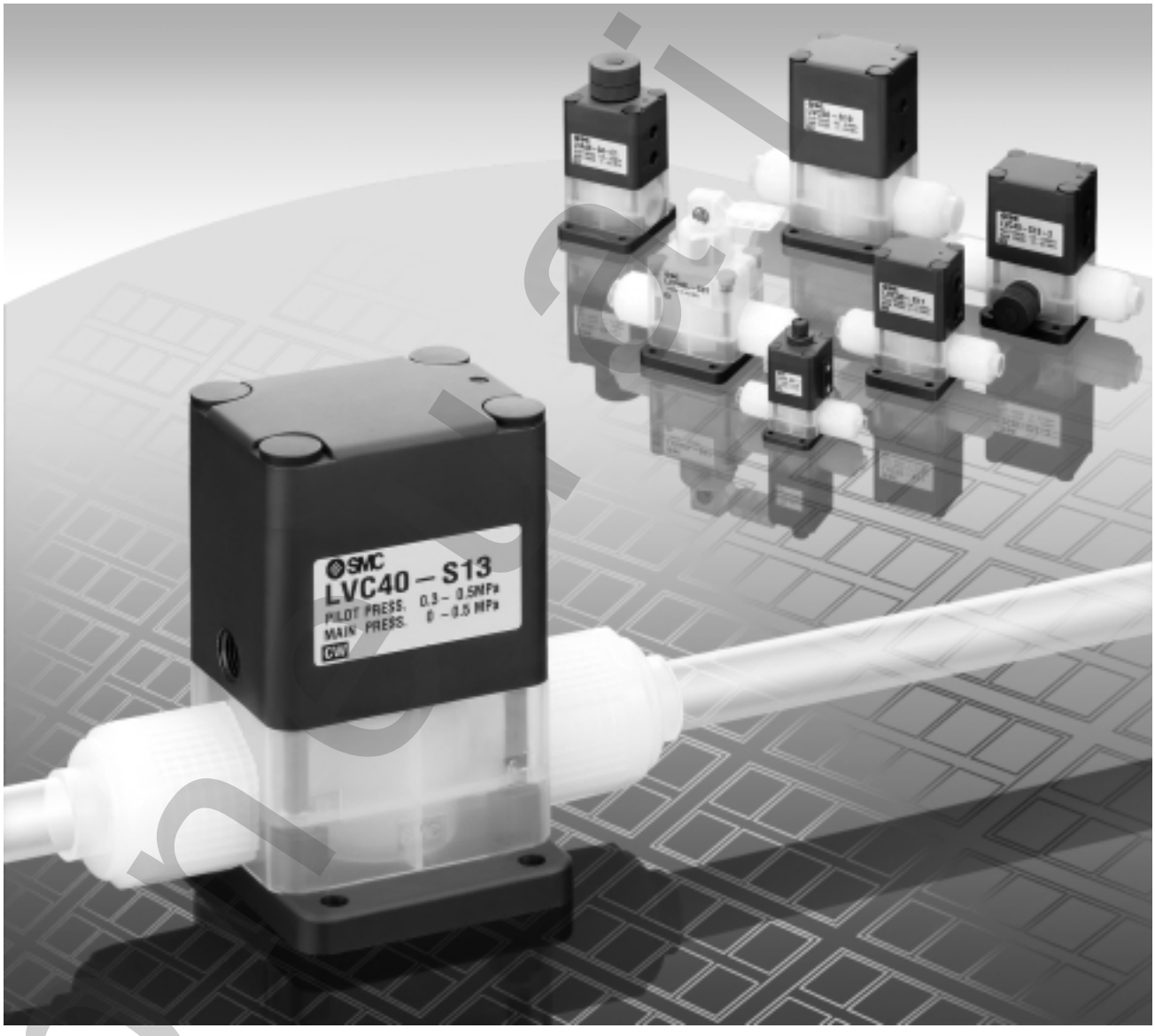
POWER AIRE

Air/Manually Operated
High Purity Chemical Valve
Series LV



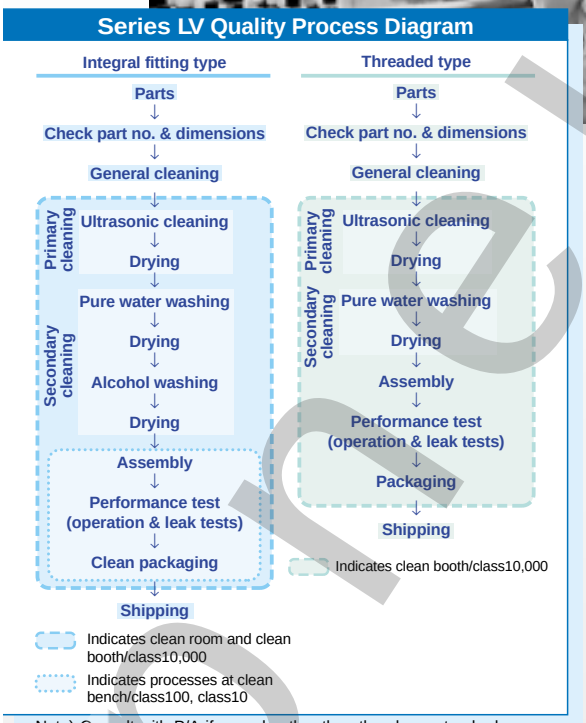
PAT. PEND.

Responding to the latest demands in process control.

Responding to the latest demands in process control
P/A High Purity Series

High levels of purity are increasingly required in the handling of fluids for advanced processing applications of semiconductors, pharmaceuticals, medicine, instrumentation, cleaning and food processing.
P/A high purity series products incorporate many new and unique innovations that minimize both particulate and chemical contamination to levels compatible with the most demanding requirements.
Cleaning, assembly and packaging are performed in a clean room to ensure the ultimate in product integrity.

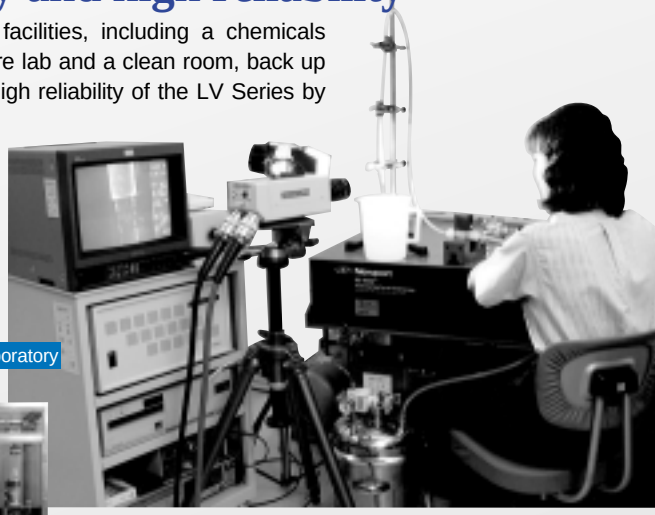
Series LV Quality Process Diagram



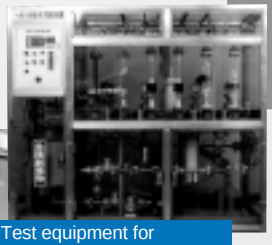
Note) Consult with P/A if a grade other than the above standard process is desired.

Complete laboratory facilities to support high quality and high reliability

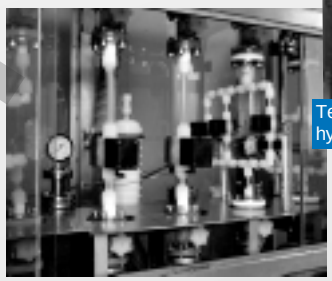
Complete laboratory facilities, including a chemicals lab, a high temperature lab and a clean room, back up the high quality and high reliability of the LV Series by performing precise confirmation and verification of the product's performance and life.

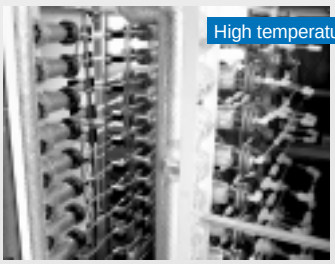


Laboratory



Test equipment for hydrofluoric and nitric acids





High temperature test line

Integral Fitting Valves/Series LVC

Air/Manually Operated High Purity Chemical Valve

Series LV

Low particle generation
Piston bumper

A bumper absorbs piston momentum to minimize impact-induced particles.

Stable Sealing Surface Guide ring

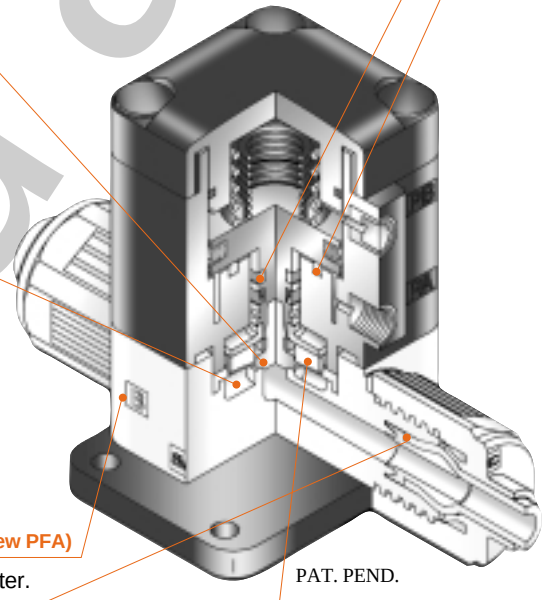
A unique guide ring on the piston rod eliminates lateral motion of the poppet, greatly increasing seal life and reducing particle formation.

Prevents Micro-Bubbles
Diaphragm (PTFE)

Special diaphragm construction insures gentle opening and closing that prevents the formation of micro-bubbles.

Minimal dead space

In addition to a body designed for smooth flow with minimal internal dead space, integral fittings eliminate the possibility of residual liquid in pipe threads.



PAT. PEND.

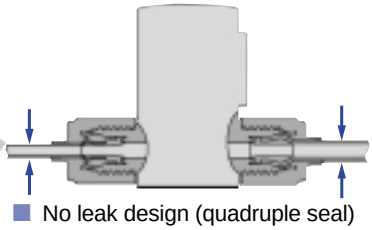
Outstanding corrosion resistance Body (New PFA)

Compatible with chemicals such as acids, bases and ultrapure water.

Back-pressure resistance and long life Buffer

The diaphragm is supported by a buffer that minimizes deformation, which gives it long life and resistance to back-pressure.

Different tubing sizes can be selected
Hyper fitting



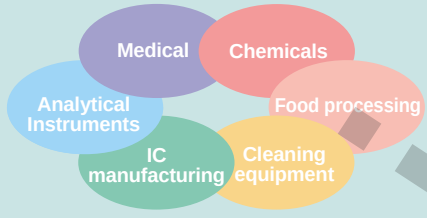
- No leak design (quadruple seal)
- Eliminates problems due to over tightening (special locking mechanism)
- High flexural strength (tube supports)

Threaded Ports-Series LVA

- **Three types of body material: SUS/PPS/PFA**

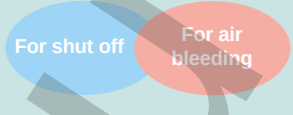
  The ideal body material can be selected based on the application.

- **Manifolds**
- **Main applications and fields**

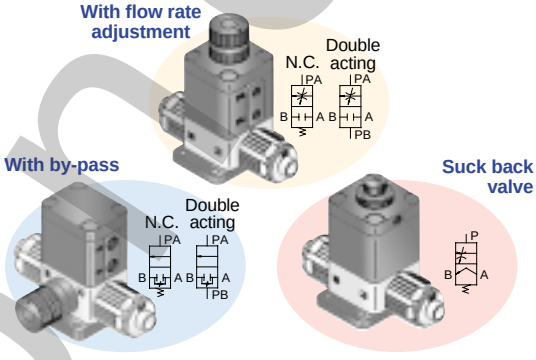


Manual Operation-Series LVH

- **Locking and non-locking types available**
- **Integral fitting type/Threaded type**
- **Manifolds**
- **Main applications and fields**



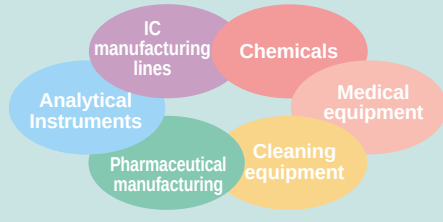
- **Numerous variations**



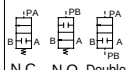
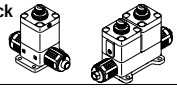
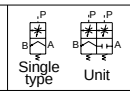
- **N.C./N.O. with same configuration/Double acting**
- **Compatible with 100°C fluid temperature**

Integral Fittings-Series LVC

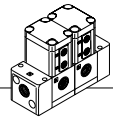
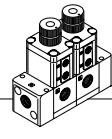
- **Main applications and fields**



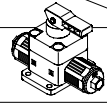
Air Operated
Integral Fitting Type Series LVC P.1 to P.6

Type	Symbol	Valve type	Model	LVC20/23	LVC30	LVC40	LVC50
			Orifice diameter	ø4	ø8	ø10	ø16
			Tube outside dia. Millimeter	4, 6	6, 8, 10	10, 12	12, 19
			Tube outside dia. Inch	1/8, 1/4, 3/16	1/4, 3/8	3/8, 1/2	1/2, 3/4
Basic type 	 N.C. N.O. Double acting	N.C.	○	○	○	○
		N.O.	○	○	○	○
		Double acting	○	○	○	○
With flow rate adjustment 	 N.C. Double acting	N.C.	○	○	○	○
		Double acting	○	○	○	○
With by-pass 	 N.C. Double acting	N.C.	—	○	○	○
		Double acting	—	○	○	○
With flow rate adjustment and by-pass 	 N.C. Double acting	N.C.	—	○	○	○
		Double acting	—	○	○	○
Suck back 	 Single type Unit	Single type	○	—	—	—
		Unit	○	—	—	—

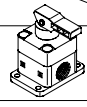
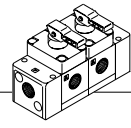
Air Operated
Threaded Type Series LVA P.7 to P.14

Type	Symbol	Valve type	Model	LVA10		LVA20		LVA30		LVA40		LVA50	
			Orifice diameter	ø2		ø4		ø8		ø12		ø20	
			Port size	1/8	1/4	1/8	1/4	1/4	3/8	3/8	1/2	1/2	3/4
			Body material SUS316	○	○	○	○	○	○	○	○	○	○
			Body material PPS	○	○	—	○	—	○	—	○	—	○
			Body material PFA	—	—	—	○	—	○	—	○	—	○
Basic type 	 N.C. N.O. Double acting	N.C.	○	○	○	○	○	○	○	○	○	○
		N.O.	—	—	○	○	○	○	○	○	○	○
		Double acting	—	—	○	○	○	○	○	○	○	○
With flow rate adjustment 	 N.C. Double acting	N.C.	—	—	○	○	○	○	○	○	○	○
		Double acting	—	—	○	○	○	○	○	○	○	○
Manifold (5 stations max.)  													

Manually Operated Series LVH P.15 to P.20
Integral Fitting Type

Type	Symbol	Valve type	Model	LVH20	LVH30	LVH40
			Orifice diameter	ø4	ø8	ø10
			Tube outside dia. Millimeter	4, 6	6, 8, 10	10, 12
			Tube outside dia. Inch	1/8, 3/16, 1/4	1/4, 3/8	3/8, 1/2
Basic type 	 Non-locking Locking	N.C.	○	○	○

Threaded Type

Type	Symbol	Valve type	Model	LVH20				LVH30				LVH40			
			Orifice diameter	ø4				ø8				ø12			
			Material	SUS316		PPS	PFA	SUS316		PPS	PFA	SUS316		PPS	PFA
			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 	 Non-locking Locking	N.C.	○	○	○	○	○	○	○	○	○	○	○	○	○
Manifold (5 stations max.) 															

Special Tools P.21 to P.23

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)	X	○
Ammonium hydroxide	○	○	○	△ Note 2)	X	○
Isobutyl alcohol	○	△ Note 1)	△ Note 1)	△ Note 2)	○	○
Isopropyl alcohol	○	△ Note 1)	△ Note 1)	△ Note 2)	○	○
Hydrochloric acid	X	○	○	○	X	X
Ozone (dry)	○	○	○	○	X	○
Hydrogen peroxide Concentration 5% or less, 50°C or less	X	○	○	○	X	X
Ethyl acetate	○	△ Note 1)	△ Note 1)	△ Note 2)	X	X
Butyl acetate	○	△ Note 1)	△ Note 1)	△ Note 2)	X	X
Nitric acid (except fuming nitric acid) Concentration 10% or less	X	○	○	△ Note 2)	X	X
Pure water	○	○	○	○	X	○
Sodium hydroxide Concentration 50% or less	○	○	○	○	X	X
Nitrogen gas	○	○	○	○	○	○
Ultrapure water	X	○	○	○	X	X
Toluene	○	△ Note 1)	△ Note 1)	△ Note 2)	X	X
Hydrofluoric acid	X	○	X	△ Note 2)	X	X
Sulfuric acid (except fuming sulfuric acid)	X	○	X	△ Note 2)	X	○
Phosphoric acid Concentration 80% or less	X	○	X	○	X	X

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.

Table symbols ○: Can be used
△: Depends on conditions
X: Cannot be used

- Compatibility is indicated for fluid temperatures of 100°C or less.
- Consult P/A regarding fluids other than the above.
- Consult P/A regarding operating conditions.