

KOGANEI

Air Valve

MANUAL VALVE MECHANICAL VALVE

INSTRUCTION MANUAL Ver.1.0

MANUAL VALVES

Push Button Type

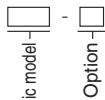
Symbols

Spring return				Spring return with holding mechanism			
2-port		3-port		2-port		3-port	
NC (Normally closed)	NO (Normally open)	NC (Normally closed)	NO (Normally open)	NC (Normally closed)	NO (Normally open)	NC (Normally closed)	NO (Normally open)
125P-2 250P-2 2503P-2	125P-2-11 250P-2-11 2503P-2-11	125P 250P 2503P	125P-11 250P-11 2503P-11	125HO-2 125HO-2-11	125HO-2 125HO-2-11	125HO 125HO-11	125HO-11

Specifications

Item	Operation type	Spring return			Spring return with holding mechanism
	Basic model	125P	250P	2503P	125HO
Port size		Rc1/8	Rc1/4	Rc3/8	Rc1/8
Media		Air			
Operating pressure range	MPa [kgf/cm ²] [psi.]	0~0.9 {0~9.2} [0~131]			
Proof pressure	MPa [kgf/cm ²] [psi.]	1.35 [13.8] [196]			
Operating temperature range (atmosphere and media)	°C [°F]	5~60 [41~140]			
Effective area	mm ²	5.5	15	5.5	5.5
Flow coefficient	Cv	0.27	0.76	0.27	0.27
Valve stroke	mm [in.]	0.8 [0.031]	1.6 [0.063]	0.8 [0.031]	0.8 [0.031]
Lubrication		Not required			
Mass	kg [lb.]	0.10 [0.22]	0.20 [0.44]	0.25 [0.55]	0.10 [0.22]
Options		2-port2 Normally open11 With lock nuts for panel mounting22	2-port2 Normally open11	2-port2 Normally open11	2-port2 Normally open11 With lock nuts for panel mounting22
Order codes					

Order Codes



Examples:
125P-2-11-22
250P
2503P-11

Basic model

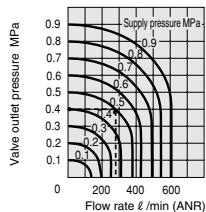
Basic model	Port size
125P	Rc1/8
250P	Rc1/4
2503P	Rc3/8
125HO	Rc1/8 (with holding mechanism)

Option

Code	Specifications
Blank	3-port, normally closed
2	2-port
11	Normally open
22	With lock nuts for panel mounting (125P, 125HO only)

Flow Rate

125 series

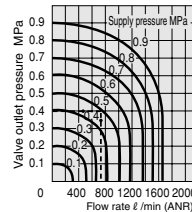


1MPa = 145psi.
1 l/min = 0.0353ft³/min.

How to read the graph

When the supply pressure is 0.5MPa [73psi.] and the flow rate is 275 l/min [9.71ft³/min.] (ANR), the valve outlet pressure becomes 0.4MPa [58psi.].

250 series



How to read the graph

When the supply pressure is 0.5MPa [73psi.] and the flow rate is 740 l/min [26.1ft³/min.] (ANR), the valve outlet pressure becomes 0.4MPa [58psi.].

Button Pushing Down Force

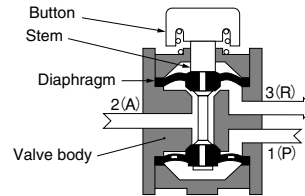
N [lbf.]

Model	Main pressure MPa [psi.]	0	0.2	0.4	0.6	0.8
125P	Normally closed	14.7 [3.30]	21.6 [4.86]	28.4 [6.38]	36.3 [8.16]	43.2 [9.71]
	Normally open		30.4 [6.83]	44.1 [9.91]	58.8 [13.22]	72.6 [16.32]
125HO	Normally closed	6.9 [1.55]	14.7 [3.30]	21.6 [4.86]	28.4 [6.38]	36.3 [8.16]
	Normally open		21.6 [4.86]	36.3 [8.16]	50.0 [11.24]	58.8 [13.22]
250P	Normally closed	26.5 [5.96]	44.1 [9.91]	64.7 [14.54]	88.2 [19.83]	116.7 [26.23]
2503P	Normally open		42.2 [9.49]	53.0 [11.91]	65.7 [14.77]	85.3 [19.18]

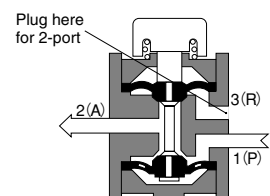
Inner Construction, Major Parts and Materials

125 series

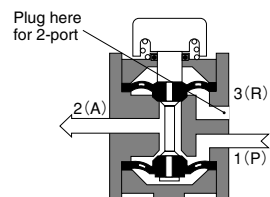
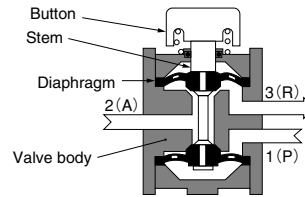
Normal condition



Operating condition



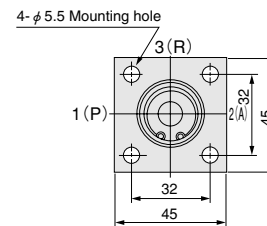
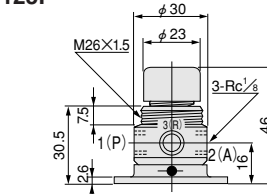
250, 2503 series



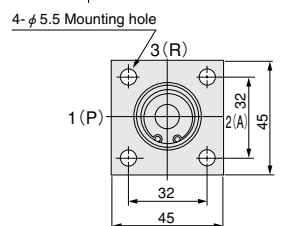
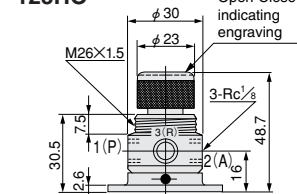
Parts	Materials
Body	Aluminum alloy (anodized)
Stem	Brass
Diaphragm	Synthetic rubber
Button	Nylon (Steel in 125HO)

Dimensions (mm)

125P



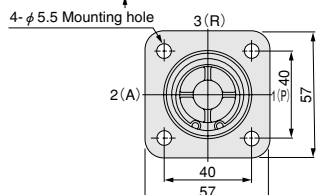
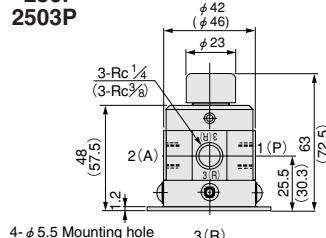
125HO



Note: For the normally open type, the exhaust port 3(R) is on the opposite side.

Note: For the normally open type, the exhaust port 3(R) is on the opposite side.

250P 2503P



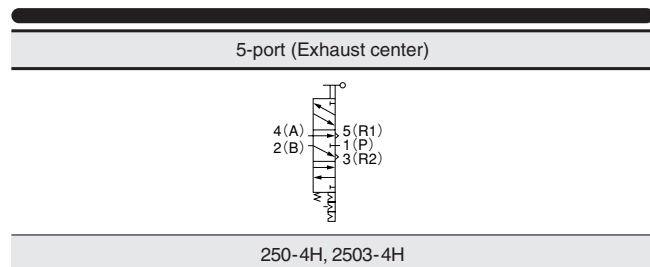
Notes: 1. For the normally open type, the exhaust port 3(R) is on the opposite side.
2. Dimensions in parentheses () are for the 2503P.

- Notes: 1. Although the 125V lever is set on the 1(P) port side in the normal condition, it can be positioned in 360° range.
2. Dimensions in parentheses () are for the 2503V.

MANUAL VALVES

Lever-operated Type 3-position, 5-port

Symbol



Specifications

Item	Basic model	250-4H	2503-4H
Port size		Rc1/4	Rc3/8
Media		Air	
Operating pressure range	MPa (kgf/cm ²) [psi.]	0.1~0.9 {0~9.2} [15~131]	
Proof pressure	MPa (kgf/cm ²) [psi.]	1.35 {13.8} [196]	
Operating temperature range (atmosphere and media)	°C [°F]	5~60 [41~140]	
Effective area	mm ²	15	
Flow coefficient	Cv	0.76	
Valve stroke	mm [in.]	1.6 [0.063]	
Lubrication		Not required	
Mass	kg [lb.]	0.6 [1.3]	

Order Code



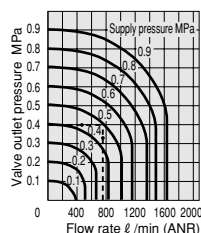
Basic model

Basic model

Basic model	Port size
250-4H	Rc1/4
2503-4H	Rc3/8

Examples:
250-4H
2503-4H

Flow Rate

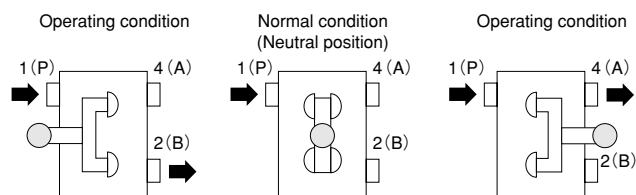


1MPa = 145psi., 1 l / min = 0.0353ft³/min.

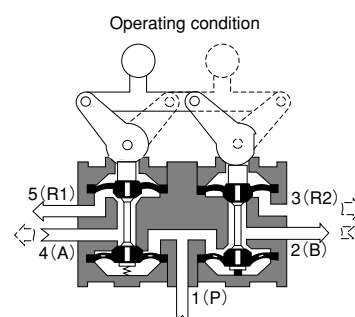
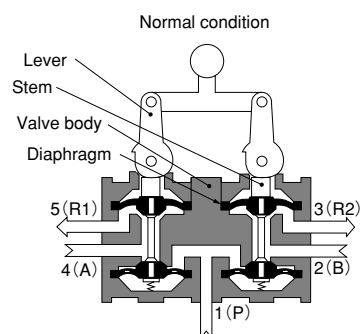
How to read the graph

When the supply pressure is 0.5MPa [73psi.] and the flow rate is 740 l / min [26.1ft³/min.] (ANR), the valve outlet pressure becomes 0.4MPa [58psi.].

Lever Position and Air Path

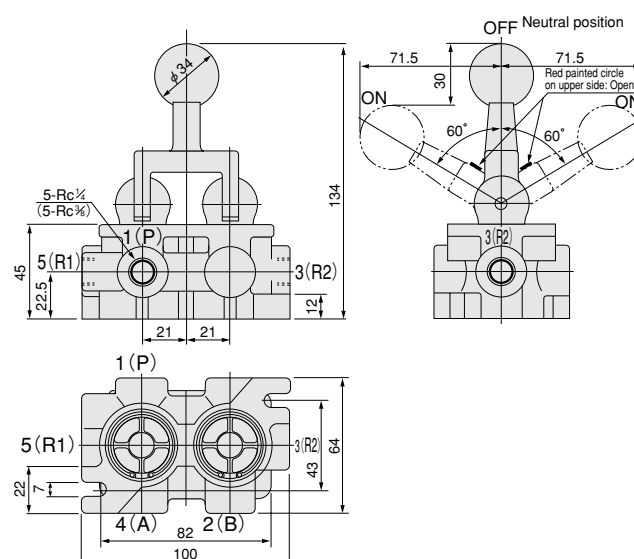


Inner Construction, Major Parts and Materials



Parts	Materials
Body	Aluminum alloy (anodized)
Stem	Brass
Diaphragm	Synthetic rubber

Dimensions (mm)



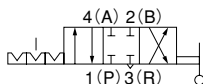
MANUAL VALVES

400HV Series

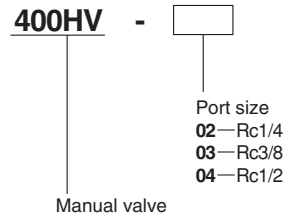
Features

- Optimum valve for air cylinder operation switching.
- Sliding valve construction, and manually switched 4-port valve.
- Rotary type (swing lever) for reliable switching.

Symbol



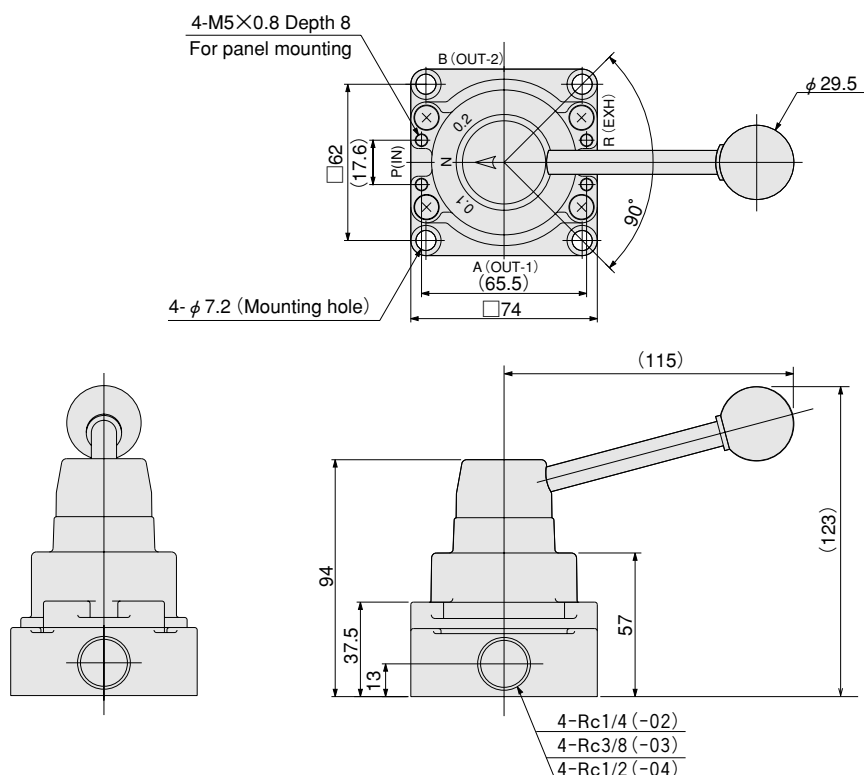
Order Codes



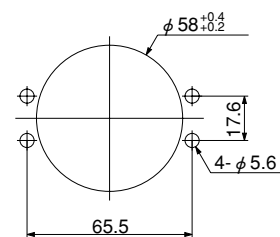
Specifications

Item	Model	400HV-02	400HV-03	400HV-04
Media		Air		
Valve function		4-port, 3-position		
Operation type		Direct acting		
Effective area	mm ²	26		
Port size		Rc1/4	Rc3/8	Rc1/2
Operating pressure range	MPa {kgf/cm ² } [psi.]	0~0.97 {0~9.9} [0~141]		
Proof pressure	MPa {kgf/cm ² } [psi.]	1.47 {15.0} [213]		
Operating temperature range	°C [°F]	5~60 [41~140]		
Angle of lever operation		90°		
Mounting direction		Any		
Mass	g [oz.]	800 [28.2]		

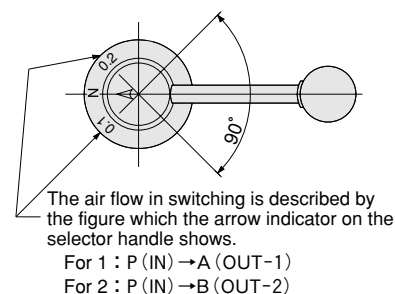
Dimensions (mm)



- Detailed diagram for machining panel mounting holes



Handling precautions



FOOT VALVES

2-, 3-port

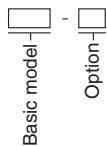
Symbols

Spring return				Spring return with holding mechanism			
2-port		3-port		2-port		3-port	
NC (Normally closed)	NO (Normally open)	NC (Normally closed)	NO (Normally open)	NC (Normally closed)	NO (Normally open)	NC (Normally closed)	NO (Normally open)
250F-2	250F-2-11	250F	250F-11	250FL-2	250FL-2-11	250FL	250FL-11

Specifications

Item	Operation type	Spring return	Spring return with holding mechanism
	Basic model	250F	250FL
Port size		Rc1/4	Rc1/4
Media		Air	
Operating pressure range	MPa [kgf/cm ²] [psi.]	0~0.9 [0~9.2] [0~131]	
Proof pressure	MPa [kgf/cm ²] [psi.]	1.35 [13.8] [196]	
Operating temperature range (atmosphere and media)	°C [°F]	5~60 [41~140]	
Effective area	mm ²	15	
Flow coefficient	Cv	0.76	
Valve stroke	mm [in.]	1.6 [0.063]	
Lubrication		Not required	
Mass	kg [lb.]	1.0 [2.2]	1.6 [3.5]
Options		2-port2 Normally open --11	
Order codes		

Order Codes



Basic model

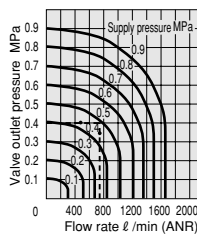
Basic model	Operation method
250F	Spring return
250FL	Spring return with holding mechanism

Option

Code	Specifications
Blank	3-port Normally closed
2	2-port
11	Normally open

Examples:
250F
250FL-2-11

Flow Rate



1MPa = 145psi., 1 l/min = 0.0353ft³/min.

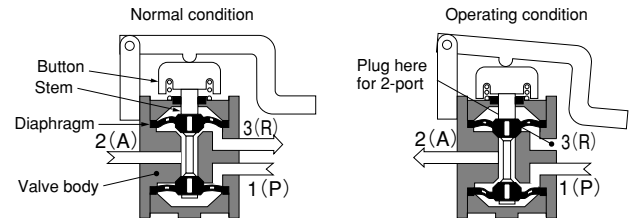
How to read the graph

When the supply pressure is 0.5MPa [73psi.] and the flow rate is 740 l/min [26.1ft³/min.] (ANR), the valve outlet pressure becomes 0.4MPa [58psi.].

Pedal Pushing Down Force

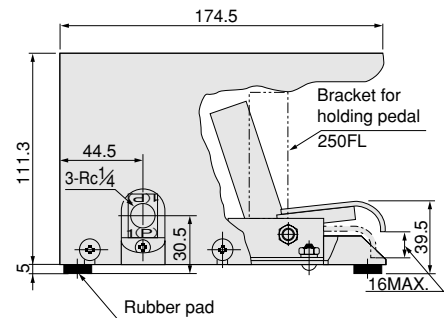
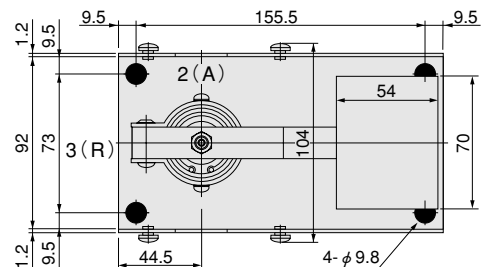
		N [lbf.]				
Model	Main pressure MPa [psi.]	0 [0]	0.2 [29]	0.4 [58]	0.6 [87]	0.8 [116]
250F	Normally closed	5.9 [1.33]	9.8 [2.20]	13.7 [3.08]	18.6 [4.18]	25.5 [5.73]
250FL	Normally open	5.9 [1.33]	8.8 [1.98]	11.8 [2.65]	14.7 [3.30]	18.6 [4.18]

Inner Construction, Major Parts and Materials



Parts	Materials
Body	Aluminum alloy (anodized)
Stem	Brass
Diaphragm	Synthetic rubber
Cover, pedal	Steel

Dimensions (mm)





Note: In the cases of 250F and 250FL normally open, 1(P) port and 2(A) port are on the opposite side.

FOOT VALVES

5-port

Symbols

Spring return	Spring return with holding mechanism
	
250-4F 2503-4F	250-4FL 2503-4FL

Specifications

Operation type		Spring return		Spring return with holding mechanism	
Item	Basic model	250-4F	2503-4F	250-4FL	2503-4FL
Port size		Rc1/4	Rc3/8	Rc1/4	Rc3/8
Media		Air			
Operating pressure range MPa [kgf/cm ²] [psi.]		0~0.9 {0~9.2} [0~131]			
Proof pressure MPa [kgf/cm ²] [psi.]		1.35 {13.8} [196]			
Operating temperature range (atmosphere and media) °C [°F]		5~60 [41~140]			
Effective area mm ²		15			
Flow coefficient Cv		0.76			
Valve stroke mm [in.]		1.6 [0.063]			
Lubrication		Not required			
Mass kg [lb.]		1.6 [3.5]		1.7 [3.7]	

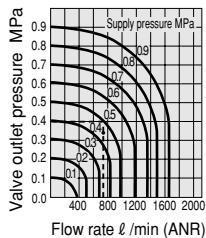
Order Codes

Basic model

Basic model	Specifications
250-4F	Rc 1/4 Spring return
250-4FL	Rc 1/4 Spring return with holding mechanism
2503-4F	Rc3/8 Spring return
2503-4FL	Rc 3/8 Spring return with holding mechanism

Examples:
250-4F
2503-4FL

Flow Rate



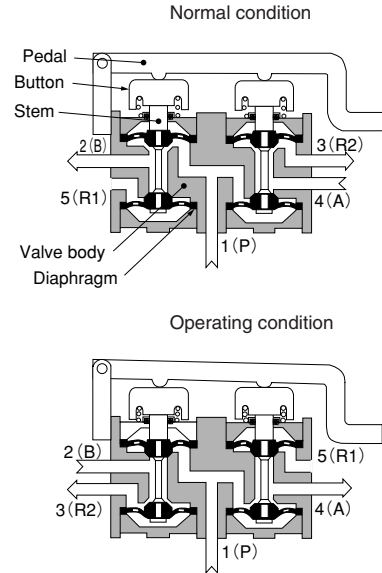
1MPa = 145psi., 1 l/min = 0.0353ft³/min.

How to read the graph
When the supply pressure is 0.5MPa [73psi.] and the flow rate is 740 l/min [26.1ft³/min.] (ANR), the valve outlet pressure becomes 0.4MPa [58psi.].

Pedal Pushing Down Force

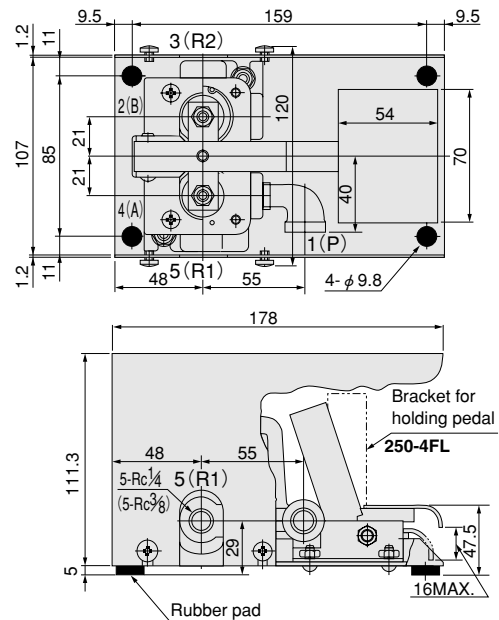
N [lbf.					
Main pressure Model MPa [psi.]	0 [0]	0.2 [29]	0.4 [58]	0.6 [87]	0.8 [116]
250-4F					
2503-4F	10.8	17.7	25.5	33.3	44.1
250-4FL	[2.43]	[3.98]	[5.73]	[7.49]	[9.91]
2503-4FL					

Inner Construction, Major Parts and Materials



Parts	Materials
Body	Aluminum alloy (anodized)
Stem	Brass
Diaphragm	Synthetic rubber
Cover, pedal	Steel

Dimensions (mm)



MECHANICAL VALVES

Ball-cam Type

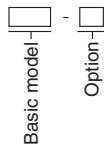
Symbols

2-port		3-port	
NC (Normally closed)	NO (Normally open)	NC (Normally closed)	NO (Normally open)
125B-2 250B-2 2503B-2	125B-2-11	125B 250B 2503B	125B-11

Specifications

Item	Basic model	125B	250B	2503B
Port size		Rc1/8	Rc1/4	Rc3/8
Media		Air		
Operating pressure range	MPa [kgf/cm ²] [psi.]	0~0.9 [0~9.2] [0~131]		
Proof pressure	MPa [kgf/cm ²] [psi.]	1.35 [13.8] [196]		
Operating temperature range (atmosphere and media)	°C [°F]	5~60 [41~140]		
Effective area	mm ²	5.5	15	
Flow coefficient	Cv	0.27	0.76	
Valve stroke	mm [in.]	0.8 [0.031]	1.6 [0.063]	
Lubrication		Not required		
Mass	kg [lb.]	0.11 [0.24]	0.21 [0.46]	0.26 [0.57]
Options		2-port~2 Normally open~11 With lock nuts for panel mounting~22	2-port~2	
.....Order codes				

Order Codes

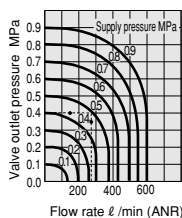


Basic model		Option	
Basic model	Port size	Code	Specifications
125B	Rc1/8	Blank	3-port
250B	Rc1/4	Blank	Normally closed
2503B	Rc3/8	2	2-port
		11	Normally open (125B only)
		22	125B With lock nuts for panel mounting

Examples:
125B-2-11-22
250B

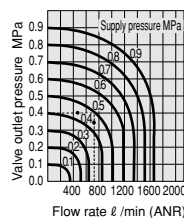
Flow Rate

125 series



1MPa = 145psi.
1 l/min = 0.0353ft³/min.

250 series 2503 series



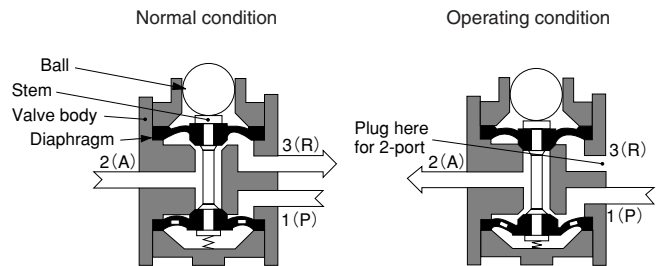
How to read the graph
When the supply pressure is 0.5MPa [73psi.] and the flow rate is 275 l/min [9.71ft³/min.] (ANR), the valve outlet pressure becomes 0.4MPa [58psi.].

How to read the graph
When the supply pressure is 0.5MPa [73psi.] and the flow rate is 740 l/min [26.1ft³/min.] (ANR), the valve outlet pressure becomes 0.4MPa [58psi.].

Ball Pushing Down Force

		N [lbf.]				
Model	Main pressure MPa [psi.]	0 [0]	0.2 [29]	0.4 [58]	0.6 [87]	0.8 [116]
125B	Normally closed	16.7 [3.75]	24.5 [5.51]	32.4 [7.28]	40.2 [9.04]	48.1 [10.81]
	Normally open		30.4 [6.83]	50.0 [11.24]	71.6 [16.10]	86.3 [19.40]
250B, 2503B	Normally closed	17.5 [3.93]	36.3 [8.16]	55.9 [12.57]	78.5 [17.65]	104.0 [23.38]

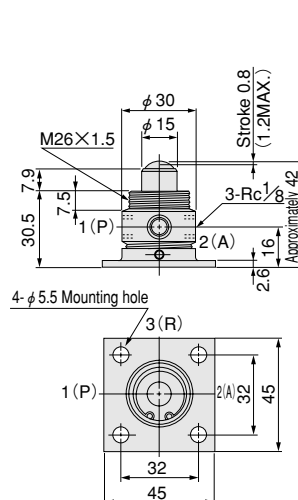
Inner Construction, Major Parts and Materials



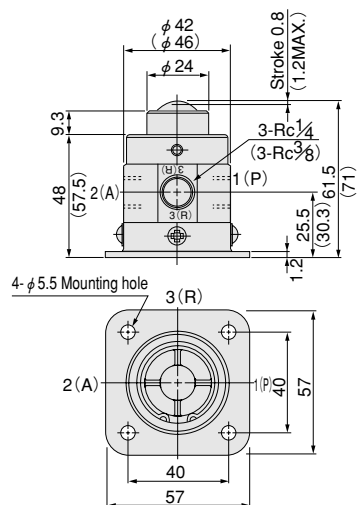
Parts	Materials
Body	Aluminum alloy (anodized)
Stem	Brass
Diaphragm	Synthetic rubber
Ball	Steel

Dimensions (mm)

125B



250B 2503B



Note: For the normally open type, the exhaust port 3(R) is on the opposite side.

MECHANICAL VALVES

Roller-cam Type

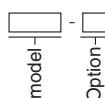
Symbols

Roller-cam				One way roller-cam			
2-port		3-port		2-port		3-port	
NC (Normally closed)	NO (Normally open)	NC (Normally closed)	NO (Normally open)	NC (Normally closed)	NO (Normally open)	NC (Normally closed)	NO (Normally open)
125MC-2 250C-2 2503C-2	125MC-2-11 250C-2-11 2503C-2-11	125MC 250C 2503C	125MC-11 250C-11 2503C-11	125MOC-2 2503C-2	125MOC-2-11 2503C-2-11	125MOC 2503C	125MOC-11 2503C-11

Specifications

Item	Basic model	125MC	125MOC	250C	2503C
Operation type		Roller-cam (Steel roller)	One way roller-cam (Steel roller)	Roller-cam (Nylon roller)	
Port size		Rc1/8		Rc1/4	Rc3/8
Media		Air			
Operating pressure range	MPa [kgf/cm ²] [psi.]	0~0.9 [0~9.2] [0~131]			
Proof pressure	MPa [kgf/cm ²] [psi.]	1.35 [13.8] [196]			
Operating temperature range (atmosphere and media)	°C [°F]	5~60 [41~140]			
Effective area	mm ²	5.5		15	
Flow coefficient	Cv	0.27		0.76	
Valve stroke	mm [in.]	0.8 [0.031]		1.6 [0.063]	
Lubrication		Not required			
Mass	kg [lb.]	0.15 [0.33]		0.30 [0.66]	0.35 [0.77]
Options		2-port2			
.....Order codes		Normally open ..-11			

Order Codes



Basic model

Basic model	Specifications
125MC	Rc1/8 Roller-cam
125MOC	Rc 1/8 One way roller-cam
250C	Rc1/4 Roller-cam
2503C	Rc3/8 Roller-cam

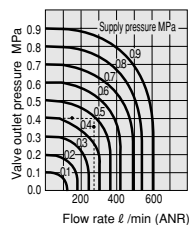
Option

Code	Specifications
Blank	3-port Normally closed
2	2-port
11	Normally open

Examples:
125MC-2-11
2503C

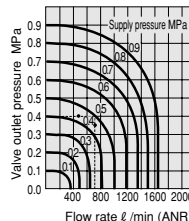
Flow Rate

125 series



1MPa = 145psi.
1 l/min = 0.0353ft³/min.
How to read the graph
When the supply pressure is 0.5MPa [73psi.] and the flow rate is 275 l/min [9.71ft³/min.] (ANR), the valve outlet pressure becomes 0.4MPa [58psi.].

250 series 2503 series



How to read the graph
When the supply pressure is 0.5MPa [73psi.] and the flow rate is 740 l/min [26.1ft³/min.] (ANR), the valve outlet pressure becomes 0.4MPa [58psi.].

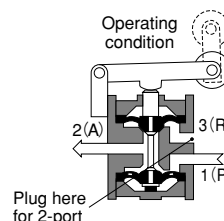
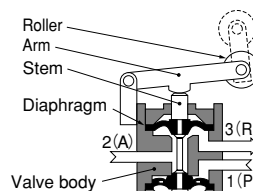
Roller Pushing Down Force

		N [lbf.]				
Model	Main pressure MPa [psi.]	0 [0]	0.2 [29]	0.4 [58]	0.6 [87]	0.8 [116]
125MC	Normally closed	12.8 [2.88]	15.7 [3.53]	19.6 [4.41]	24.5 [5.51]	29.4 [6.61]
	Normally open		14.7 [3.30]	17.7 [3.98]	22.6 [5.08]	26.5 [5.96]
125MOC	Normally closed	10.8 [2.43]	13.7 [3.08]	18.6 [4.18]	22.6 [5.08]	26.5 [5.96]
	Normally open		12.8 [2.88]	15.7 [3.53]	19.6 [4.41]	23.5 [5.28]
250C	Normally closed	12.8 [2.88]		28.4 [6.38]	38.3 [8.61]	54.9 [12.34]
2503C	Normally open		19.6 [4.41]	24.5 [5.51]	30.4 [6.83]	39.2 [8.81]

Inner Construction, Major Parts and Materials

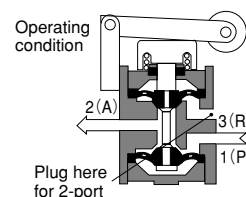
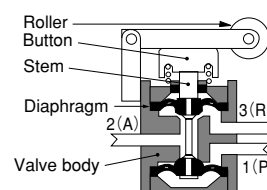
125 series

Normal condition



250 series 2503 series

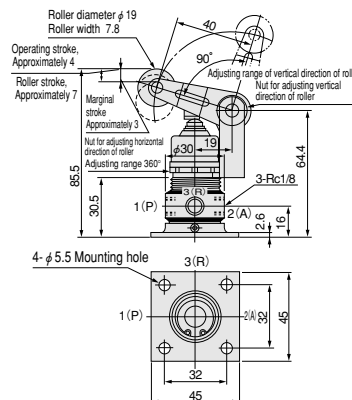
Normal condition



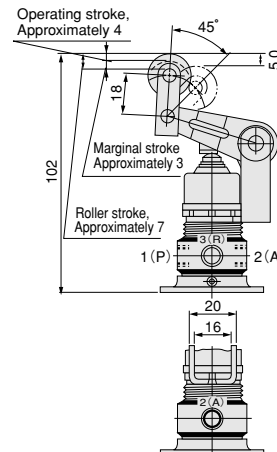
Parts	Materials
Body	Aluminum alloy (anodized)
Stem	Brass
Diaphragm	Synthetic rubber
Roller	125 series: Steel 250, 2503 series: Nylon

Dimensions (mm)

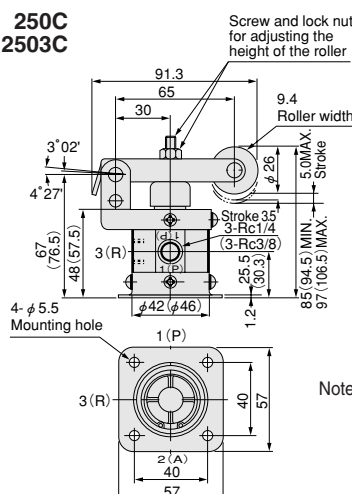
125MC



125MOC



250C 2503C



Note: Dimensions not specified are the same as for the 125MC.

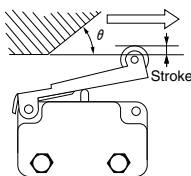
- Notes: 1. Dimensions in parentheses () are for the 2503C.
2. For the normally open type, the exhaust port 3(R) is on the opposite side.

Handling Instructions and Precautions for Micro Valves

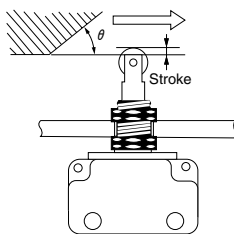
Micro valve mounting overview, and cam and dog shapes

- While normal mounting uses 2 mounting holes of $\phi 4.4$ [0.173in.] on the body, use the neck for mounting when not using the roller plunger type in "pushed by load" applications.
- Since the exhaust hole is on the bottom surface of the valve body, leave a clearance of about 1mm [0.04in.] to avoid restricting exhaust.
- Always use the straight plunger type in "pushed by load" applications.
- While the cam and dog shapes normally set θ at about 30° , θ should be set even smaller when the speed reaches 500mm/s [19.7in./sec.] or more.
- For the valve strokes, see the table on p.834.

Roller-cam type



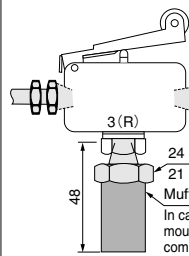
Roller plunger type



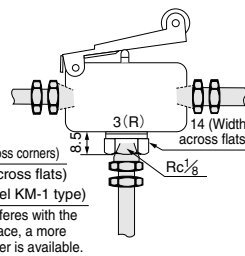
How to use units with exhaust (R) port fittings

For products with a special fitting (Rc1/8) on the 3(R) port, a muffler can be mounted to the 3(R) port, or piping can be connected to exhaust to the outside.

When attaching a muffler on the R port



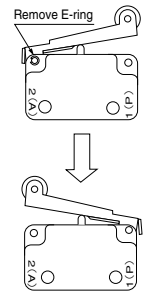
When piping on the R port



Note: Avoid over-tightening the R port fitting.
For piping work, use a wrench to hold the fitting and prevent it from rotating.

Instructions for cam lever facing changes

The cam acting direction of the roller-cam type (KMC) and one way roller-cam type (KMO) can be changed for use according to the piping requirement.



Lubrication

For this micro valve, use Turbine Oil Class 1 (ISO VG32). Depending on the piping conditions (length, height) etc., oil may fail to reach the micro valve. When it occurs, consider supplying turbine oil into the piping at periodic intervals.

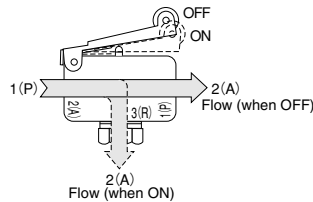
Dust protection

Use appropriate protection when using the micro valve in locations subject to heavy dust, powder, machining chips, etc.

How to use as a divider valve

The 3-port, normally open type can be used as a divider valve.

Let air in from the 2(A) port to flow toward the 1(P) port when OFF, and toward the 3(R) port when ON.

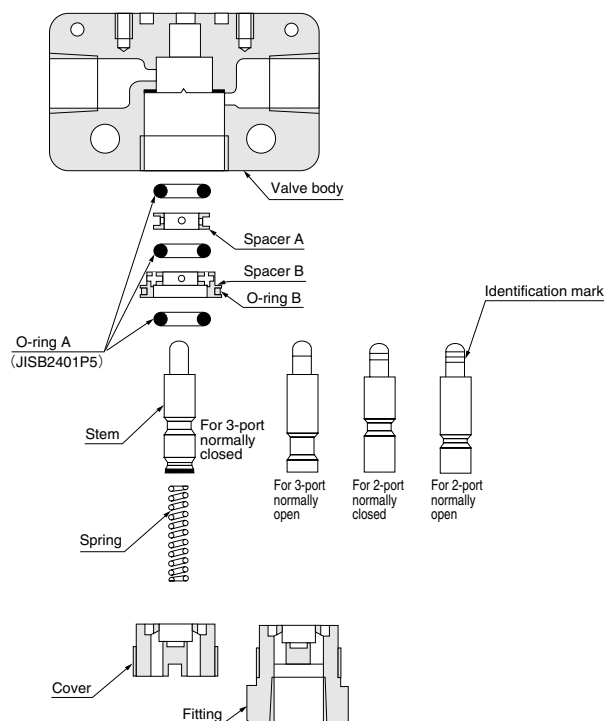


Notes: 1. Avoid using the normally closed type as a divider valve.
2. When using as a divider valve, the Order Code is "-11-60."
Example: Roller-cam type divider valve KMC-11-60

Micro Valve Parts Configuration

The micro valve is composed of the parts shown in the diagram below. The valve functions can differ depending on the shape of the stem, as shown in the diagram.

An identification mark is found on the top of the stem.



MICRO VALVES

Specifications

Port size	Rc1/8 (1(P), 2(A)), 2 holes ϕ 2 (3(R))
Media	Air
Operating pressure range MPa (kgf/cm ²) [psi.]	0~0.9 {0~9.2} [0~131]
Proof pressure MPa (kgf/cm ²) [psi.]	1.35 {13.8} [196]
Operating temperature range (atmosphere and media) °C [°F]	0~60 [32~140]
Effective area mm ²	1.8
Flow coefficient Cv	0.08
Valve stroke mm	Approximately 1.5 (For details, see attached table.)
Lubrication	Required (Turbine Oil Class 1 [ISO VG32] is recommended)
Mass g [oz.]	90 [3.17] (KMP type), 100 [3.53] (KMC type), 130 [4.59] (KMR type)
Options	2-port-2
.....Order codes	Normally open-11
	With 3(R) port fitting-60

Order Codes

KM				
	Operation type	Number of ports	Valve function	3(R) port fitting

Code	Operation type
P	Pin plunger
C	Roller-cam
O	One way roller-cam
S	Straight plunger
R	Roller plunger

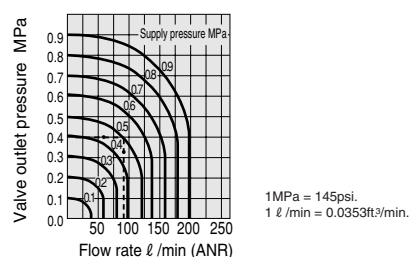
Code	Number of ports
Blank	3
2	2

Code	3(R) port fitting
Blank	—
60	With fitting

Code	Valve function
Blank	NC (normally closed)
11	NO (normally open)

Note : When using as a divider valve, specify as “normally open, and with 3(R) port fitting (-11-60).”
Avoid using the normally closed type as a divider valve.

Flow Rate



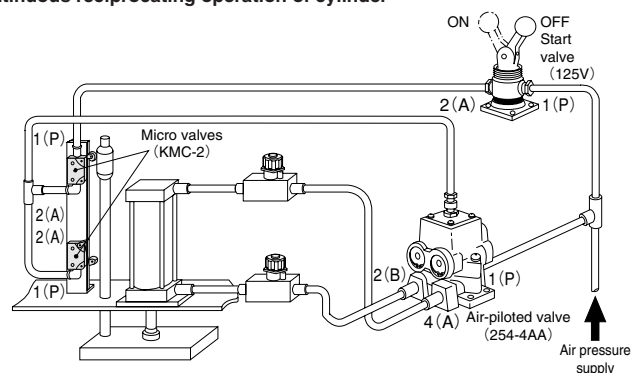
How to read the graph
When the supply pressure is 0.5MPa [73psi.] and the flow rate is 85 l / min [3.0ft³/min.] (ANR), the valve outlet pressure becomes 0.4MPa [58psi.].

Time Required for Switching

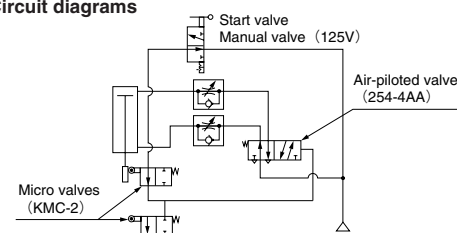
Model and air-piloted valve position	Switching time
254-4A	Valve: ON (switching air flowing state to 1(P)→4(A)) Valve: OFF (switching air flowing state to 1(P)→2(B))
375-4A	Valve: ON (switching air flowing state to 1(P)→4(A)) Valve: OFF (switching air flowing state to 1(P)→2(B))
501-4A	Valve: ON (switching air flowing state to 1(P)→4(A)) Valve: OFF (switching air flowing state to 1(P)→2(B))
750-4A	Valve: ON (switching air flowing state to 1(P)→4(A)) Valve: OFF (switching air flowing state to 1(P)→2(B))
1000-4A	Valve: ON (switching air flowing state to 1(P)→4(A)) Valve: OFF (switching air flowing state to 1(P)→2(B))
1250-4A	Valve: ON (switching air flowing state to 1(P)→4(A)) Valve: OFF (switching air flowing state to 1(P)→2(B))

Application example

Continuous reciprocating operation of cylinder

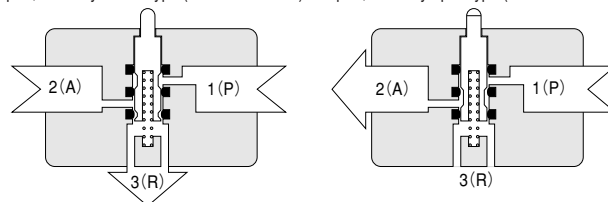


Circuit diagrams



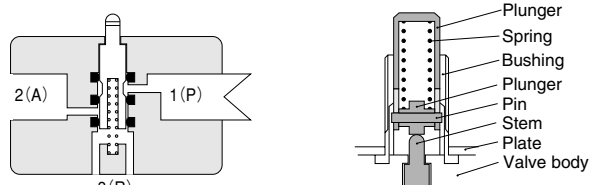
Inner Construction, Major Parts and Materials

3-port, normally closed type (normal condition) 3-port, normally open type (normal condition)



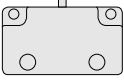
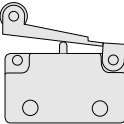
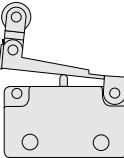
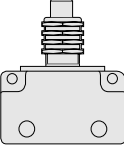
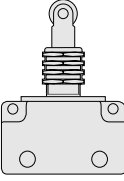
2-port, normally closed type (normal condition)

Construction of straight plunger type



Parts	Materials
Body	Zinc die-casting
Stem	Stainless steel
Seal	Synthetic rubber
O-ring	Synthetic rubber
Roller	Stainless steel

Model and Valve Stroke

Type	Shape	Model	Function	Operating force N [lbf.] At air pressure 0.9MPa [9.2 kgf/cm ²] [131psi.]	Valve stroke mm [in.]			
					Stroke until actuating	Allowable stroke after actuation	Total stroke	
Pin plunger type		KMP-2	2-port	Normally closed (NC)	24.5 [5.51]	1.3 [0.051]	1.2 [0.047]	2.5 [0.098]
		(KMP-2-11)		Normally open (NO)		0.7 [0.028]	1.8 [0.071]	
		KMP	3-port	Normally closed (NC)		1.3 [0.051]	1.2 [0.047]	
		KMP-11		Normally open (NO)		1.8 [0.071]	0.7 [0.028]	
Roller-cam type		KMC-2	2-port	Normally closed (NC)	12.8 [2.88]	2.7 [0.106]	2.3 [0.091]	5.0 [0.197]
		(KMC-2-11)		Normally open (NO)		1.5 [0.059]	3.5 [0.138]	
		KMC	3-port	Normally closed (NC)		2.7 [0.106]	2.3 [0.091]	
		KMC-11		Normally open (NO)		3.8 [0.150]	1.2 [0.047]	
One way roller-cam type		KMO-2	2-port	Normally closed (NC)	12.8 [2.88]	2.7 [0.106]	2.3 [0.091]	5.0 [0.197]
		(KMO-2-11)		Normally open (NO)		1.5 [0.059]	3.5 [0.138]	
		KMO	3-port	Normally closed (NC)		2.7 [0.106]	2.3 [0.091]	
		KMO-11		Normally open (NO)		3.8 [0.150]	1.2 [0.047]	
Straight plunger type		KMS-2	2-port	Normally closed (NC)	24.5 [5.51]	2.0 [0.079]	3.5 [0.138]	5.5 [0.217]
		(KMS-2-11)		Normally open (NO)		1.0 [0.039]	4.5 [0.177]	
		KMS	3-port	Normally closed (NC)		2.0 [0.079]	3.5 [0.138]	
		KMS-11		Normally open (NO)		3.0 [0.118]	2.5 [0.098]	
Roller plunger type		KMR-2	2-port	Normally closed (NC)	24.5 [5.51]	2.0 [0.079]	3.5 [0.138]	5.5 [0.217]
		(KMR-2-11)		Normally open (NO)		1.0 [0.039]	4.5 [0.177]	
		KMR	3-port	Normally closed (NC)		2.0 [0.079]	3.5 [0.138]	
		KMR-11		Normally open (NO)		3.0 [0.118]	2.5 [0.098]	

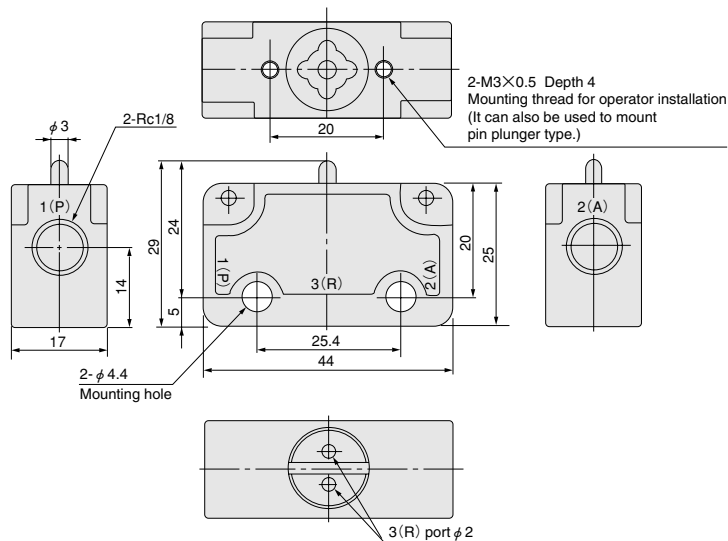
Notes: 1. Models in parentheses () are made to order items.

2. The "stroke until actuating" means the movement which occurs from the free position until 1(P)↔2(A) is at the maximum flow rate, for normally closed type 2-, 3-port. And for the normally open type 2-port, it means the stroke which occurs until 1(P)↔2(A) is closed, while for the normally open type 3-port, it means the stroke which occurs until 2(A)↔3(R) is at the maximum flow rate.

Dimensions (mm)

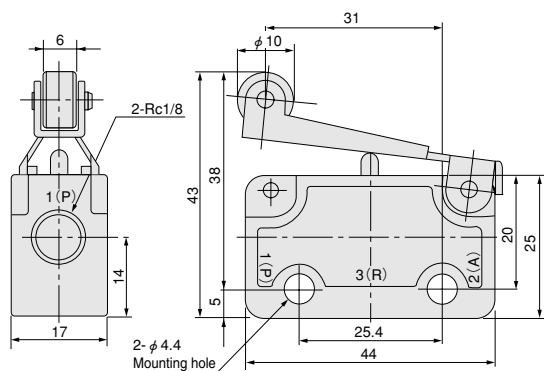
Pin plunger type (basic type)

KMP-2
KMP
KMP-11



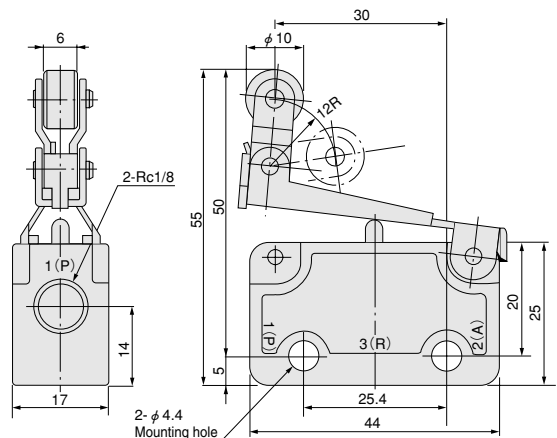
Roller-cam type

KMC-2
KMC
KMC-11



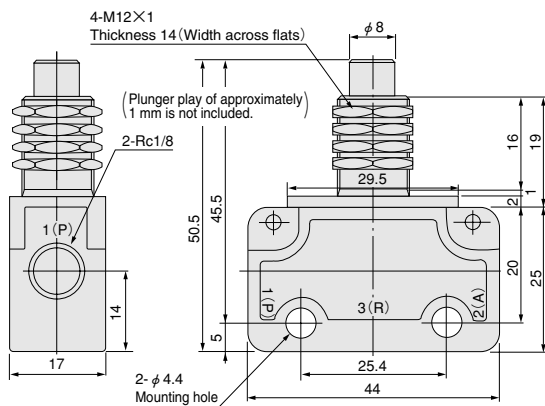
One way roller-cam type

KMO-2
KMO
KMO-11



Straight plunger type

KMS-2
KMS
KMS-11



Roller plunger type

KMR-2
KMR
KMR-11

