

# Mechanical Valve Series (Manual valves)

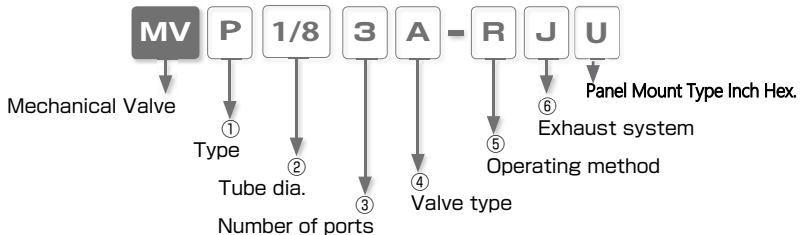


● Selection of Two- or Three-Way Valve.

● Stable Operation by Spool Valve.

● Normally Open/Close

## Model Designation (Example)



### ① Type

Code	Type	Code	Type	Code	Type	Code	Type
M	Micro	P	Panel Mount	U	Double Button	F	Foot Switch

### ② Tube dia.

Code	1/8	5/32	4	6
Size	ø1/8	ø5/32	ø4	ø6

### ③ Number of ports

Code	2	3
Number of ports	2	3

### ④ Valve type

No code : Normally Closed

A : Normally Open

※ MVP comes in "Normally Closed" only

### ⑤ Operating method

No code : Pin/Button

R : Roller lever

※ MVU comes with buttons both sides

### ⑥ Exhaust system (for 3 way valve specified)

No code : Open-Air Exhaust through Silencer

J : Push-in connection exhaust

● Panel Mount Type  
with Individual  
Swivelling Fitting to All  
Directions.

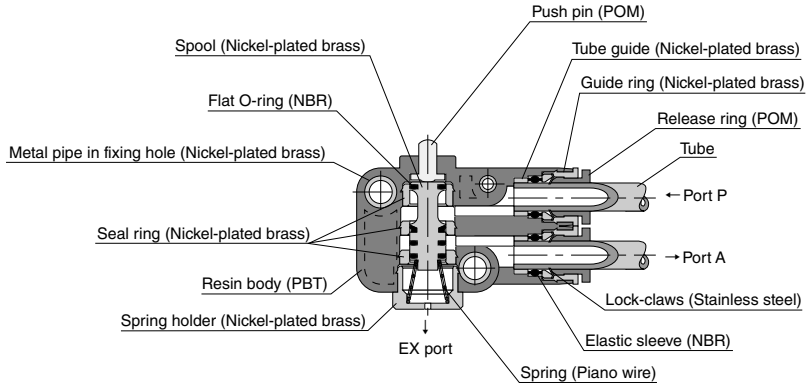


※ The unit of wrench size is inch (the code suffix is "U").

## Specifications

Fluid medium	Air
Operating pressure range	0~102psi (0~0.7MPa)
Operating temp. range	32 ~ 140°F (0~ 60°C) (no freezing)
Lubricant	Necessary : ISO VG32 (turbine oil class 1)

## Construction (Micro Switch Type, Pin Type : MVM)

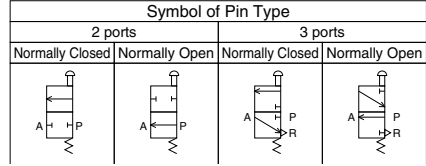
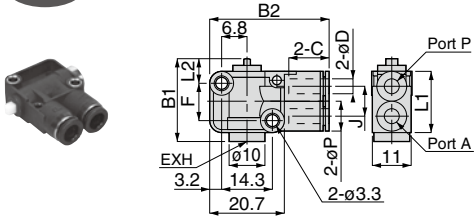


## User Manual

	Normally Open	Normally Closed
Micro type	<p>Push Pin</p> <p>Port P</p> <p>Port A</p> <p>Exhaust Port</p> <p>Push</p>	<p>Push Pin</p> <p>Port P</p> <p>Port A</p> <p>Exhaust Port</p> <p>Push</p>
Panel mount type	X	<p>Push Pin</p> <p>Port P</p> <p>Port A</p> <p>Exhaust Port</p> <p>Push</p>
Instructions	As for three-way valve with Normally Open, the compressed air from Port P flows out from Port A. The air flow is blocked and the residual pressure is released from Exhaust Port when Push Pin is plunged.	As for three-way valve with Normally Closed valve, the compressed air from Port P is blocked. The air goes through to Port A when Push Pin is plunged.

## Micro - Pin Type

### MVM Open-Air Exhaust Type

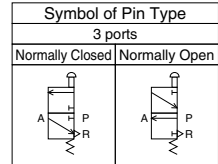
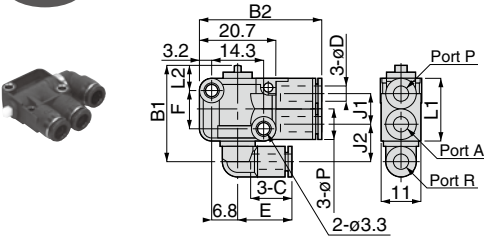


Unit : mm

Model code	Tube O.D. øD	B1		B2	L1	L2	øP	Tube end C	J	F	Weight (g)	Effective area (mm <sup>2</sup> )	CAD file name
		max.	min.										
MVM1/8 □	1/8"	23.5	21.1	33	17	7.2	8	11	8	10.6	10	3	MVM1_83_ or MVM1_82_
MVM1/8 □ A													
MVM5/32 □	5/32"	23.5	21.1	33	17	7.2	8	11	8	10.6	10	3	MVM5_323_ or MVM5_322_
MVM5/32 □ A													
MVM 4 □	4	23.5	21.1	33	17	7.2	8	11	8	10.6	10	3	MVM43_ or MVM42_
MVM 4 □ A													
MVM 6 □	6	30.7	27.1	33.4	22	7.2	10.5	11.6	10.5	15.6	12	7	MVM63_ or MVM62_
MVM 6 □ A													

※ □ in Model code / Replaced with "2" for Two-way valve, "3" for Three-way valve.

### MVM Tube Exhaust Type

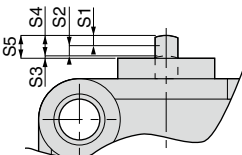


Unit : mm

Model code	Tube O.D. øD	B1		B2	L1	L2	øP	Tube end C	J1	J2	E	F	Weight (g)	Effective area (mm <sup>2</sup> )	CAD file name
		max.	min.												
MVM1/8 3-J	1/8"	26.4	24	33	17	7.2	8	11	8	10.4	15	10.6	11	3	MVM1_83_-J
MVM1/8 3A-J															
MVM5/32 3-J	5/32"	26.4	24	33	17	7.2	8	11	8	10.4	15	10.6	11	3	MVM5_323_-J
MVM5/32 3A-J															
MVM 43-J	4	26.4	24	33	17	7.2	8	11	8	10.4	15	10.6	11	3	MVM43_-J
MVM 43A-J															
MVM 63-J	6	34.8	31.2	33.4	22	7.2	10.5	11.6	10.5	13.9	16.4	15.6	14	7	MVM63_-J
MVM 63A-J													15		

## Push pin stroke dimension / Micro Pin Type

Unit : mm

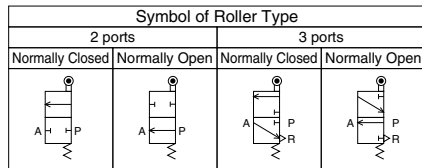
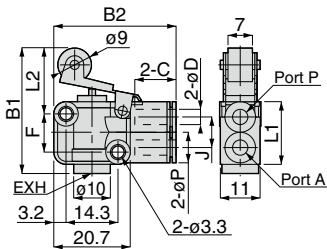


Tube O.D. øD	Free stroke range S1	Operating stroke range S2	Sub stroke S3	Recommended stroke S4	Limit stroke S5
1/8", 5/32", 4	1	1	0.4	2	2.4
6	1.6	1.6	0.4	3.2	3.6

## Micro - Roller Type

## MVM Open-Air Exhaust Type

RoHS compliant



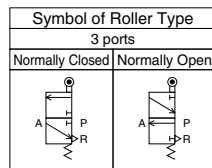
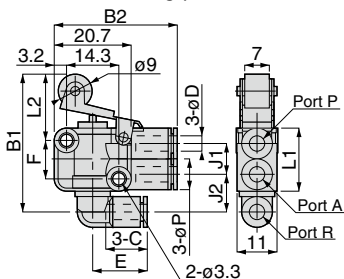
Unit : mm

Model code	Tube O.D. øD	B1		B2	L1	L2		øP	Tube end C	J	F	Weight (g)	Effective area (mm <sup>2</sup> )	CAD file name
		max.	min.			max.	min.							
MVM1/8□-R	1/8"	34.7	31.1	33	17	18.4	14.8	8	11	8	10.6	12	3	MVM1_83_-R or MVM1_82_-R
MVM1/8□A-R														
MVM5/32□-R	5/32"	34.7	31.1	33	17	18.4	14.8	8	11	8	10.6	12	3	MVM5_323_-R or MVM5_322_-R
MVM5/32□A-R														
MVM 4□-R	4	34.7	31.1	33	17	18.4	14.8	8	11	8	10.6	12	3	MVM43_-R or MVM42_-R
MVM 4□A-R														
MVM 6□-R	6	41.9	37	33.4	22	19.6	14.7	10.5	11.6	10.5	15.6	15	7	MVM63_-R or MVM62_-R
MVM 6□A-R														

※ □ in Model code / Replaced with "2" for Two-way valve, "3" for Three-way valve.

## MVM Tube Exhaust Type

RoHS compliant

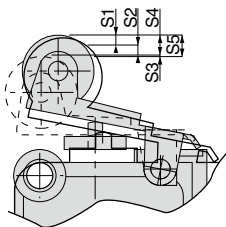


Unit : mm

Model code	Tube O.D. øD	B1		B2	L1	L2		øP	Tube end C	J1	J2	E	F	Weight (g)	Effective area (mm <sup>2</sup> )	CAD file name
		max.	min.			max.	min.									
MVM1/8 3-RJ	1/8"	37.6	34	33	17	18.4	14.8	8	11	8	10.4	15	10.6	13	3	MVM1_83_-RJ
MVM1/8 3A-RJ																
MVM5/32 3-RJ	5/32"	37.6	34	33	17	18.4	14.8	8	11	8	10.4	15	10.6	13	3	MVM5_323_-RJ
MVM5/32 3A-RJ																
MVM 43-RJ	4	37.6	34	33	17	18.4	14.8	8	11	8	10.4	15	10.6	13	3	MVM43_-RJ
MVM 43A-RJ																
MVM 63-RJ	6	46	41.1	33.4	22	19.6	14.7	10.5	11.6	10.5	13.9	16.4	15.6	17	7	MVM63_-RJ
MVM 63A-RJ																

## Push pin stroke dimension / Micro Switch Roller Type

Unit : mm

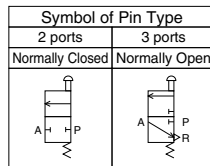
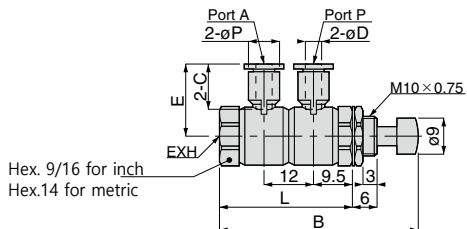


Tube O.D. øD	Free stroke range S1	Operating stroke range S2	Sub stroke S3	Recommended stroke S4	Limit stroke S5
1/8", 5/32", 4	1.5	1.7	0.4	3.2	3.6
6	1.7	2.5	0.4	4.5	4.9

## Panel Mount Button Type

### MVP Open-Air Exhaust Type

RoHS compliant

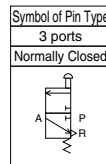
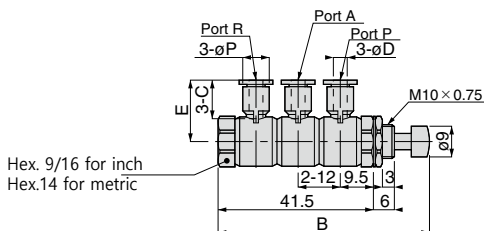


Unit : mm

Model code	Tube O.D. øD	B		L	øP	Tube end C	E	Weight (g)	Effective area (mm <sup>2</sup> )	CAD file name	
		max.	min.								
MVP1/8 2U	1/8"	49.5	46	33	8	11	18	30	3	N/A	
MVP1/8 3U		49.5	46	33				29			
MVP5/32 2U		5/32"	49.5	46				33			30
MVP5/32 3U	49.5		46	33	29						
MVP 42	4	48.5	44.5	33	8	11	17.7	30	3		MVP42
MVP 43		48	44	32.5				29			MVP43
MVP 62	6	48.5	44.5	33	10.5	11.6	18.3	32	5	MVP62	
MVP 63		48	44	32.5				31		MVP63	

### MVP Tube Exhaust Type

RoHS compliant

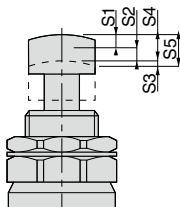


Unit : mm

Model code	Tube O.D. øD	B		øP	Tube end C	E	Weight (g)	Effective area (mm <sup>2</sup> )	CAD file name
		max.	min.						
MVP1/8 3-JU	1/8"	57	53.4	8	11	17.7	32	3	N/A
MVP5/32 3-JU	5/32"	57	53.4	8	11	17.7	32	3	
MVP 43-J	4	57	53.4	8	11	17.7	32	3	MVP43-J
MVP 63-J	6	57	53.4	10.5	11.6	18.3	34	5	MVP63-J

## Push button stroke dimension / Panel Mount Button Type

Unit : mm

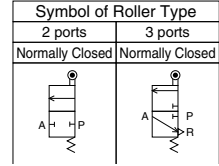
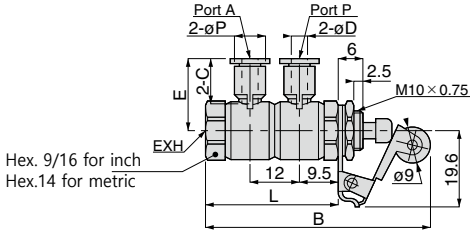


Tube O.D. øD	Free stroke range	Operating stroke range	Sub stroke	Recommended stroke	Limit stroke
	S1	S2	S3	S4	S5
1/8", 5/32", 4	1.8	1.8	0.4	3.6	4
6	1.8	1.8	0.4	3.6	4

## Panel Mount Roller Type

### MVP Open-Air Exhaust Type

RoHS compliant

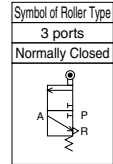
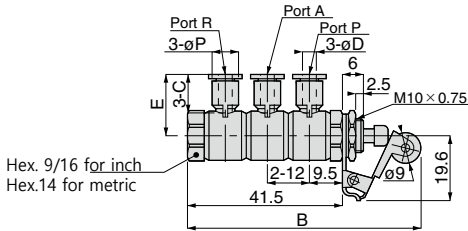


Unit : mm

Model code	Tube O.D. øD	B		L	øP	Tube end C	E	Weight (g)	Effective area (mm <sup>2</sup> )	CAD file name	
		max.	min.								
MVP1/8 2-RU	1/8"	56.7	53	33	8	11	17.7	34	3	N/A	
MVP1/8 3-RU		56.7	53	33				33			
MVP5/32 2-RU		56.7	53	33				34			
MVP5/32 3-RU	5/32"	56.7	53	33	8	11	17.7	33	3		
MVP 42-R	4	57.4	53	33	8	11	17.7	34	3		MVP42-R
MVP 43-R		56.9	52.5	32.5				33			MVP43-R
MVP 62-R	6	57.4	53	33	10.5	11.6	18.3	35	5	MVP62-R	
MVP 63-R		56.9	52.5	32.5				34		MVP63-R	

### MVP Tube Exhaust Type

RoHS compliant

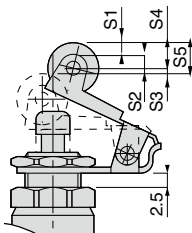


Unit : mm

Model code	Tube O.D. øD	B		øP	Tube end C	E	Weight (g)	Effective area (mm <sup>2</sup> )	CAD file name
		max.	min.						
MVP1/8 3-RJU	1/8"	65.9	62.5	8	11	17.7	36	3	N/A
MVP5/32 3-RJU	5/32"	65.9	62.5	8	11	17.7	36	3	
MVP 43-RJ	4	65.9	61.5	8	11	17.7	36	3	
MVP 63-RJ	6	65.9	61.5	10.5	11.6	18.3	38	5	MVP63-RJ

## Push button stroke dimension / Panel Mount Roller Type

Unit : mm



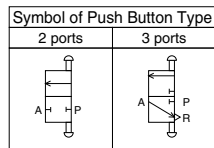
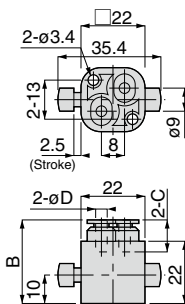
Tube O.D. øD	Free stroke range S1	Operating stroke range S2	Sub stroke S3	Recommended stroke S4	Limit stroke S5
1/8", 5/32", 4	1.8	2.2	0.4	4	4.4
6	1.8	2.2	0.4	4	4.4

※ This stroke dimension includes a board of 2.5mm thick. The stroke changes by a thickness of board.

## Double Button Switch

### MVU Double Button

RoHS compliant



Unit : mm

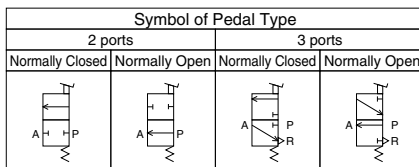
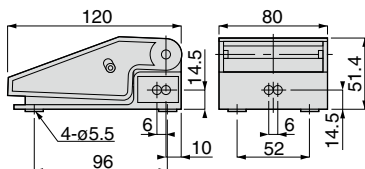
Model code	Tube O.D. øD	B	Tube end C	Weight (g)	Effective area (mm <sup>2</sup> )	CAD file name
MVU1/8 2	1/8"	28.6	10.9	22	3	N/A
MVU1/8 3				23		
MVU5/32 2	5/32"	28.6	10.9	22	3	
MVU5/32 3				23		
MVU 42	4	28.6	10.9	22	3	MVU4_
MVU 43				23		
MVU 62	6	31.1	11.7	22	5	MVU6_
MVU 63				23		

※ Body color: Light-gray

## Foot Switch

### MVF Foot Switch

RoHS compliant



Model code	Tube O.D. øD	Weight (g)	Effective area (mm <sup>2</sup> )	CAD file name
MVF1/8□□	1/8"	172.5	3	MVF_
MVF5/32□□	5/32"	172.5	3	
MVF 4□□	4	172.5	3	
MVF 6□□	6	174.5	7	

※ Left □ in Model code / Replaced with "2" for Two-way valve, "3" for Three-way valve.

Right □ in Model code / Replaced with "A" for Normally Open, or remained blank for Normally Closed

Micro Type Pin model, (MVM1/8□ / MVM1/8□A, is used in MVF1/8□□. Likewise, MVM5/32□ / MVM5/32□A) is used in MVF5/32□□ for inch, MVM4□ / MVM4□A is used in MVF4□□ or MVM6□ / MVM6□A is used in MVF6□□ for metric .

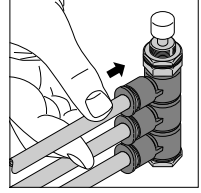
## How to insert and disconnect

### 1. How to insert and disconnect tubes

#### ① Tube insertion

Push in a tubing up to the very end. Lock-claws bite the tubing and hold it automatically while the elastic sleeve seals around the tubing.

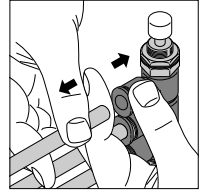
Refer to "2. Instructions for Tube Insertion" under "Common Safety Instructions for Fittings" .



#### ② Tube disconnection

The tubing is pulled out by pushing the release-ring which opens the Lock-claws.

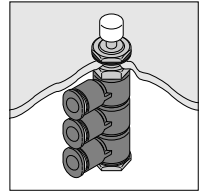
Make sure turning off the air supply before the tubing disconnection.



### 2. How to mount on panel

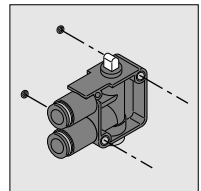
#### ① Tightening nut

Use a spanner to tighten a hexagonal-column of Panel Mount Type. The range of tightening torque is between 2.5 and 3.5Nm.



#### ② How to install valve body

In order to install the valve body of Micro Type and Double Button Type, use the screw holes on the body to install with M3 screws. Refer to the dimensional drawings of the hole pitch.





## ⚠ Detailed Safety Instructions

Before using PISCO products, be sure to read "Safety Instructions" and "Safety Instruction Manual" and "Common Safety Instructions for Valves".

### Warning

1. Do not apply excessive load beyond the stroke limits on the push pin and the roller. It may cause damage to Mechanical Valve.
2. Do not use the valve for the applications such as cam or dog which are operated with a rapid starting. Impacts can cause damage to Mechanical Valve.
3. Do not use machine to control Air Switch and Foot Switch type. It may cause damage to Mechanical Valve.
4. When Mechanical Valve is used on the application which requires high reliability, make sure the valve performs properly before the operation. There is a possibility to cause damage to the system due to a malfunction of the valve.
5. Resin body is rotatable, but do not swing or rotate it by force or continuously. It may cause damage to the products and a fluid leakage.
6. Keep Mechanical Valve away from water / oil drops or dusts. These may cause malfunction, since the valve is not drip / dust proof.

### Caution

1. Contact PISCO in case of using Mechanical Valve in applications with frequent use.
2. Confirm the number of ports and valve type by the marking on the valve body.
3. Effective area of Micro Switch and Foot Switch type may change by the stroke range. Insufficient stroke range can cause a lack of air flow rate.
4. Make sure to push the push pin of Air Switch and Foot Switch or the upper lid of Foot Switch completely until it stops. Incomplete switchover can cause a poor path connection or low flow rate.

## Common Safety Instructions for Valves

Before selecting or using PISCO products, read the following instructions. Read the detailed instructions for individual series as well as the instructions below.

### Warning

1. Some products have an air direction to control. Make sure to distinguish the direction by the catalog or marking on the products. Installing the product with the wrong direction may cause personal injury or property damage.
2. Do not operate manual valves by machine. It may cause damage to the products.
3. Use clean air to supply and remove drainage and dusts. Place an air filter on the upstream side of valves. Impurities in the compressed air can cause malfunction of valves.
4. Avoid any load on PISCO products such as a tensile strength, twisting, bending, dropping and excessive impacts. These may cause damage to the products.

### Caution

1. Refer to "Common Safety Instructions for Fittings" for the safety instructions for fitting part.
2. Instructions for Installing Valves
  - ① Use proper tools to tighten a hexagonal-column of Hand Valve and Ball Valve with taper pipe thread.
  - ② Refer to the following table which shows the recommended tightening torque to tighten thread. Excessive tightening may break the thread part or cause a fluid leakage due to the deformation of thread. Tightening thread with the tightening torque lower than these limits may cause a loosened thread or a fluid leakage.

● Table: Recommended tightening torque

Thread type	Thread size	Torque force
Taper pipe thread	R1/8	7 ~ 9Nm
	R1/4	12 ~ 14Nm
	R3/8	22 ~ 24Nm
	R1/2	28 ~ 30Nm

### 3. Instructions for removing Valve

- ① When removing taper pipe thread of Hand Valve and Ball Valve, use proper tools to loosen a hexagonal-column.
- ② Remove the sealant stuck on the mating equipment. The remained sealant may get into the peripheral equipment and cause malfunction.