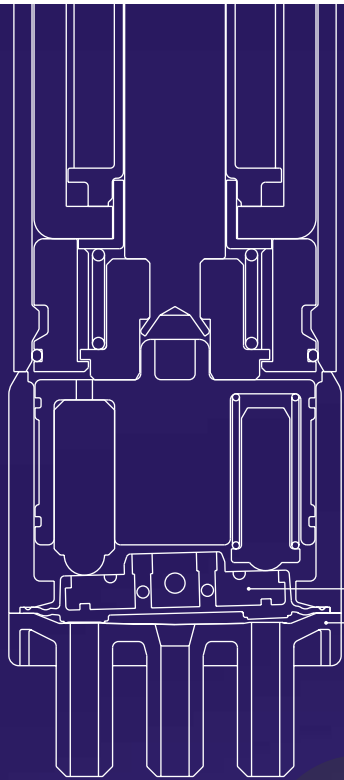




Diaphragm Type Direct Acting 2/3 Port Solenoid Valve for Chemicals



● Wetted part material ●

Body and plate

Choice of

PFA or **PEEK**

Diaphragm

Choice of

EPDM, FKM or **Kalrez®**

Note)

Diaphragm

Plate

Service life: **10 million cycles** or more

Based on SMC test conditions.

Series **LVM10/100**
(2 port) (3 port)



Note) Kalrez® is a registered trademark of DuPont Dow Elastomers.

Meeting the most advanced needs of process control Diaphragm Type Direct Acting 2/3 Port Solenoid Valve for

Valve chamber volume of **20** μl or less

Body designed for smooth flow with minimal internal dead volume and superior elimination of residual liquid.

Dead volume — LVM11: 11 μl or less
LVM1□R, LVM11□: 20 μl or less

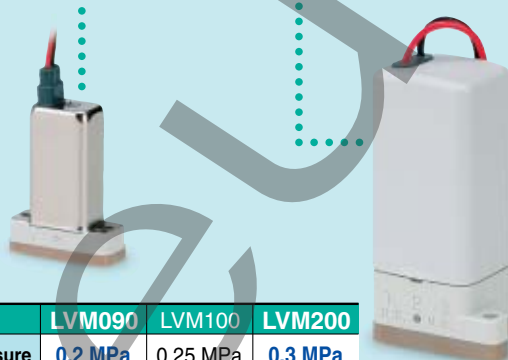
* The dead volume enclosed by the body and the diaphragm

Valve width (2 port / 3 port): **13** mm

Valve width 9.5 mm (LVM090), 20 mm (LVM200) are also available.

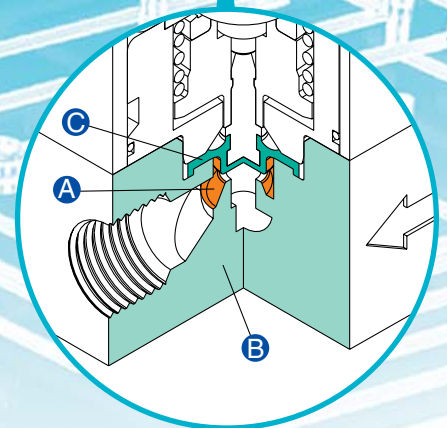
Series LVM090
Valve width: 9.5 mm

Series LVM200
Valve width: 20 mm



Specifications	Series	LVM090	LVM100	LVM200
Max. operating pressure	Series	0.2 MPa	0.25 MPa	0.3 MPa
Orifice diameter	Series	1.1 mm	1.4 mm	2 mm
Flow characteristics (Cv factor)	Series	0.018	0.03	0.065

* LVM090 and 200 are rocker type 2/3 port valves.
For detailed dimensions, specifications, and delivery, please contact SMC.



Lightweight: **30** g (LVM11) / **34** g (LVM1□R/LVM11□)

Weight savings by adopting resin as a standard

Power consumption: **1** w (LVM11) / **1.5** w (LVM1□R/LVM11□)

Applications: Various analytical and inspection equipment

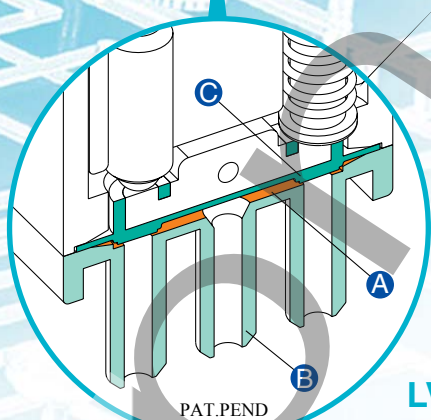
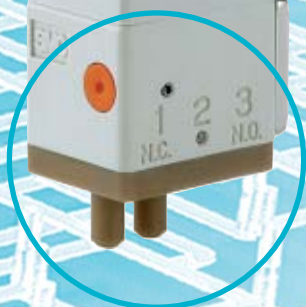
Analytical instruments for blood, urine, immune system, etc.

Features 1

Variations

Chemicals

Series LVM 10/100



LVM1□□
(Rocker type)

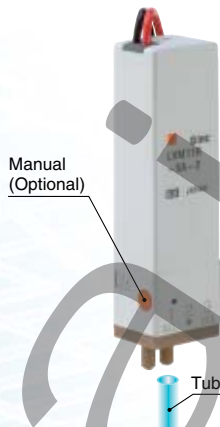
- A** Dead volume
- B** Body and plate material: PEEK
- C** Diaphragm material: EPDM, FKM or Kalrez®

Body ported type



Series	Valve type	Port	Orifice diameter	Cv factor
LVM11	N.C.	2 port	1.5 mm	0.04

Tubing type



Series	Valve type	Port	Orifice diameter	Cv factor
LVM11R	N.C.	2 port	1.4 mm	0.03
LVM12R	N.O.			
LVM112	Universal	3 port		

Base mounted type (Without sub-plate)



Series	Valve type	Port	Orifice diameter	Cv factor
LVM13R	N.C.	2 port	1.4 mm	0.03
LVM14R	N.O.			
LVM16R	N.C.			
LVM115	Universal	3 port		

Base mounted type (With sub-plate)

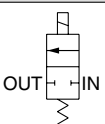
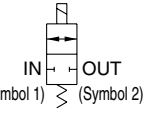
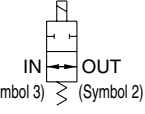
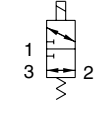


Series	Valve type	Port	Orifice diameter	Cv factor
LVM13R	N.C.	2 port	1.4 mm	0.03
LVM14R	N.O.			
LVM16R	N.C.			
LVM115	Universal	3 port		

Diaphragm Type Direct Acting 2/3 Port Solenoid Valve for Chemicals

Series LVM10/100

How to Order

Symbol	Number of ports	Valve type	Connection
11		N.C. 	M5 thread
11R	2	N.C. 	Tubing type
12R		N.O. 	
112	3	Universal 	

• **Wetted part material**

Symbol	Plate	Diaphragm
A	PEEK	EPDM
B	PEEK	FKM
C	PEEK	Kalrez®

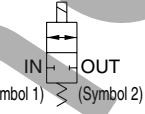
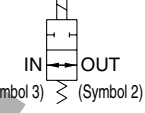
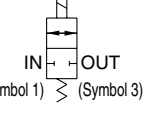
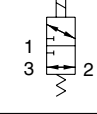
• **Option**

Nil	Nil
1	Bracket
2	Manual override
3	Bracket, Manual override

* LVM11: Only option 1 is available

Body Ported Type LVM 11 5 A

Base Mouned Type LVM 13R 5 A 2

Symbol	Number of ports	Valve type
13R		N.C. 
14R	2	N.O. 
16R		N.C. 
115	3	Universal 

• **Coil voltage**

5	24 VDC
6	12 VDC

• **Option**

Nil	Nil
1	Bracket
2	Manual override
3	Bracket, Manual override

* Bracket can not be attached to the model without a sub-plate.

• **Sub-plate material/Port size**

Nil	Without sub-plate
2	PFA M6
2U	PFA 1/4-28 UNF

• **Wetted part material**

Symbol	Plate	Diaphragm
A	PEEK	EPDM
B	PEEK	FKM
C	PEEK	Kalrez®
E	PFA	EPDM
F	PFA	FKM
G	PFA	Kalrez®

Specifications



Body ported type



**Body ported type
(Tubing type)**



**Base mounted type
(Without sub-plate)**



**Base mounted type
(With sub-plate)**

Model	Body ported type	Body ported type (Tubing type)			Base mounted type			
	LVM11	LVM11R	LVM12R	LVM112	LVM13R	LVM14R	LVM16R	LVM115
Valve construction	Diaphragm type direct operated poppet	Diaphragm type direct operated poppet (Rocker type)						
Valve type	N.C.	N.C.	N.O.	Universal	N.C.	N.O.	N.C.	Universal
Number of ports	2	2		3	2		3	
Fluid <small>Note 1)</small>	Air, Water, Pure water, Diluent, Cleaning solvent							
Operating pressure range	0 to 0.25 MPa	-75 KPa to 0.25 MPa						
Orifice diameter	1.5 mm	1.4 mm						
Flow characteristics (Cv factor)	0.04	0.03						
Response time	10 ms or less							
Leakage	Zero leakage, either external or internal (at hydraulic pressure)							
Proof pressure <small>Note 2)</small>	0.38 MPa							
Ambient temperature	0 to 50°C							
Fluid temperature	0 to 50°C (with no condensation)							
Volume of valve chamber <small>Note 3)</small>	11 µl	20 µl						
Mounting orientation <small>Note 4)</small>	Free							
Enclosure	IP40 or equivalent							
Weight	30 g	34 g (Without sub-plate), 42 g (With sub-plate)						
Rated voltage	12, 24 VDC							
Allowable voltage fluctuation <small>Note 5)</small>	±10% of rated voltage							
Type of coil insulation	Class B							
Power consumption	2.5 W at inrush, 1 W at holding (with built-in power saving circuit)			1.5 W				
Coil switching noise <small>Note 6)</small>	50 dB							

Note 1) Select an appropriate material for the wetted part when fluid such as a cleaning solvent is used. Also, be sure to confirm the fluid compatibility in advance.

Note 2) Indicates the pressure which does not generate breakage, cracks or external leakage after a one-minute airtight test.

Note 3) Indicates the volume of clearance inside the valve chamber after the volume of the diaphragm is subtracted.

Note 4) Since the body (orifice shape) is designed to eliminate residual liquid, mounting in a vertical direction with the coil at the top is recommended. When residual liquid is not considered, any mounting style is available.

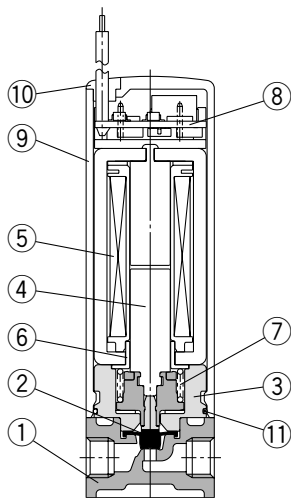
Note 5) When the response speed is regarded as important, prevent negative fluctuation of the voltage by adequate regulation.

Note 6) The value is based on SMC's measurement conditions. The noise level will vary with conditions.

Series LVM10/100

Construction/Body Ported Type

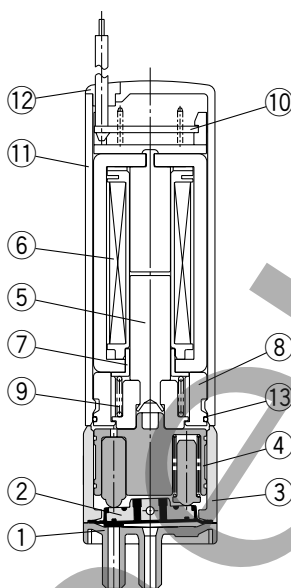
LVM11



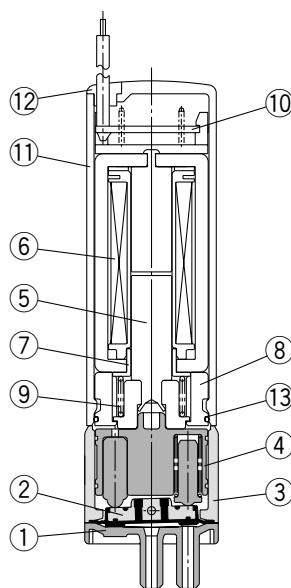
Part list/LVM11

No.	Description	Material
1	Body	PEEK
2	Diaphragm assembly	EPDM/FKM/Kalrez®
3	Spacer	PBT
4	Armature assembly	Stainless steel/POM
5	Coil assembly	—
6	Sleeve	Iron
7	Return spring	Stainless steel
8	Board assembly	—
9	Casing	PBT
10	Plug	NBR
11	O-ring	NBR

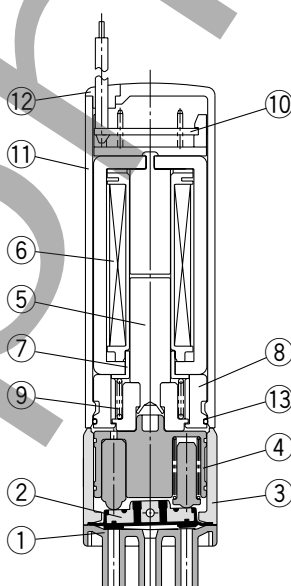
LVM11R



LVM12R



LVM112

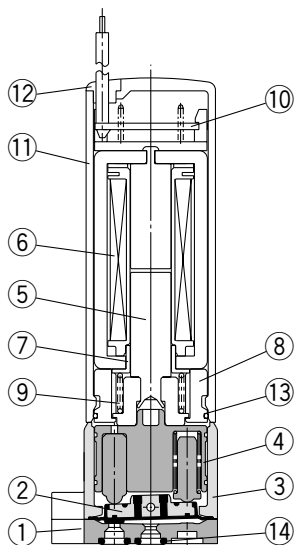


Part list/LVM11R, 12R, 112

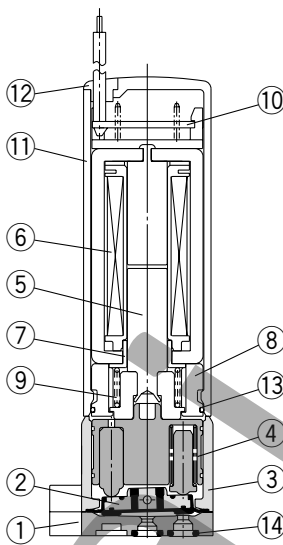
No.	Description	Material
1	Plate	PEEK
2	Diaphragm assembly	EPDM/FKM/Kalrez®
3	Body	PBT
4	Slide bush assembly	POM/Stainless steel
5	Armature assembly	Stainless steel/PBT
6	Coil assembly	—
7	Sleeve	Iron
8	Spacer	PBT
9	Return spring	Stainless steel
10	Board assembly	—
11	Casing	PBT
12	Plug	NBR
13	O-ring	NBR

Construction/Base Mounted Type

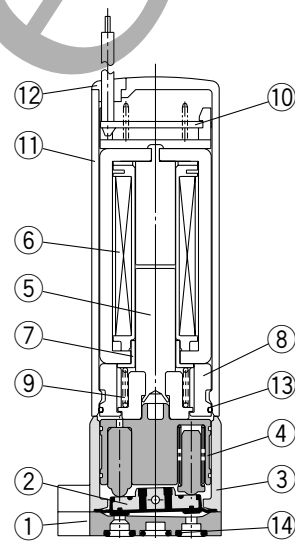
LVM13R



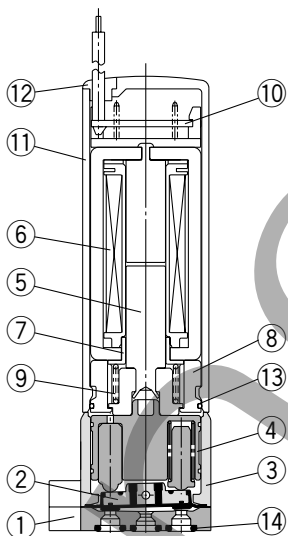
LVM14R



LVM16R



LVM115

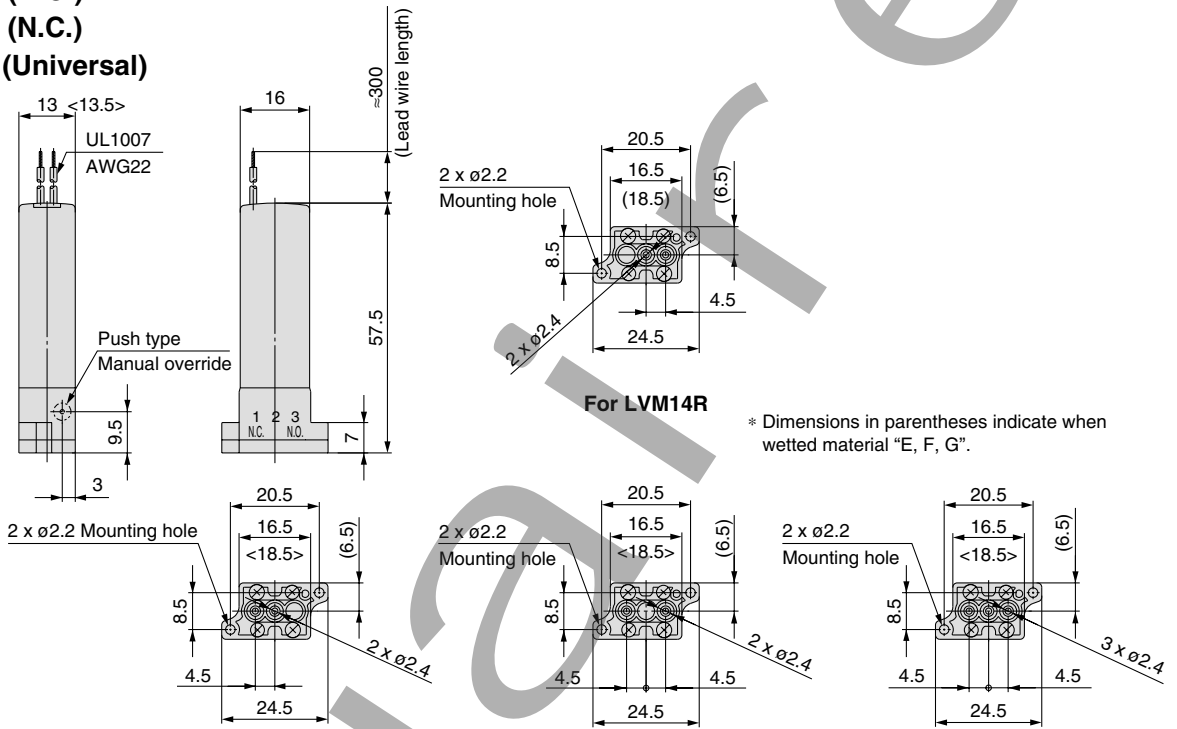


Part list/LVM13R, 14R, 16R, 115

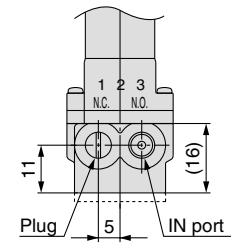
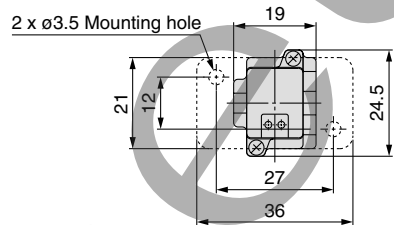
No.	Description	Material
1	Plate	PEEK/PFA
2	Diaphragm assembly	EPDM/FKM/Kalrez®
3	Body	PBT
4	Slide bush assembly	POM/Stainless steel
5	Armature assembly	Stainless steel/PBT
6	Coil assembly	—
7	Sleeve	Iron
8	Spacer	PBT
9	Return spring	Stainless steel
10	Board assembly	—
11	Casing	PBT
12	Plug	NBR
13	O-ring	NBR
14	O-ring	EPDM/FKM/Kalrez®

Dimensions/Base Mounted Type

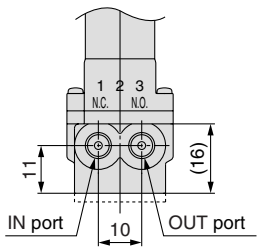
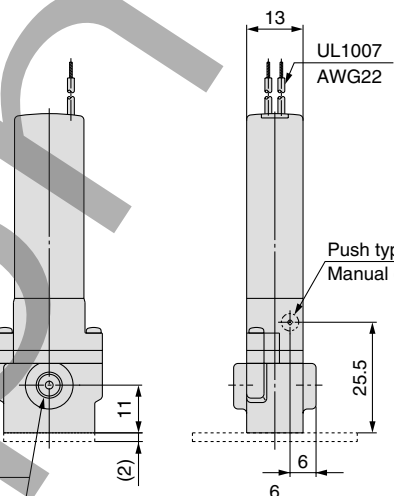
- LVM13R-□□-□ (N.C.)
- LVM14R-□□-□ (N.O.)
- LVM16R-□□-□ (N.C.)
- LVM115-□□-□ (Universal)



- LVM13R-□□□-□ (N.C.)
- LVM14R-□□□-□ (N.O.)
- LVM16R-□□□-□ (N.C.)
- LVM115-□□□-□ (Universal)

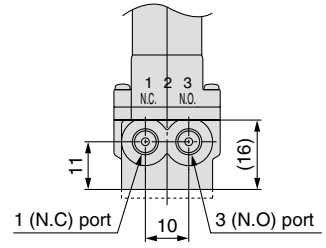
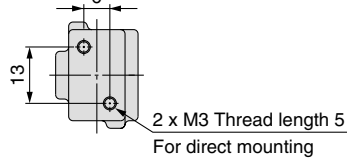


For LVM14R



For LVM16R

- 3 x M6 x 1,1/4-28UNF
OUT port (LVM13R,14R)
- 2 (COM) port (LVM115)
- Plug (LVM16R)



For LVM115

* The broken lines indicate the bracket type.