	27.5	57.5	17.5	39	53.5	Rc 1/8 NPT 1/8	Rc 1/8 NPT 1/8	24	27.5	47	M5	6.5
LLC4A	60	47	111.5	95	33.5	70.5	18	50	63.5			29	33.5	56	M6	7.5
LLC5A	75	59	131	114	33.5	70	27.5	62	64			34.5	27.5	56.5	M6	7.5

Dimensions (mm)

Model	Station / Symbol	2	3	4	5
LLC2A	L1	62	93	124	155
	L2	75	106	137	168
	L3	146	177	208	239
LLC3A	L1	73	109.5	146	182.5
	L2	84	120.5	157	193.5
	L3	183	219.5	256	292.5
LLC4A	L1	94	141	188	235
	L2	109	156	203	250
	L3	219	266	313	360
LLC5A	L1	118	177	236	295
	L2	130	189	248	307
	L3	240	299	358	417

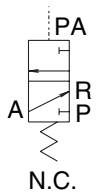
Series LVC
3 Port

Standard Specifications

Model		LVC200
Orifice diameter		ø4
Flow characteristics	Av x 10^{-6}m²	7.2
	Cv	0.3
Withstand pressure (MPa)		1
Operating pressure (MPa)		0 to 0.5
Valve leakage (cm³/min)		0 (with water pressure)
Pilot air pressure (MPa)		0.4 to 0.5
Pilot port size		M5 x 0.8
Fluid temperature (°C)		0 to 100
Ambient temperature (°C)		0 to 60
Weight (kg)		0.120

How to Order Valve

LVC 2 0 0 – S 07



Body class

Symbol	Body class	Orifice dia.
2	2	Ø4

Valve type

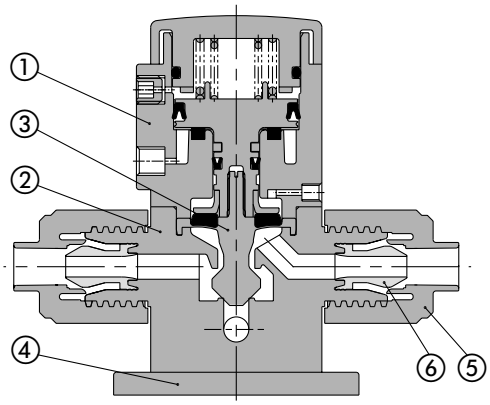
0	N.C

Applicable tubing size

Symbol	Connecting tubing O.D.	Body class 2
Metric sizes		
04	ø4	●
06	ø6	○
Inch sizes		
03	1/8	●
05	3/16	●
07	1/4	○

○ Basic size ● With reducer

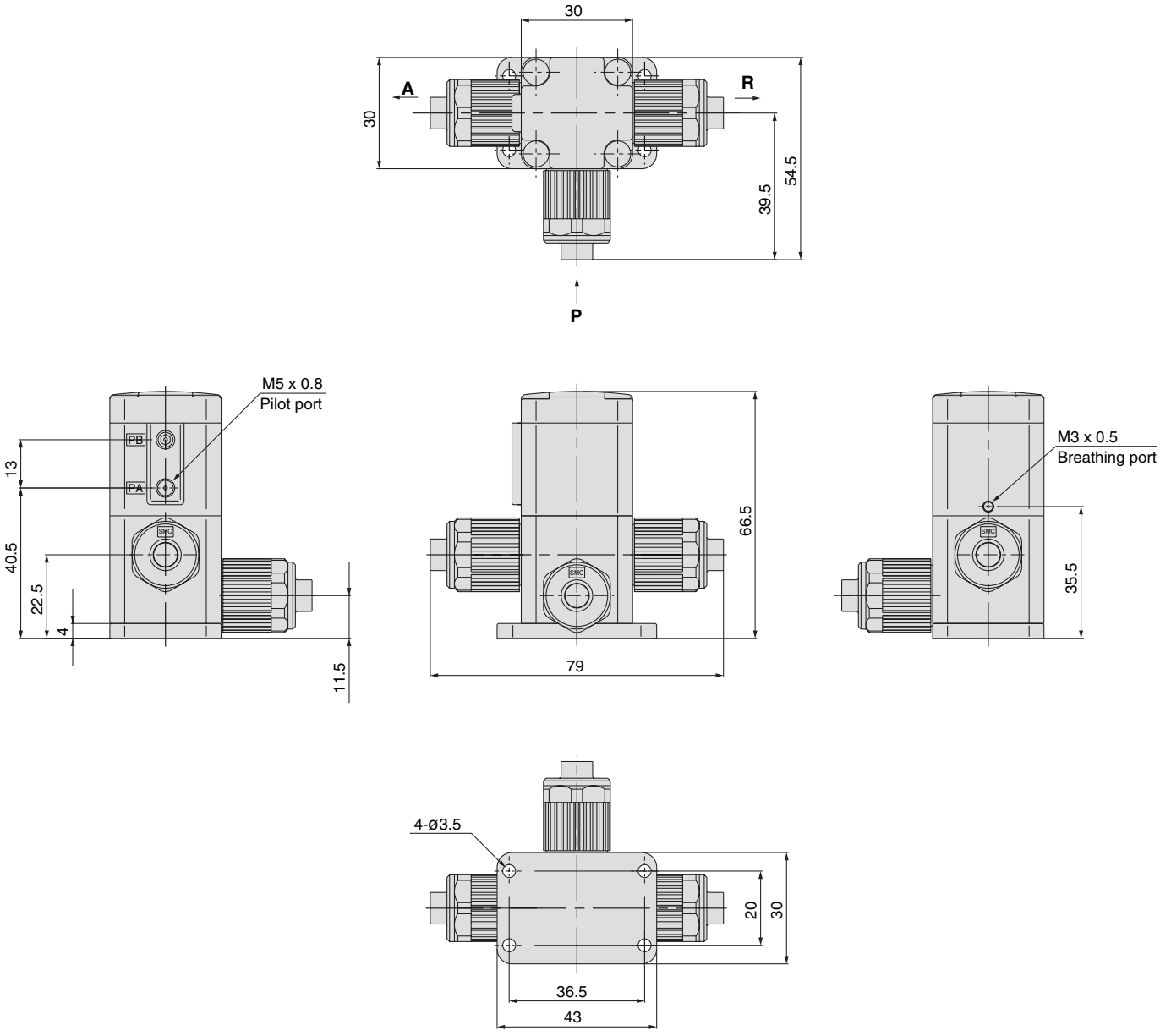
Construction



Parts list

No.	Description	Material
1	Actuator section	PPS
2	Body	PFA
3	Diaphragm	PTFE
4	End plate	PPS
5	Nut	PFA
6	Insert bushing	PFA

Dimensions


30
A
R
30
54.5
39.5
P
M5 x 0.8
Pilot port
PB
PA
13
40.5
22.5
4
11.5
66.5
79
M3 x 0.5
Breathing port
35.5
4-ø3.5
20
30
36.5
43