Manually Operated
Integral Fitting Type/Threaded Type
Series LVH

How to Order Valve (Single Type)

Integral fitting type LVH 2 0 □ – S 06 □

Threaded type LVH 2 0 □ – 02 □ – A

Body class

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

LQ2 integral fitting

Port B (OUT) different dia. size

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

Applicable tubing size

Symbol	Connecting tubing O.D.	Body class 2	3	4
Metric sizes				
03	ø3	●		
04	ø4	●		
06	ø6	○	●	
08	ø8		●	
10	ø10		○	●
12	ø12			○
Inch sizes				
03	1/8	●		
05	3/16	●		
07	1/4	○	●	
11	3/8		○	●
13	1/2			○

○ Basic size ● With reducer

Body class

Symbol	Body class	Orifice dia.
2	2	ø4
3	3	ø8
4	4	ø12

Valve type

0	N.C.

Lever operation

Symbol	Lever operation
Nil	Non-locking type (self-reset type)
L	Locking type

Material Note)

Symbol	Body	Actuator section: End plate	Diaphragm
A	Stainless steel (SUS)	PP	PTFE
		—	
B	PPS	PP	PTFE
		PPS	
C	PFA	PP	PTFE
		PPS	

Note) Refer to "Variations" for port size and material combinations.

Port size

Symbol	Port size	Body class
01	1/8	2
02	1/4	
02	1/4	3
03	3/8	
03	3/8	4
04	1/2	

Pilot port thread type

Symbol	Thread type
Nil	Rc
N	NPT

Integral fitting type/Variations

Type	Symbol	Model	LVH20	LVH30	LVH40
		Orifice diameter	ø4	ø8	ø10
		Tubing O.D. / Metric	3, 4, 6	6, 8, 10	10, 12
		Tubing O.D. / Inch	1/8, 3/16, 1/4	1/4, 3/8	3/8, 1/2
Basic type	B A B A Non-locking Locking	N.C.	○	○	○

Threaded type/Series variation

Type	Symbol	Model	LVH20				LVH30				LVH40			
		Orifice diameter	ø4				ø8				ø12			
		Port size	1/8	1/4	1/4	1/4	1/4	3/8	3/8	3/8	3/8	1/2	1/2	1/2
Basic type	B A B A Non-locking Locking	N.C.	Stainless steel (SUS316)		PPS	PFA	Stainless steel (SUS316)		PPS	PFA	Stainless steel (SUS316)		PPS	PFA
			○	○	○	○	○	○	○	○	○	○	○	○

Standard Specifications/Integral Fitting Type

Model		LVH20	LVH30	LVH40
Tubing O.D.	Metric size	6	10	12
	Inch size	1/4	3/8	1/2
Orifice diameter		ø4	ø8	ø10
Flow characteristics	Av x 10^{-6}m²	8.4	40.8	60
	Cv	0.35	1.7	2.5
Withstand pressure (MPa)		1		
Operating pressure (MPa)		0 to 0.5		
Back pressure (MPa)		0.3 or less		
Valve leakage (cm³/min)		0 (with water pressure)		
Action		Toggle type (non-locking/locking)		
Fluid temperature (°C)		0 to 60		
Ambient temperature (°C)		0 to 60		
Mass (kg)		0.06	0.14	0.26

Note) Contact SMC if the valve is to be used with 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				
	3	4	6	8	10	12	1/8	3/16	1/4	3/8	1/2
2	●	●	○	—	—	—	●	●	○	—	—
3	—	—	●	●	○	—	—	—	●	○	—
4	—	—	—	—	●	○	—	—	—	●	○

Note) Refer to page 489 for information on changing tubing sizes.

Standard Specifications/Threaded Type

Model		LVH20	LVH30	LVH40
Port size		1/8, 1/4	1/4, 3/8	3/8, 1/2
Orifice diameter		ø4	ø8	ø12
Flow characteristics	Av x 10^{-6}m²	8.4	40.8	60
	Cv	0.35	1.7	2.5
Withstand pressure (MPa)		1		
Operating pressure (MPa)		0 to 0.5		
Back pressure (MPa)		0.3 or less		
Valve leakage (cm³/min)		0 (with water pressure)		
Action		Toggle type (non-locking/locking)		
Fluid temperature (°C)		0 to 60		
Ambient temperature (°C)		0 to 60		
Mass (kg)	Stainless steel (SUS)	0.15	0.36	0.71
	PPS	0.04	0.09	0.17
	PFA	0.05	0.11	0.20

⚠ Specific Product Precautions

Be sure to read before handling. Refer to front matters 42 and 43 for Safety Instructions, and pages 491 and 492 for High Purity Chemical Valve Precautions.

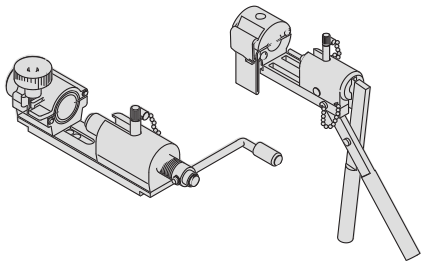
Piping

⚠ Caution

Integral fitting type

1. Connect tubing with special tools.

Refer to the pamphlet "High-Purity Fluoropolymer Fittings HYPER FITTING®/Series LQ1, 2 Work Procedure Instructions" (M-E05-1) for connecting tubing and special tools. (Downloadable from our web site.)



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 (N·m)
2	1.5 to 2.0
3	3.0 to 3.5
4	7.5 to 9.0

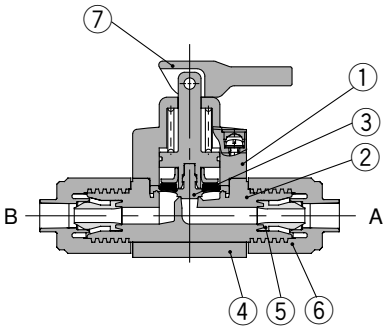
Threaded type

1. Avoid using metal fittings with a resin body (taper threads).

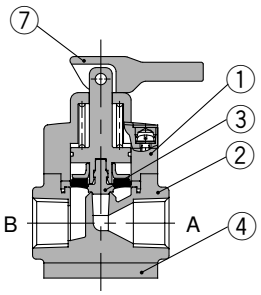
This can cause damage to the valve body.

Construction

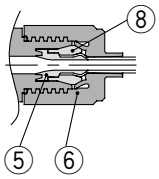
Integral fitting type



Threaded type



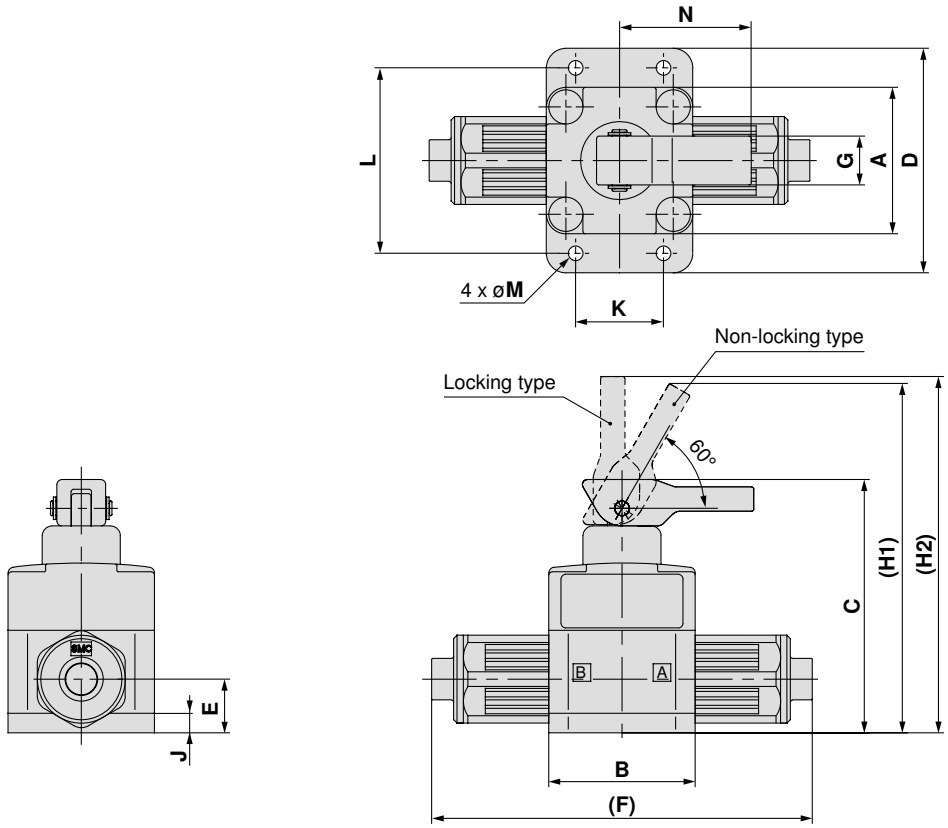
With reducer



Parts list

No.	Description	Material	Note
1	**Actuator section**	PP	
2	**Body**	PFA	Integral fitting type
		Stainless steel	Threaded type
		PPS	
		PFA	
3	**Diaphragm**	PTFE	–
4	**End plate**	PPS	PFA body only
5	**Insert bushing**	PFA	–
6	**Nut**	PFA	–
7	**Lever**	PP	–
8	**Collar**	PFA	–

Dimensions/Integral Fitting Type

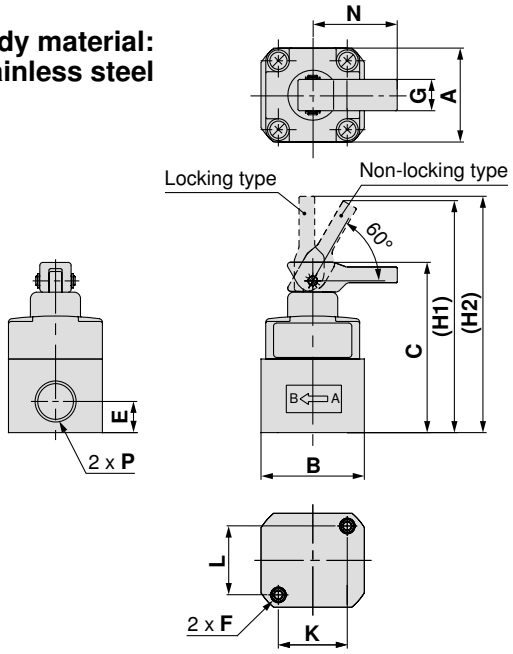


Dimensions (mm)

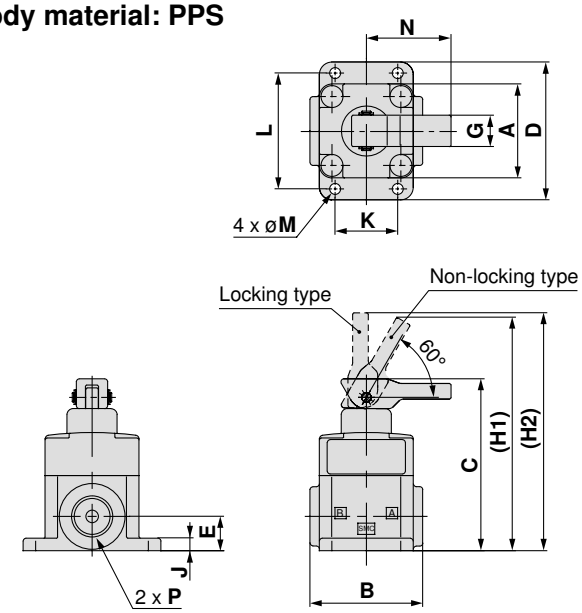
Model	A	B	C	D	E	F	G	H1	H2	J	K	L	M	N
LVH20□	30	30	52	44	11	79	10	72.5	74	4	20	37	3.5	27
LVH30□	36	47	81.5	56	16.5	106	19	111	113	7.5	34	46	5.5	37.5
LVH40□	46	60	100	68	22.5	131	20.5	139	143	8	42	57	5.5	50

Dimensions/Threaded Type

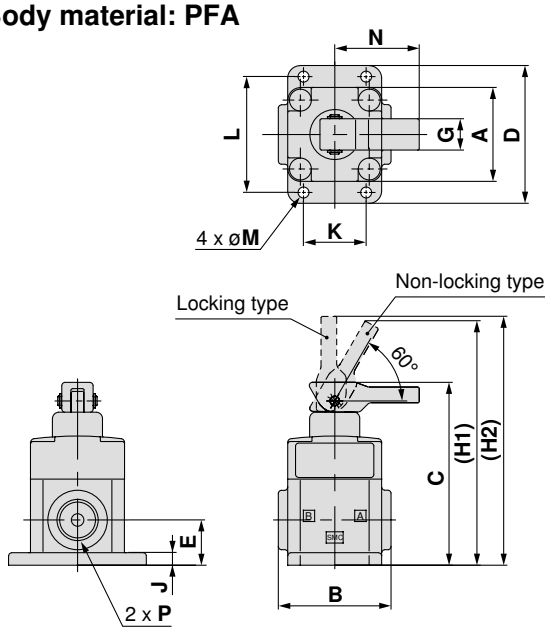
Body material: Stainless steel



Body material: PPS



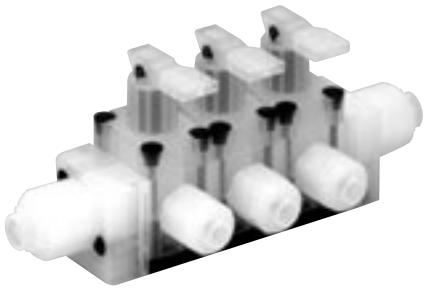
Body material: PFA



Dimensions (mm)

Body material	Model	A	B	C	D	E	F	G	H1	H2	J	K	L	M	N	P
Stainless steel (SUS)	**LVH20□**	30	33	54.5	—	10	M5 x 0.8	10	75	76.5	—	22	22	—	27	Rc 1/8, 1/4, NPT 1/8, 1/4
	LVH30□	36	47	81	—	13	M6 x 1	19	110.5	112.5	—	37	26	—	37	Rc 1/4, 3/8, NPT 1/4, 3/8
	LVH40□	46	60	99	—	16	M8 x 1.25	20.5	138	142	—	47.5	33.5	—	50	Rc 3/8, 1/2, NPT 3/8, 1/2
PPS	**LVH20□**	30	36	55	44	11	—	10	75.5	77	4	20	37	3.5	27	Rc 1/4, NPT 1/4
	LVH30□	36	47	80	56	15	—	19	109.5	111.5	7.5	34	46	5.5	37	Rc 3/8, NPT 3/8
	LVH40□	46	60	99.5	68	22	—	20.5	138.5	142.5	8	42	57	5.5	50	Rc 1/2, NPT 1/2
PFA	**LVH20□**	30	36	58.5	44	14.5	—	10	79	80.5	4	20	37	3.5	27	Rc 1/4, NPT 1/4
	LVH30□	36	47	84	56	19	—	19	113.5	115.5	7.5	34	46	5.5	37	Rc 3/8, NPT 3/8
	LVH40□	46	60	99.5	68	22	—	20.5	138.5	142.5	8	42	57	5.5	50	Rc 1/2, NPT 1/2

Manifolds



Manifold Specifications

Model	LLH2A	LLH3A	LLH4A
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
Tubing size (port A)	1/4	3/8	1/2

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

How to Order Manifold Base

LLH 2 A – 05 – S 11 □

Body class

Symbol	Body class
2	2
3	3
4	4

Base type

A	Stacking type

Manifold stations

02	2 stations
⋮	⋮
05	5 stations

LQ2 integral fitting

Tubing size for port P and L side connection

Symbol	Tubing size	Body class
00	Plug	2 to 4
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"	

Tubing size for port P and R side connection

Symbol	Tubing size	Body class
00	Plug	2 to 4
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"	

How to Order Valve

LVH 2 0 A □ – S 07

Body class

Symbol	Body class	Orifice dia.
2	2	Ø4
3	3	Ø8
4	4	Ø10

Valve type

0	N.C.

Body type

A	Stacking type for manifold

Lever operation

Symbol	Lever operation
Nil	Non-locking type (self-reset type)
L	Locking type

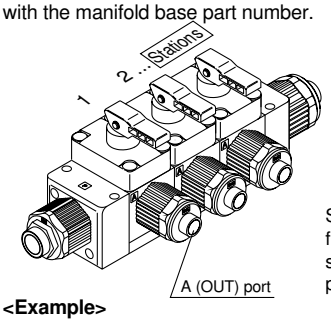
LQ2 integral fitting

Tubing size

Symbol	Tubing size	Body class
03	Ø3, 1/8"	2
04	Ø4	
05	3/16"	
06	Ø6	
07	1/4"	
06	Ø6	3
07	1/4"	
08	Ø8	
10	Ø10	
11	3/8"	
10	Ø10	4
11	3/8"	
12	Ø12	
13	1/2"	

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>

LLH2A-03-SH ····· 1 set **1 set Manifold base part no.**

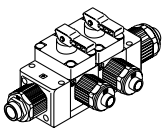
∗ **LVH20A-S07 ····· 2 sets** **2 sets Valve part no. (stations 1 & 2)**

∗ **LVH20AL-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.

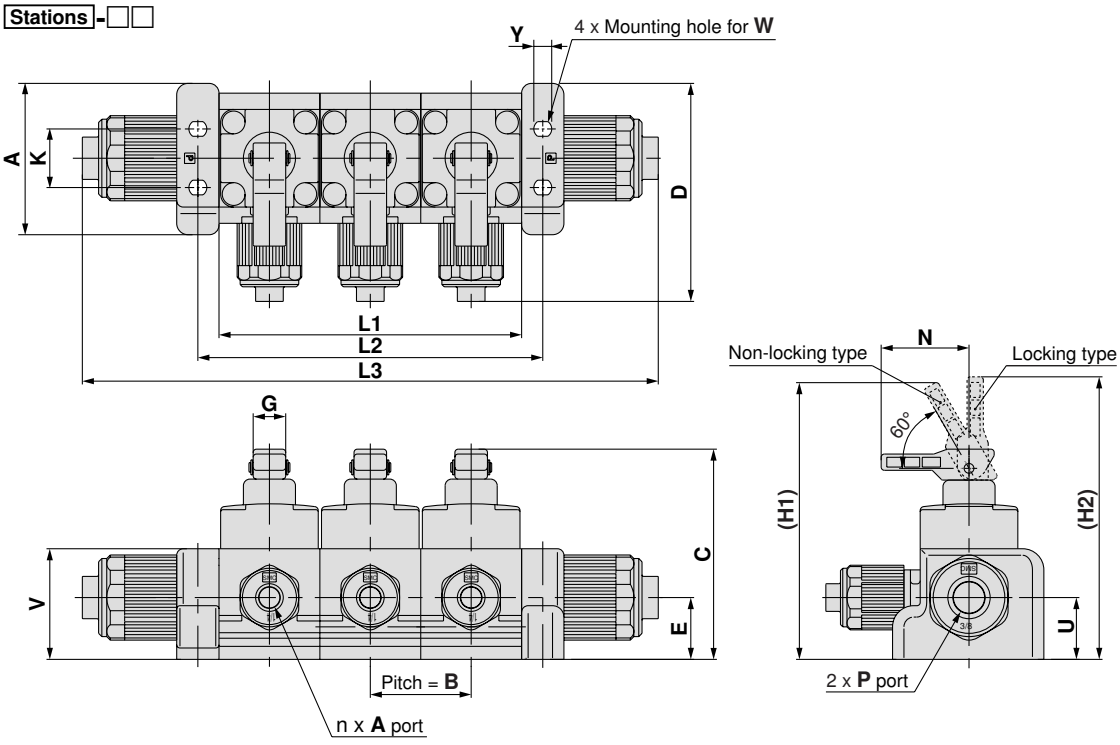
Enter together in order counting from station 1 on the left side, with the A (OUT) ports in front.

Threaded type manifold/Variations

Type / Symbol	Model	LVH20	LVH30	LVH40
	Manifold material	PFA		
	Tubing size	1/4	3/8	1/2
	Orifice diameter	Ø4	Ø8	Ø10
	Valve type			
Manifold  Non-locking / Locking	N.C.	○	○	○

Dimensions

LLH□A- Stations -□□



Dimensions (mm)

Model	A	B	C	D	E	G	H1	H2	K	N	U	V	W	Y
LLH2A	46.5	31	65	67	19	10	85.5	87	18	27	19	34	M4	5.5
LLH3A	47	36.5	94.5	76	27.5	19	125.5	127.5	39	37	27.5	47	M5	6.5
LLH4A	60	47	115	95	33.5	20.5	154	158	50	50	33.5	56	M6	7.5

(mm)

Model	Station / Symbol	2	3	4	5
LLH2A	**L1**	62	93	124	155
	L2	75	106	137	168
	L3	146	177	208	239
LLH3A	**L1**	73	109.5	146	182.5
	L2	84	120.5	157	193.5
	L3	183	219.5	256	292.5
LLH4A	**L1**	94	141	188	235
	L2	109	156	203	250
	L3	219	266	313	360

(mm)

Series LVH/Threaded Type
Manifolds

Manifold Specifications

Model	LLH2A	LLH3A	LLH4A
Manifold type	Stacking type		
P (IN), A (OUT) type	Common IN/Individual OUT		
Valve stations	2 to 5 stations		
Port size (port P)	1/4	3/8	1/2
Port size (port A)	1/4	3/8	1/2

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

How to Order Manifold Base

LLH 2 A – 05 – 02 □ – C

Body class

Symbol	Body class
2	2
3	3
4	4

Base type

A	Stacking type

Manifold stations

02	2 stations
⋮	⋮
05	5 stations

Thread type

Symbol	Thread type
Nil	Rc
N	NPT

Port size (port P)

Symbol	Port size	Body class
02	1/4	2
03	3/8	3
04	1/2	4

Material

Symbol	Manifold
C	PFA

How to Order Valve

Threaded type **LVH 2 0 A □ – 02 □ – C**

Body class

Symbol	Body class	Orifice dia.
2	2	ø4
3	3	ø8
4	4	ø12

Valve type

0	N.C.

Body type

A	Stacking type for manifold

Lever operation

Symbol	Lever operation
Nil	Non-locking type (self-reset type)
L	Locking type

Material

Symbol	Body	Actuator section / End plate	Diaphragm
C	PFA	PP / PPS	PTFE

Thread type

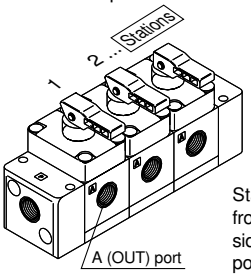
Symbol	Thread type
Nil	Rc
N	NPT

Port size (port A)

Symbol	Port size	Body class
02	1/4	2
03	3/8	3
04	1/2	4

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>

LLH2A-03-02-C ····· 1 set **1 set Manifold base part no.**

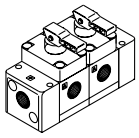
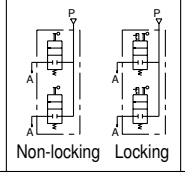
∗ LVH20A-02-C ····· 2 sets **2 sets Valve part no. (stations 1 & 2)**

∗ LVH20AL-02-C ····· 1 set **1 set Valve part no. (station 3)**

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

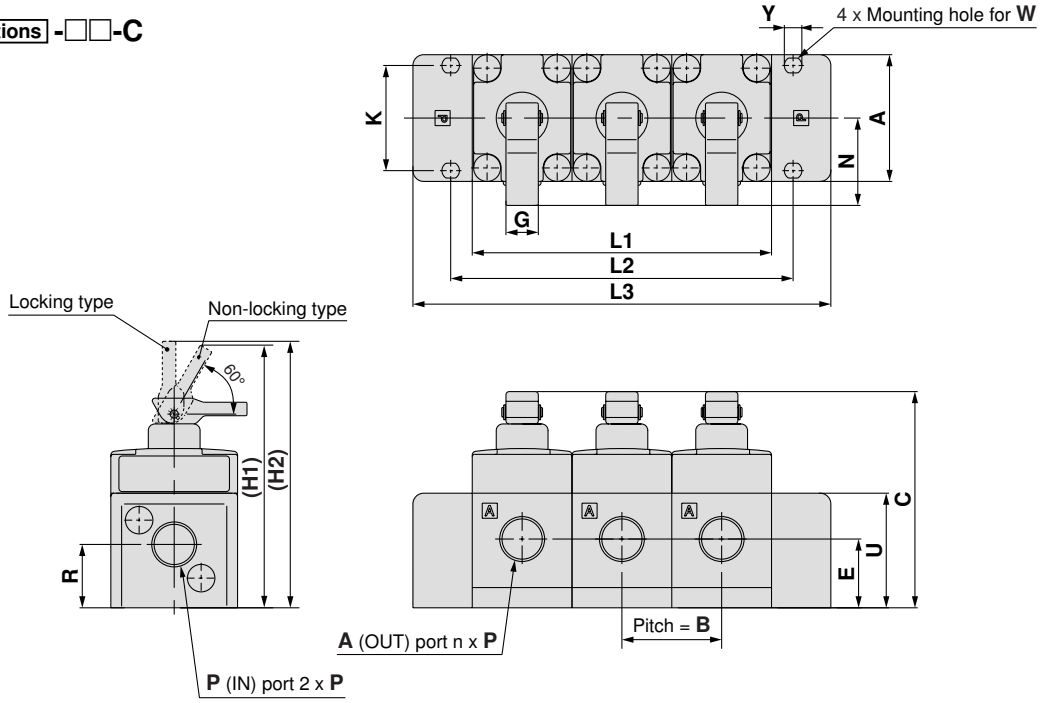
Enter together in order counting from station 1 on the left side, with the A (OUT) ports in front.

Threaded type manifold/Variations

Type / Symbol	Model	LVH20	LVH30	LVH40
	Manifold material	PFA		
	Port size	1/4	3/8	1/2
	Orifice diameter	ø4	ø8	ø12
Manifold	Valve type			
	N.C.	○	○	○
 Non-locking Locking				

Dimensions

LLH□A- Stations **-□□-C**



Dimensions (mm)

Model	A	B	C	E	G	H1	H2	K	N	P	R	U	W	Y
LLH2A	50	31	65	20.5	10	85.5	87	18	27	Rc1/4, NPT1/4	19	34	M4	5.5
LLH3A	47	37	90	25.5	19	112.5	114.5	39	37	Rc3/8, NPT3/8	23.5	42.5	M5	6.5
LLH4A	60	47	107	29	20.5	146	150	50	50	Rc1/2, NPT1/2	24	48	M6	7.5

(mm)

Model	Station / Symbol	2	3	4	5
LLH2A	**L1**	62	93	124	155
	L2	75	106	137	168
	L3	118	149	180	211
LLH3A	**L1**	74	111	148	185
	L2	90	127	164	201
	L3	118	155	192	229
LLH4A	**L1**	94	141	188	235
	L2	112	159	206	253
	L3	144	191	238	285

(mm)

Fittings and Special Tools

Fittings

Changing tubing sizes

The tubing size can be changed within the same body class (body size) by replacing the nut and insert bushing.

Body class	Tubing O.D.														
	Metric sizes								Inch sizes						
	3	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	—	—	—	—	—	—	●	○	—	—	—	—	—	●	○

Part composition

	Component parts		
	Nut	Insert	Collar (insert assembly)
○ Basic size	Yes	Yes	No
● Reducer type	Yes	Yes	Yes

⚠ Caution

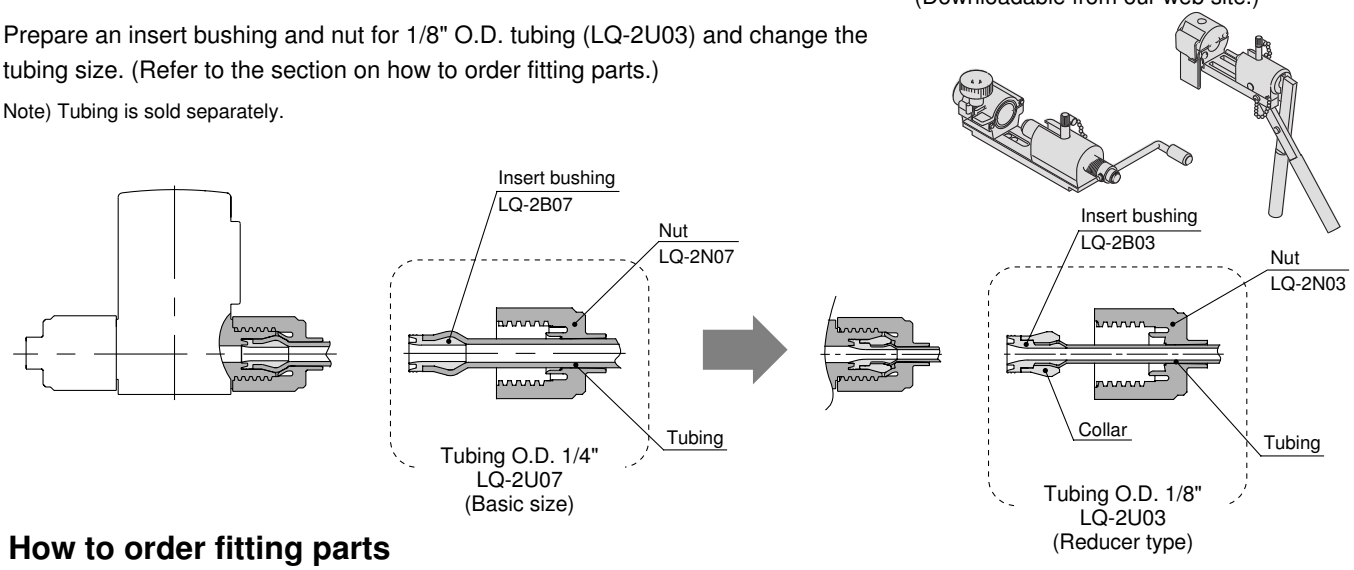
1. Connect tubing with special tools.
Refer to the pamphlet "High-Purity Fluoropolymer Fittings HYPER FITTING®/Series LQ1, 2 Work Procedure Instructions" (M-E05-1) for connecting tubing and special tools. (Downloadable from our web site.)

Changing the tubing size

Example) Changing the tubing from an O.D. 1/4" to O.D. 1/8" in body class 2.

Prepare an insert bushing and nut for 1/8" O.D. tubing (LQ-2U03) and change the tubing size. (Refer to the section on how to order fitting parts.)

Note) Tubing is sold separately.



How to order fitting parts

LQ□–2U03

∗ Type U is recommended when changing tubing sizes.

Type of fitting

Symbol	Applicable fitting
Nil	LQ2
1	LQ1

Body class

Symbol	Body class	Applicable fitting
2	2	LQ2
3	3	
4	4	
5	5	
6	6	LQ1

Type of part

Symbol	Type of part
U	Insert bushing & nut
B	Insert bushing
N	Nut

Tubing size

Symbol	Tubing O.D.	Body class	Applicable fitting
03	1/8", ø3	2	LQ2
04	ø4		
05	3/16"		
06	ø6		
07	1/4"		
06	ø6	3	
08	ø8		
10	ø10		
07	1/4"		
11	3/8"		
10	ø10	4	
12	ø12		
11	3/8"		
13	1/2"		
12	ø12	5	
13	1/2"		
19	3/4", ø19		
19	3/4", ø19	6	LQ1
25	1", ø25		

Applicable Fluids

Material and fluid compatibility check list for air and manually operated high purity valves

Chemical	Body material			Diaphragm material		
	Stainless steel SUS316	Fluoro resin PFA	Polyphenylene sulfide resin PPS	Fluoro resin PTFE	Nitrile rubber NBR	Ethylene propylene rubber EPR
Acetone	○	○ Note 1)	○ Note 1)	○ Note 2)	×	×
Ammonium hydroxide	○	○	○	○ Note 2)	×	×
Isobutyl alcohol	○	○ Note 1)	○ Note 1)	○ Note 2)	○	○
Isopropyl alcohol	○	○ Note 1)	○ Note 1)	○ Note 2)	○	○
Hydrochloric acid	×	○	○	○	×	×
Ozone (dry)	○	○	○	○	×	○
Hydrogen peroxide Concentration 5% or less, 50°C or less	×	○	○	○	×	×
Ethyl acetate	○	○ Note 1)	○ Note 1)	○ Note 2)	×	×
Butyl acetate	○	○ Note 1)	○ Note 1)	○ Note 2)	×	×
Nitric acid (except fuming nitric acid) Concentration 10% or less	×	○	○	○ Note 2)	×	×
DI water	○	○	○	○	×	○
Sodium hydroxide Concentration 50% or less	○	○	○	○	×	×
Nitrogen gas	○	○	○	○	○	○
Super pure water	×	○	○	○	×	×
Toluene	○	○ Note 1)	○ Note 1)	○ Note 2)	×	×
Hydrofluoric acid	×	○	×	○ Note 2)	×	×
Sulfuric acid (except fuming sulfuric acid)	×	○	×	○ Note 2)	×	×
Phosphoric acid Concentration 80% or less	×	○	×	○	×	×

The material and fluid compatibility check list provides reference values as a guide only.
Note 1) Use a stainless steel body, as static electricity may be generated.
Note 2) Use caution as permeation may occur and any permeated fluid could effect other material parts.

Table symbols
○ : Can be used
◯ : Can be used in certain conditions
× : Cannot be used

- Compatibility is indicated for fluid temperatures of 100°C or less.
- The material and fluid compatibility check list provides reference values as a guide only, therefore we do not guarantee the application to our product.
- The data above is based on the information presented by the material manufacturers.
- SMC is not responsible for its accuracy and any damage happened because of this data.

Series LV
High Purity Chemical Valve
Precautions 1

Be sure to read before handling.
Refer to front matters 42 and 43 for Safety Instructions.

Design & Selection

⚠ Warning

1. Confirm the specifications.

Give careful consideration to operating conditions such as the application, fluid and environment, and use within the operating ranges specified in this catalog.

2. Fluids

Operate after confirming the compatibility of the product's component materials with fluids, using the check list on features page 490. Contact SMC regarding fluids other than those in the check list.

Operate within the indicated fluid temperature range.

3. Maintenance space

Ensure the necessary space for maintenance and inspections.

4. Fluid pressure range

Keep the supplied fluid pressure within the operating pressure range shown in the catalog.

5. Ambient environment

Operate within the ambient operating temperature range. After confirming the compatibility of the product's component materials with the ambient environment, operate so that fluid does not adhere to the product's exterior surfaces.

6. Liquid seals

When circulating fluid

Provide a relief valve in the system so that fluid does not get into the liquid seal circuit.

7. Countermeasures for static electricity

Since static electricity may be generated depending on the fluid being used, implement suitable countermeasures.

Mounting

⚠ Warning

1. If air leakage increases or equipment does not operate properly, stop operation.

After mounting, perform suitable function and leak tests to confirm that the mounting is correct.

2. Instruction manual

Mount and operate the product after reading the manual carefully and understanding its contents. Also keep the manual where it can be referred to as necessary.

Piping

⚠ Caution

1. Preparation before piping

Before piping is connected, it should be thoroughly blown out with air (flushing) or washed to remove chips, cutting oil and other debris from inside the pipe.

Install piping so that it does not apply pulling, pressing, bending or other forces on the valve body.

2. Use the tightening torques shown below when making connections to the pilot port.

Operating port tightening torque

Operating port	Torque (N·m)
M5	1/6 turn with a tightening tool after first tightening by hand
Rc, NPT 1/8	0.8 to 1.0

3. Use of metal fittings

Do not use metal fittings for piping on taper threads made of resin, as this may cause damage to the threads.

LVA PPS body ported tightening torque for fittings.

Size	Breaking torque (N·m)	Tightening torque (N·m)	Guideline for tightening torque (Number of turns)
LVA20	2 to 3	0.5 to 1	2 to 3 turns
LVA30	6 to 8	2 to 3	3 to 4 turns
LVA40	11 to 14	5 to 7	3 to 4 turns
LVA50	18 to 20	8 to 10	3 to 4 turns

∗ Guideline for tightening torque
Number of turns when the fitting is screwed into the body with 2 to 3 windings of sealant tape applied to threaded portion of the piping.
The value may differ for types other than sealant type.

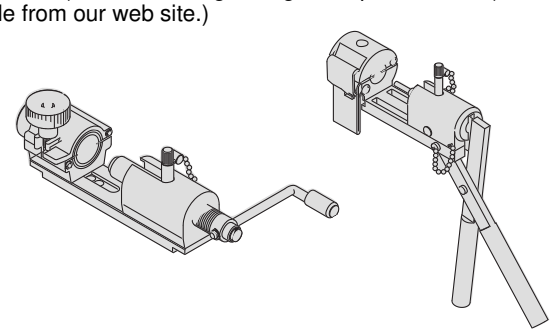
4. Use pilot ports and sensor (breathing) ports as indicated below.

	PA Port	PB Port	Sensor (breathing) port
N.C.	Pressure	Breathing	Breathing
N.O.	Breathing	Pressure	Breathing
Double acting	Pressure	Pressure	Breathing

In the case of N.C. and N.O. types, the port which does not receive operating pressure is released to atmosphere. When intake and exhaust directly from the valve is not desired due to problems with the ambient environment or scattering of dust, etc., install piping and perform intake and exhaust at a location which does not present a problem.

5. Connect tubing with special tools.

Refer to the pamphlet "High-Purity Fluoropolymer Fittings HYPER FITTING®/Series LQ1, 2 Work Procedure Instructions" (M-E05-1) for connecting tubing and special tools. (Downloadable from our web site.)



Series LV
High Purity Chemical Valve Precautions 2

Be sure to read before handling.
Refer to front matters 42 and 43 for Safety Instructions.

Operating Air Supply

⚠ Warning

1. Use clean air.

Do not use compressed air which includes chemicals, synthetic oils containing organic solvents, salt, or corrosive gases, etc., as this may cause damage or malfunction.

Operating Environment

⚠ Warning

1. Do not use in a location having an explosive atmosphere.

2. Do not operate in locations where vibration or impact occurs.

3. Do not use in locations where radiated heat will be received from nearby heat sources.

Maintenance

⚠ Warning

1. Maintenance should be performed in accordance with the procedures in the instruction manual.

Incorrect handling can cause damage or malfunction of machinery and equipment, etc.

2. Before removing equipment or compressed air supply/exhaust devices, shut off the air and power supplies, and exhaust compressed air from the system.

Further, when restarting equipment after remounting or replacement, first confirm safety and then check the equipment for normal operation.

3. Perform work after removing residual chemicals and carefully replacing them with DI water or air, etc.

4. Do not disassemble the product. Products which have been disassembled cannot be guaranteed.

If disassembly is necessary, contact SMC.

5. In order to obtain optimum performance from valves, perform periodic inspections to confirm that there are no leaks from valves or fittings, etc.

⚠ Caution

1. Removal of drainage

Flush drainage from filters regularly.

Precautions on Usage

⚠ Warning

1. Operate within the ranges of the maximum operating pressure and back pressure.

⚠ Caution

1. When the diaphragm is made of PTFE

Please note that when the product is shipped from the factory, gases such as N_2 and air may leak from the valve at a rate of $1cm^3$/min (when pressurized).

2. When operated at a very low flow rate, the series LV□ with flow rate adjustment may vibrate, etc. depending on the operating conditions. Therefore, operate it after careful examination of the flow rate, pressure and piping conditions.

3. In the series LV□, water hammering may occur depending on the fluid pressure conditions. In most cases, improvement is possible by adjusting the pilot pressure with a speed controller, etc., but the flow rate, pressure and piping conditions should be reviewed.

4. To adjust the flow rate for the series LV□ with flow rate adjustment, open gradually starting from the fully closed condition.

Opening is accomplished by turning the adjustment knob counter clockwise. Additionally, do not apply any unreasonable force to the adjustment knob when nearing a fully opened or closed state. This may result in deformation of the orifice sheet surface or damage to the threaded part of the adjustment knob. It is in the fully closed condition when the product is shipped from the factory.

5. After a long period of nonuse, perform a test run before beginning regular operation.

6. Since the LVC is packaged in a clean room use sufficient care in handling when opened.

7. Take extra care when setting the operating direction and when handling the lever of series LVH.