KOGANEI

VALVES GENERAL CATALOG

MANUAL VALVES, MECHANICAL VALVES

INDEX

⚠ Caution Before use, be sure to read the "Safety Precautions" on p. 31.

Features (Diaphragm Type)

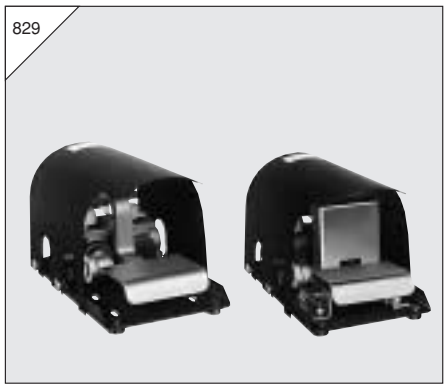
- **Reliable operation**
  Uses diaphragm construction that enables quick and sharp switching peculiar to this type. The valve seat is also reliable.
- **Trouble free structure**
  An extremely simple structure and a poppet-type seat method ensures freedom from galling, even if a certain amount of dust intrudes inside.
  Moreover, it will not stick even after being left unused for long periods.
- **Can be used without lubrication.**
  No sliding parts, and lubrication is unnecessary, and no breakdown problems due to inadequate lubrication.
- **Any mounting direction is acceptable.**
  This structure ensures operations without a hitch, no matter what the mounting direction is.
- **Compact and lightweight**
  An original compact design, and a light aluminum alloy body.

■ Manual valves (push button type)

- Using nuts enables compact installation on panels (125P, 125HO types).
- Can also hold the pressed-down condition (125HO type).
- A vacuum valve with a non-leakage structure is also available.

Applications
- ON/OFF for pilot air
- Operation for single acting air cylinders and air grippers
- Filling or exhausting of air tank
- ON/OFF for air supply (125HO)
- ON/OFF for air jet and air blowing

■ Foot valves



- A holding mechanism maintains the unit in an operating condition, which can then be released by pushing a foot-operated latch located back of the pedal (250FL, 250-4FL, 25034FL).

Applications
- Operation for double acting air cylinders and air grippers
- ON/OFF for pilot air (Double air-piloted valve)

■ Manual valves (lever-operated type 2-, 3-port)

826

- Using nuts enables compact installation on panels (125V).
- A vacuum valve with a non-leakage structure is also available.

Applications
- ON/OFF for pilot air
- Operation for single acting air cylinders and air gripper
- Filling or exhausting of air tank
- ON/OFF for air supply
- ON/OFF for air jet and air blowing

■ Manual valves (lever-operated type 3-position, 5-port)

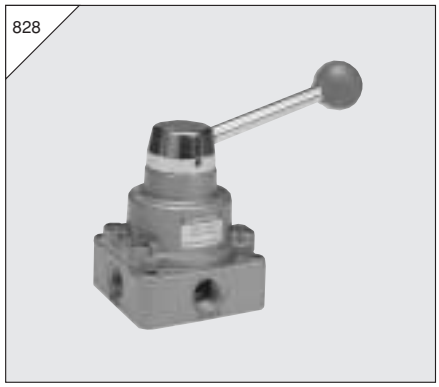
827

- Operation of double acting air cylinders and air grippers (In the neutral position, the air cylinder and air gripper are in the free condition, and can be operated manually).
- A vacuum valve with a non-leakage structure is also available.

Applications
- Switching of pilot air
- Switching of air supply

■ Manual valves

828



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

Applications
- For switching air cylinders

■ Mechanical valves (ball-cam type)

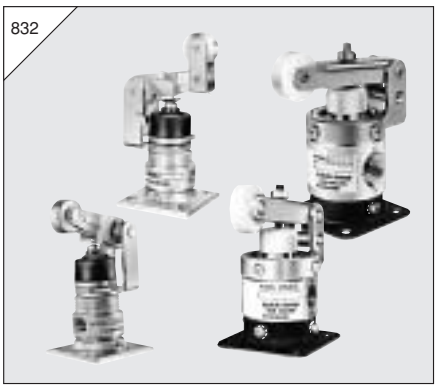
831

- Using nuts enables compact installation on panels (125B).
- A vacuum valve with a non-leakage structure is also available.

Applications
- ON/OFF for pilot air
- Operation for single acting air cylinders and air gripper
- Filling or exhausting of air tank
- ON/OFF for air jet and air blowing

■ Mechanical valves (roller-cam type)

832

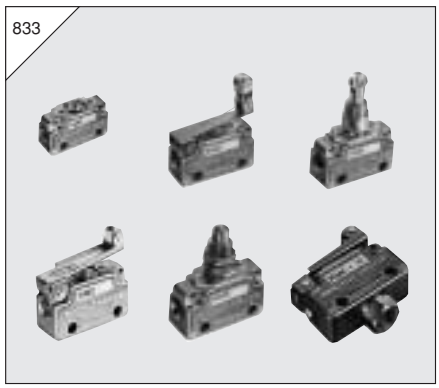


- Sturdy structure capable of withstanding harsh operation.
  Offers smooth pilot air switching.

Applications
- ON/OFF for pilot air
- Operation for single acting air cylinders and air gripper
- Filling or exhausting of air tank
- ON/OFF for air jet

■ Micro valves

833



- Both normally closed and normally open types are available for 2-port and 3-port valves, to ensure applications of using every type of pneumatic signal.
- Virtually no change in operational force from low to high pressure range.
- No neutral position means smooth switching between the A port and R port.

Applications
- Confirms operations in pneumatic control circuits.
- Switches air pressure signals.
- Operation of air cylinder
- Filling or exhausting of air tank

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	125HO-11

Specifications

Item \ Operation type / Basic model	Spring return			Spring return with holding mechanism
	125P	250P	2503P	125HO
Port size	Rc1/8	Rc1/4	Rc3/8	Rc1/8
Media	Air			
Operating pressure range MPa {kgf/cm²} [psi.]	0～0.9 {0～9.2} [0～131]			
Proof pressure MPa {kgf/cm²} [psi.]	1.35 {13.8} [196]			
Operating temperature range (atmosphere and media) °C [°F]	5～60 [41～140]			
Effective area mm²	5.5	15		5.5
Flow coefficient Cv	0.27	0.76		0.27
Valve stroke mm [in.]	0.8 [0.031]	1.6 [0.063]		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 ·····Order codes	2-port ·····2 Normally open ·····-11 With lock nuts for panel mounting ···-22	2-port ·····-2 Normally open ·····-11		2-port ·····-2 Normally open ····-11 With lock nuts for panel mounting ····-22

Order Codes

Basic model - Option

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

Basic model

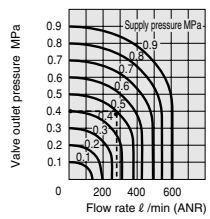
Basic model	Port size
125P	Rc1/8
250P	Rc1/4
2503P	Rc3/8
125HO	Rc1/8 (with holding mechanism)

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

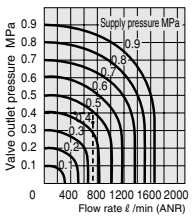
125 series



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

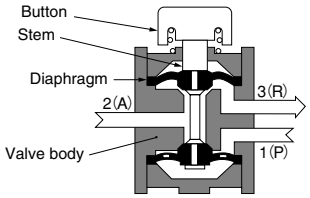
N [lbf.]

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 2503P	Normally closed	26.5 [5.96]	44.1 [9.91]	64.7 [14.54]	88.2 [19.83]	116.7 [26.23]
	Normally open		42.2 [9.49]	53.0 [11.91]	65.7 [14.77]	85.3 [19.18]

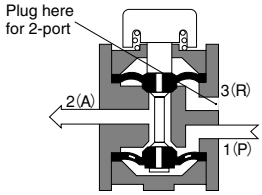
Inner Construction, Major Parts and Materials

125 series

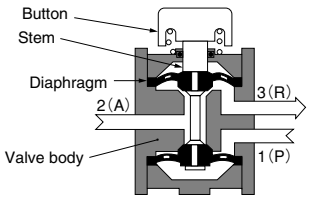
Normal condition

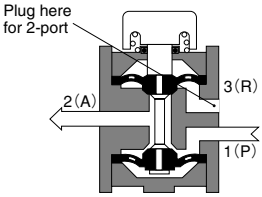


Operating condition



250, 2503 series

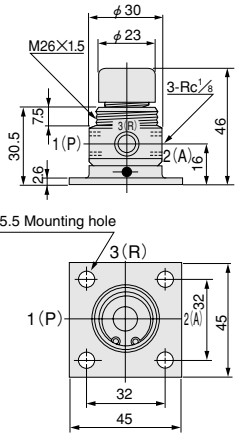




Parts	Materials
Body	Aluminum alloy (anodized)
Stem	Brass
Diaphragm	Synthetic rubber
Button	Nylon (Steel in 125HO)

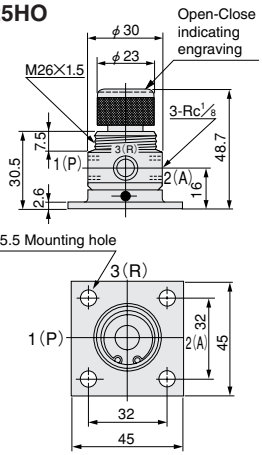
Dimensions (mm)

125P



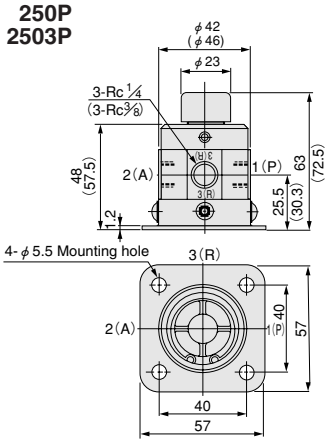
Note: For the normally open type, the exhaust port 3(R) is on the opposite side.

125HO



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

250P
2503P

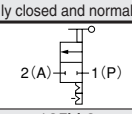
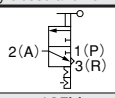


Notes: 1. For the normally open type, the exhaust port 3(R) is on the opposite side.
2. Dimensions in parentheses ( ) are for the 2503P.

MANUAL VALVES

Lever-operated Type 2-, 3-port

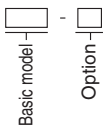
Symbols

2-port	3-port
NC/NO (both normally closed and normally open use)	**NC/NO** (both normally closed and normally open use)
	
125V-2 250V-2 2503V-2	125V 250V 2503V

Specifications

Item \ Basic model	125V	250V	2503V
Port size	Rc1/8	Rc1/4	Rc3/8
Media	Air		
Operating pressure range MPa {kgf/cm²} [psi.]	0～0.9 {0～9.2} [0～131]		
Proof pressure MPa {kgf/cm²} [psi.]	1.35 {13.8} [196]		
Operating temperature range (atmosphere and media) °C [°F]	5～60 [41～140]		
Effective area mm²	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]	0.24 [0.53]	0.29 [0.64]
Options ·····Order codes	2-port ·····-2 With lock nuts for panel mounting ····-22	2-port ·····-2	

Order Codes



Examples:
125V-2-22
250V
2503V-2

Basic model

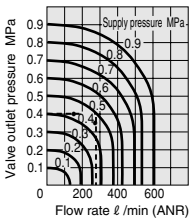
Basic model	Port size
125V	Rc1/8
250V	Rc1/4
2503V	Rc3/8

Option

Code	Specifications
Blank	3-port
2	2-port
22	With lock nuts for panel mounting (125V only)

Flow Rate

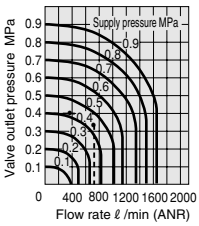
125 series



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

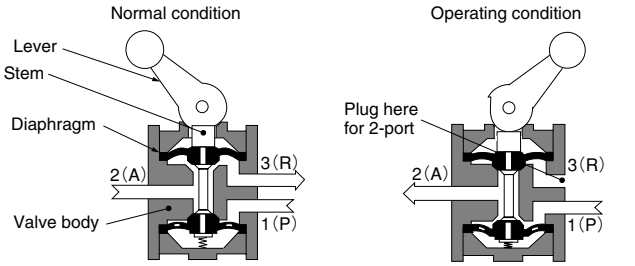
How to read the graph
When the supply pressure is 0.5MPa [73psi.] and the flow rate is 275 ℓ /min [9.71ft³/min.] (ANR), the valve outlet pressure becomes 0.4MPa [58psi.].

250 series
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.].

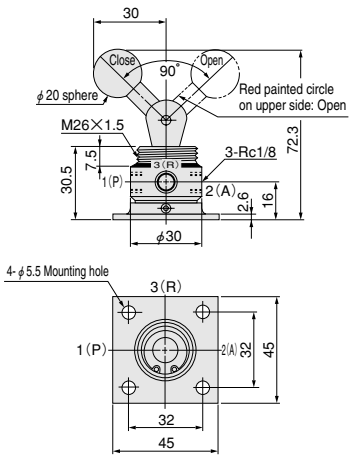
Inner Construction, Major Parts and Materials



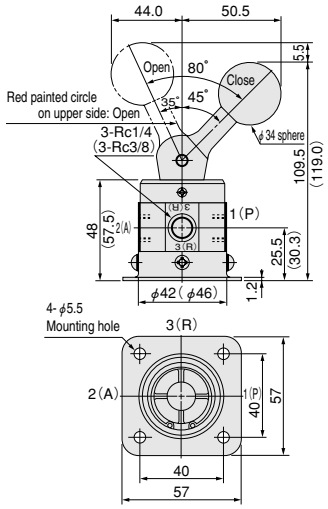
Parts	Materials
Body	Aluminum alloy (anodized)
Stem	Brass
Diaphragm	Synthetic rubber

Dimensions (mm)

125V



250V
2503V



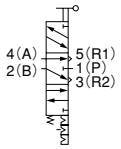
Notes: 1. Although the 125V lever is set on the 1(P) port side in the normal condition, it can be positioned in 360° range.
2. Dimensions in parentheses ( ) are for the 2503V.

MANUAL VALVES

Lever-operated Type 3-position, 5-port

Symbol

5-port (Exhaust center)



250-4H, 2503-4H

Specifications

Item \ Basic model	250-4H	2503-4H
Port size	Rc1/4	Rc3/8
Media	Air	
Operating pressure range MPa {kgf/cm²} [psi.]	0.1～0.9 {0～9.2} [15～131]	
Proof pressure MPa {kgf/cm²} [psi.]	1.35 {13.8} [196]	
Operating temperature range (atmosphere and media) °C [°F]	5～60 [41～140]	
Effective area mm²	15	
Flow coefficient Cv	0.76	
Valve stroke mm [in.]	1.6 [0.063]	
Lubrication	Not required	
Mass kg [lb.]	0.6 [1.3]	

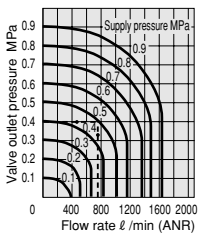
Order Code

Basic model

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

Examples:
250-4H
2503-4H

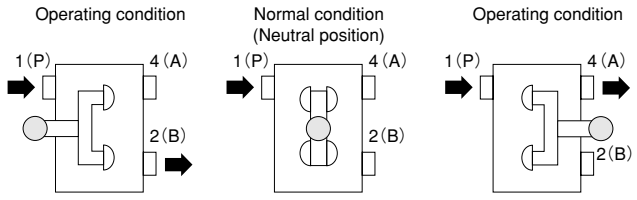
Flow Rate



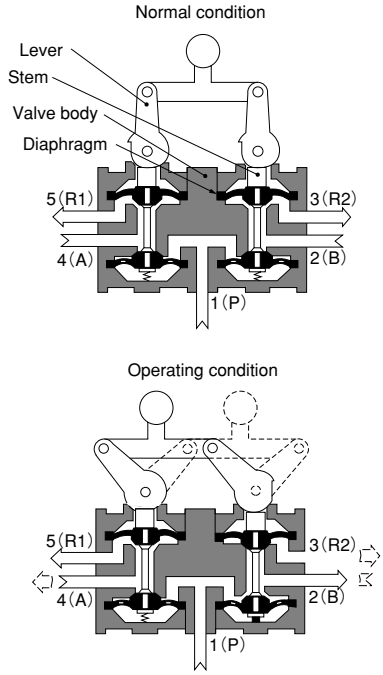
1MPa = 145psi., 1 ℓ /min = 0.0353ft³/min.

How to read the graph
When the supply pressure is 0.5MPa [73psi.] and the flow rate is 740 ℓ /min [26.1ft.³/min.] (ANR), the valve outlet pressure becomes 0.4MPa [58psi.].

Lever Position and Air Path

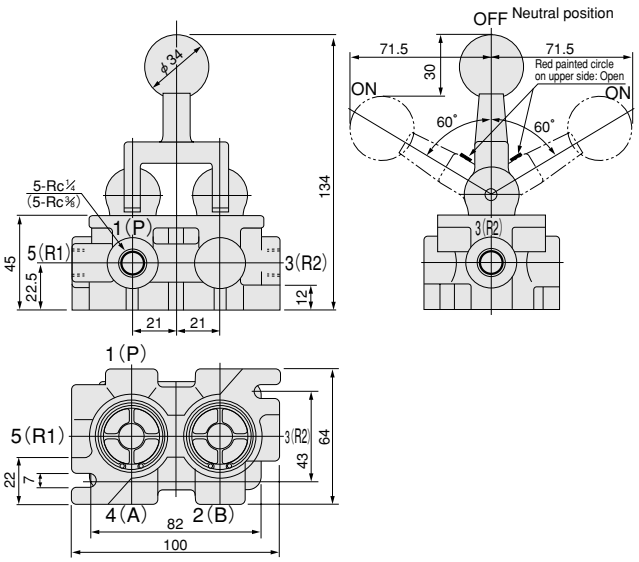


Inner Construction, Major Parts and Materials



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

Dimensions (mm)



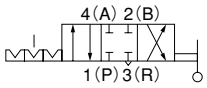
MANUAL VALVES

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

400HV - □

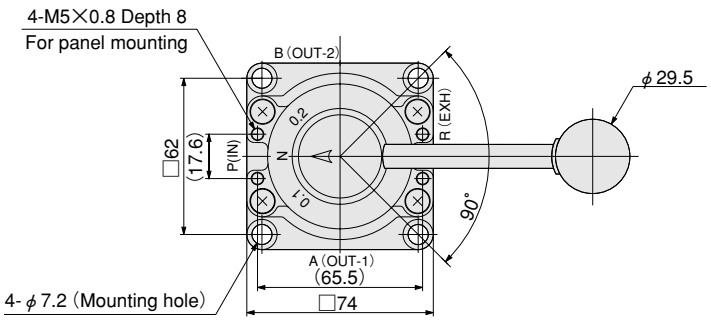
Port size
02—Rc1/4
03—Rc3/8
04—Rc1/2

Manual valve

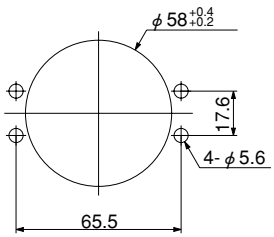
Specifications

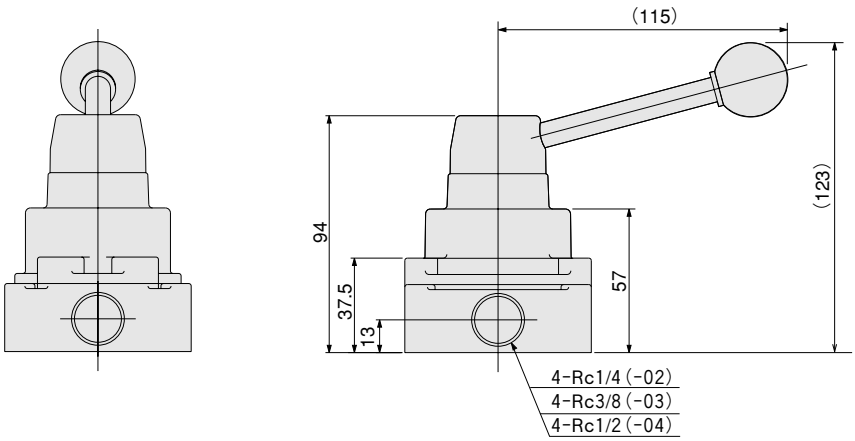
Item \ Model	400HV-02	400HV-03	400HV-04
Media	Air		
Valve function	4-port, 3-position		
Operation type	Direct acting		
Effective area mm²	26		
Port size	Rc1/4	Rc3/8	Rc1/2
Operating pressure range MPa {kgf/cm²} [psi.]	0～0.97 {0～9.9} [0～141]		
Proof pressure MPa {kgf/cm²} [psi.]	1.47 {15.0} [213]		
Operating temperature range °C [°F]	5～60 [41～140]		
Angle of lever operation	90°		
Mounting direction	Any		
Mass g [oz.]	800 [28.2]		

Dimensions (mm)

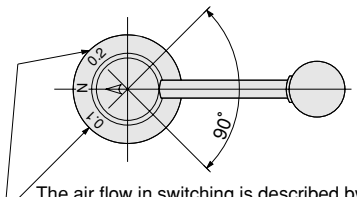


● Detailed diagram for machining panel mounting holes





Handling precautions



The air flow in switching is described by the figure which the arrow indicator on the selector handle shows.
For 1 : P (IN) →A (OUT-1)
For 2 : P (IN) →B (OUT-2)

FOOT VALVES

2-, 3-port

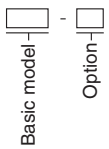
Symbols

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/cm²} [psi.]	0～0.9 {0～9.2} [0～131]	
Proof pressure MPa {kgf/cm²} [psi.]	1.35 {13.8} [196]	
Operating temperature range (atmosphere and media) °C [°F]	5～60 [41～140]	
Effective area mm²	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 ·····Order codes	2-port ·····-2 Normally open ··-11	

Order Codes



Examples:
250F
250FL-2-11

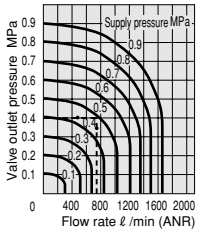
Basic model

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

Flow Rate



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

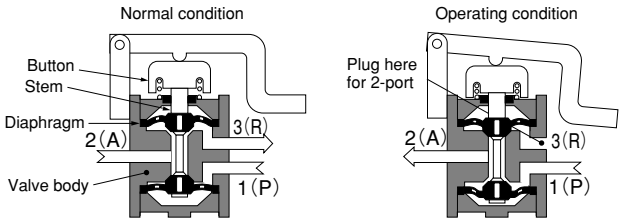
How to read the graph
When the supply pressure is 0.5MPa [73psi.] and the flow rate is 740 ℓ /min [26.1ft³/min.] (ANR), the valve outlet pressure becomes 0.4MPa [58psi.].

Pedal Pushing Down Force

N [lbf.]

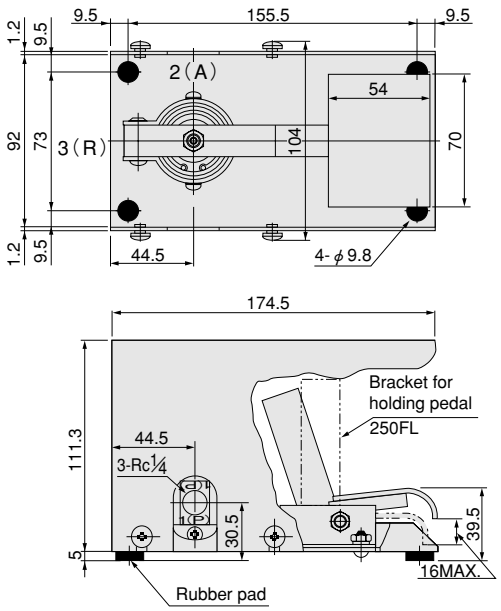
Model \ Main pressure MPa [psi.]		0 [0]	0.2 [29]	0.4 [58]	0.6 [87]	0.8 [116]
250F 250FL	Normally closed	5.9 [1.33]	9.8 [2.20]	13.7 [3.08]	18.6 [4.18]	25.5 [5.73]
	Normally open	5.9 [1.33]	8.8 [1.98]	11.8 [2.65]	14.7 [3.30]	18.6 [4.18]

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

Item \ Operation type	Basic model	Spring return		Spring return with holding mechanism	
		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/cm²} [psi.]	0～0.9 {0～9.2} [0～131]			
Proof pressure	MPa {kgf/cm²} [psi.]	1.35 {13.8} [196]			
Operating temperature range (atmosphere and media)	°C [°F]	5～60 [41～140]			
Effective area	mm²	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]	

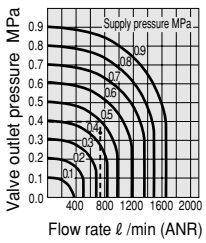
Order Codes

Examples:
250-4F
2503-4FL

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

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.].

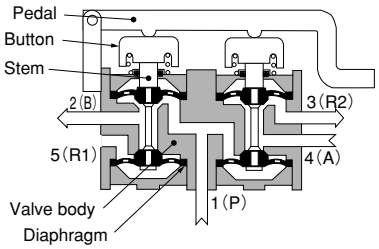
Pedal Pushing Down Force

N [lbf.]

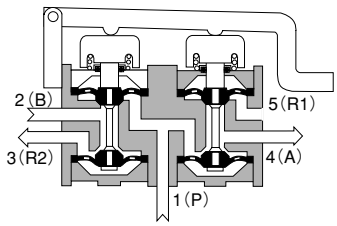
Model \ Main pressure MPa [psi.]	0 [0]	0.2 [29]	0.4 [58]	0.6 [87]	0.8 [116]
250-4F 2503-4F 250-4FL 2503-4FL	10.8 [2.43]	17.7 [3.98]	25.5 [5.73]	33.3 [7.49]	44.1 [9.91]

Inner Construction, Major Parts and Materials

Normal condition

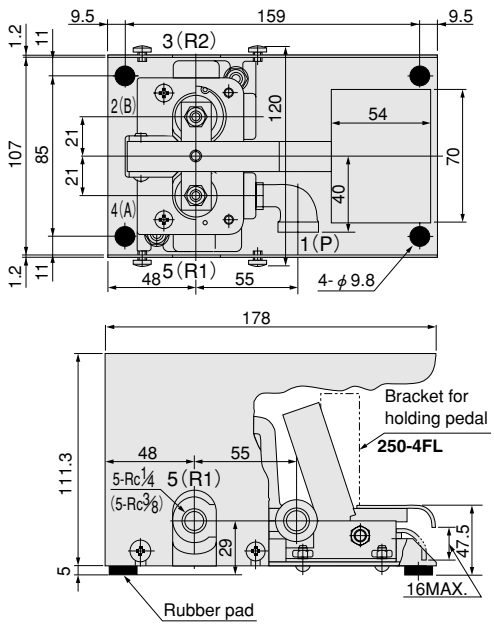


Operating condition



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

Dimensions (mm)



MECHANICAL VALVES

Ball-cam Type

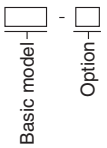
Symbols

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/cm²} [psi.]	0～0.9 {0～9.2} [0～131]		
Proof pressure MPa {kgf/cm²} [psi.]	1.35 {13.8} [196]		
Operating temperature range (atmosphere and media) °C [°F]	5～60 [41～140]		
Effective area mm²	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 ·····Order codes	2-port ·····-2 Normally open ··-11 With lock nuts for panel mounting ··-22	2-port ·····-2	

Order Codes



Basic model

Basic model	Port size
125B	Rc1/8
250B	Rc1/4
2503B	Rc3/8

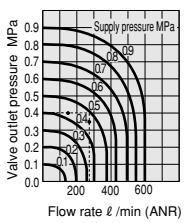
Option

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

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

Flow Rate

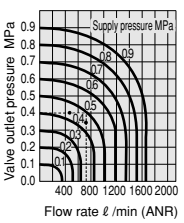
125 series



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

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



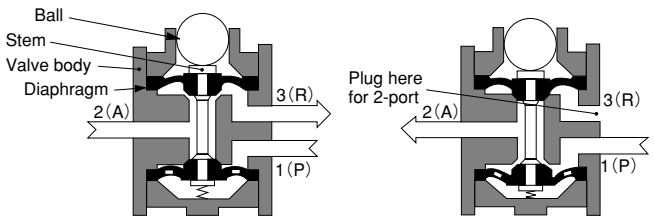
How to read the graph
When the supply pressure is 0.5MPa [73psi.] and the flow rate is 740 ℓ /min [26.1ft³/min.] (ANR), the valve outlet pressure becomes 0.4MPa [58psi.].

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]

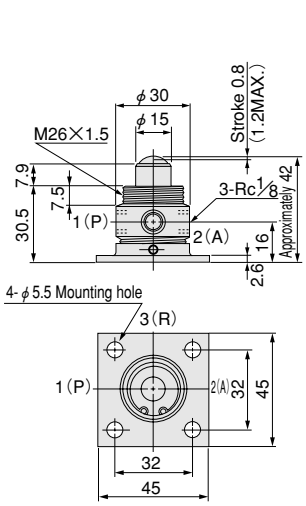
Inner Construction, Major Parts and Materials



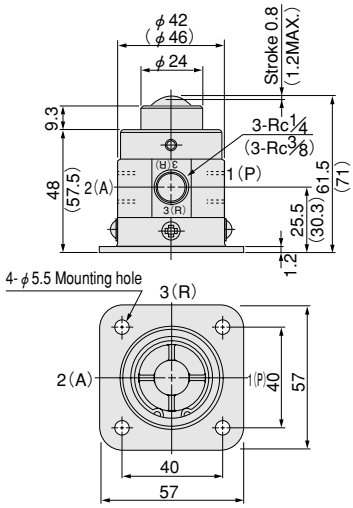
Parts	Materials
Body	Aluminum alloy (anodized)
Stem	Brass
Diaphragm	Synthetic rubber
Ball	Steel

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	125MOC-2-11	125MOC	125MOC-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/cm²} [psi.]	0～0.9 {0～9.2} [0～131]			
Proof pressure MPa {kgf/cm²} [psi.]	1.35 {13.8} [196]			
Operating temperature range (atmosphere and media) °C [°F]	5～60 [41～140]			
Effective area mm²	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 ·····Order codes	2-port ·····-2 Normally open ·-11			

Order Codes

Basic model - Option

Examples:
125MC-2-11
2503C

Basic model

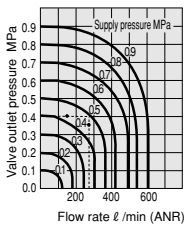
Basic model	Specifications
125MC	Rc1/8 Roller-cam
125MOC	Rc 1/8 One way roller-cam
250C	Rc1/4 Roller-cam
2503C	Rc3/8 Roller-cam

Option

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

Flow Rate

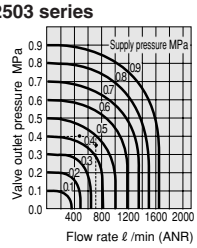
125 series



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.].

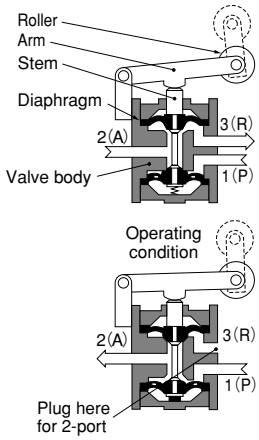
Roller Pushing Down Force

N [lbf.]

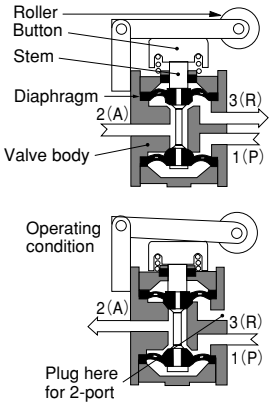
Model \ Main pressure MPa [psi.]		0 [0]	0.2 [29]	0.4 [58]	0.6 [87]	0.8 [116]
125MC	Normally closed	12.8 [2.88]	15.7 [3.53]	19.6 [4.41]	24.5 [5.51]	29.4 [6.61]
	Normally open		14.7 [3.30]	17.7 [3.98]	22.6 [5.08]	26.5 [5.96]
125MOC	Normally closed	10.8 [2.43]	13.7 [3.08]	18.6 [4.18]	22.6 [5.08]	26.5 [5.96]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

Inner Construction, Major Parts and Materials

125 series Normal condition



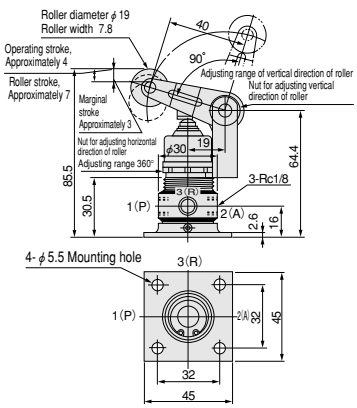
250 series
2503 series Normal condition



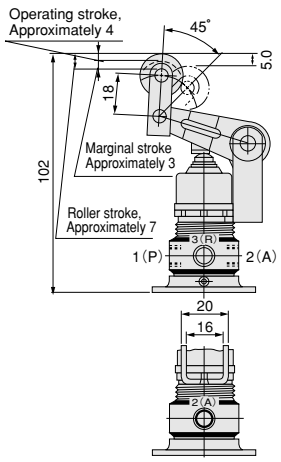
Parts	Materials
Body	Aluminum alloy (anodized)
Stem	Brass
Diaphragm	Synthetic rubber
Roller	125 series: Steel 250, 2503 series: Nylon

Dimensions (mm)

125MC

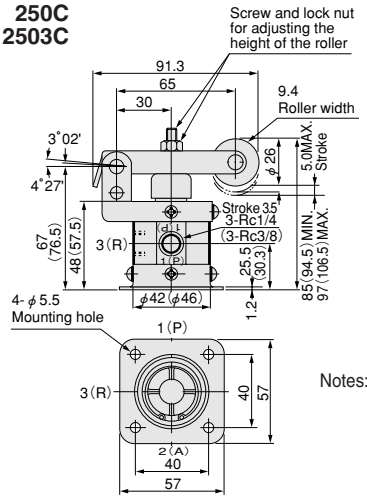


125MOC



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

250C
2503C



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.

MICRO VALVES

Specifications

Port size		Rc1/8 (1(P), 2(A)), 2 holes ϕ 2 (3(R))
Media		Air
Operating pressure range	MPa {kgf/cm²} [psi.]	0～0.9 {0～9.2} [0～131]
Proof pressure	MPa {kgf/cm²} [psi.]	1.35 {13.8} [196]
Operating temperature range (atmosphere and media)	°C [°F]	0～60 [32～140]
Effective area	mm²	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 ·····Order codes		2-port ·····-2 Normally open ·····-11 With 3(R) port fitting ···-60

Order Codes

KM □-□-□-□

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

Operation type

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

Number of ports

Code	Number of ports
Blank	3
2	2

3(R) port fitting

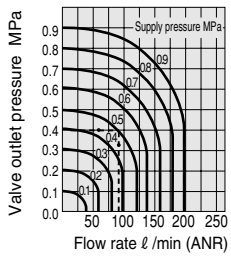
Code	3(R) port fitting
Blank	—
60	With fitting

Valve function

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



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 85 ℓ /min [3.0ft³/min.] (ANR), the valve outlet pressure becomes 0.4MPa [58psi.].

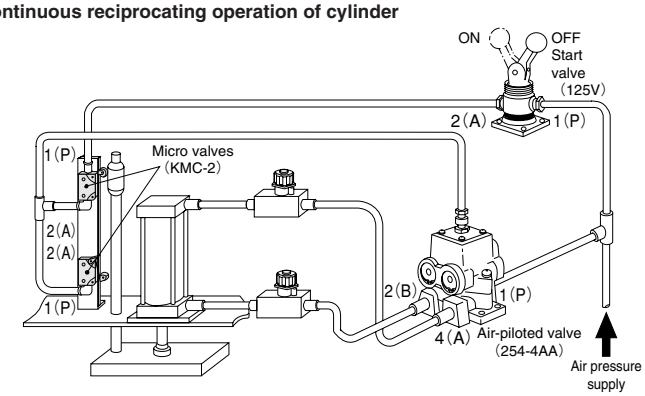
Time Required for Switching

s

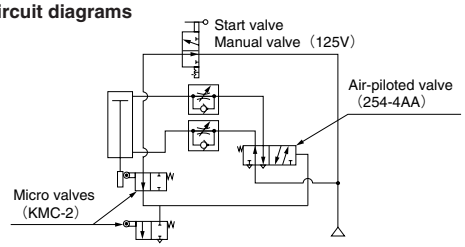
Model and air-piloted valve position		Switching time
254-4A	Valve: ON (switching air flowing state to 1(P)→4(A)) Valve: OFF (switching air flowing state to 1(P)→2(B))	0.07 0.20
375-4A 501-4A	Valve: ON (switching air flowing state to 1(P)→4(A)) Valve: OFF (switching air flowing state to 1(P)→2(B))	0.09 0.23
750-4A	Valve: ON (switching air flowing state to 1(P)→4(A)) Valve: OFF (switching air flowing state to 1(P)→2(B))	0.16 0.25
1000-4A 1250-4A	Valve: ON (switching air flowing state to 1(P)→4(A)) Valve: OFF (switching air flowing state to 1(P)→2(B))	0.25 0.42

Application example

Continuous reciprocating operation of cylinder

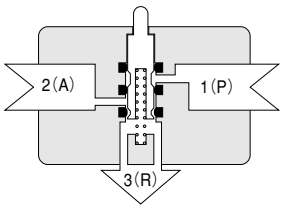


Circuit diagrams

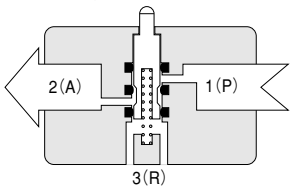


Inner Construction, Major Parts and Materials

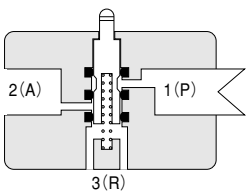
3-port, normally closed type (normal condition)



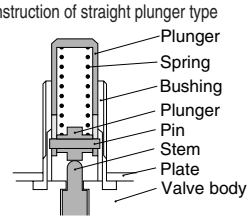
3-port, normally open type (normal condition)



2-port, normally closed type (normal condition)

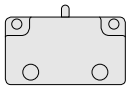
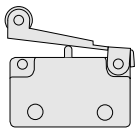
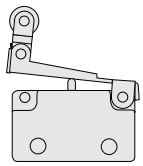
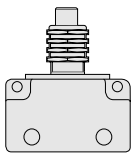
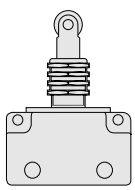


Construction of straight plunger type



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

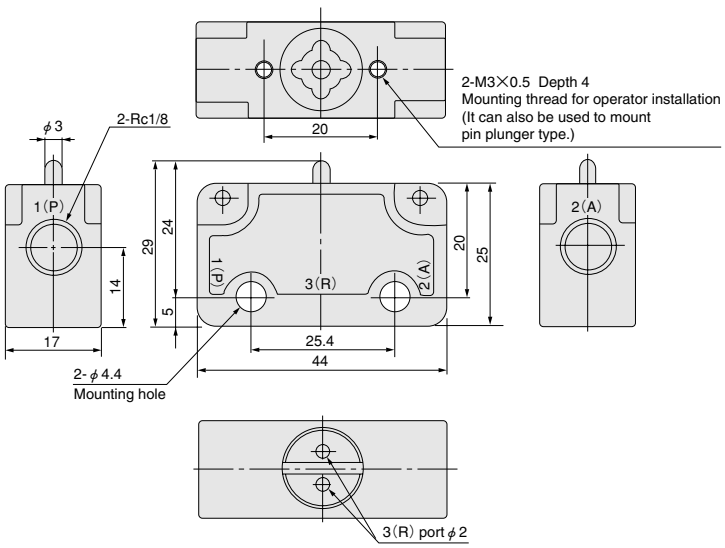
Model and Valve Stroke

Type	Shape	Model	Function		Operating force N [lbf.] At air pressure 0.9MPa {9.2 kgf/cm²} [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]	"When the lever is in a horizontal position" it can be used as a guide for full actuation.	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) 		2.7 [0.106]		2.3 [0.091]	
		(**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]	Plunger play (Approxi-mately 1mm) is not included.	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) 		2.0 [0.079]		3.5 [0.138]	
		(**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]	

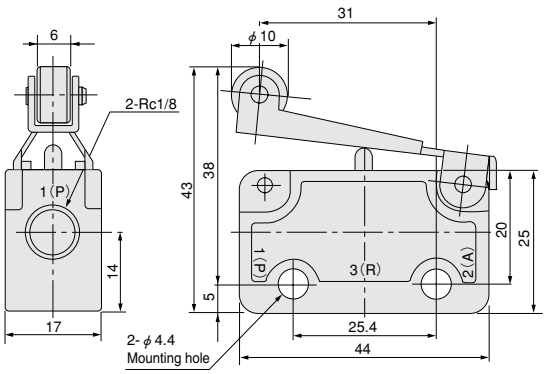
Notes: 1. Models in parentheses ( ) are made to order items.
2. The "stroke until actuating" means the movement which occurs from the free position until 1(P)↔2(A) is at the maximum flow rate, for normally closed type 2-, 3-port. And for the normally open type 2-port, it means the stroke which occurs 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)

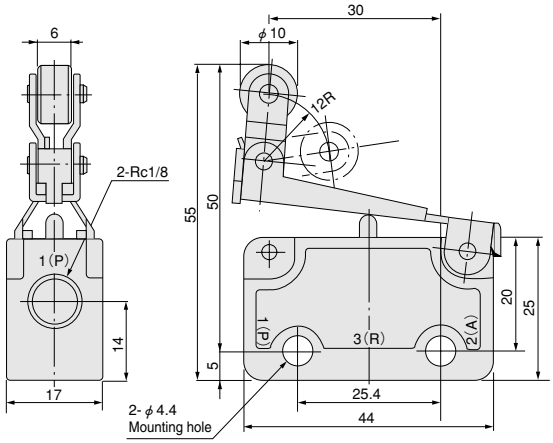
Pin plunger type (basic type)
KMP-2
KMP
KMP-11



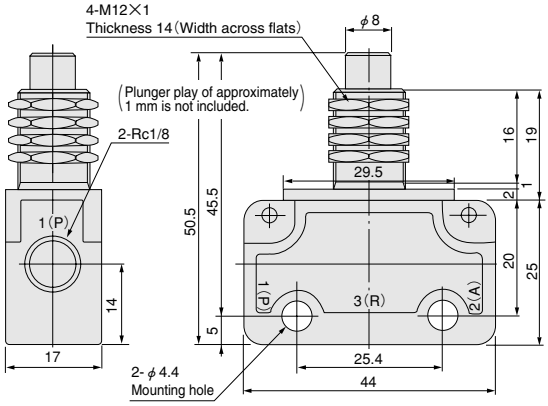
Roller-cam type
KMC-2
KMC
KMC-11



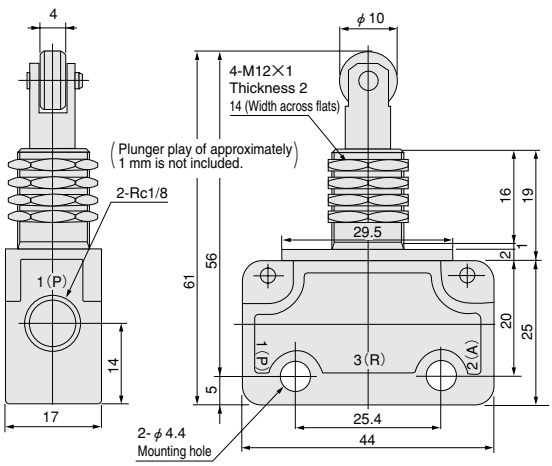
One way roller-cam type
KMO-2
KMO
KMO-11



Straight plunger type
KMS-2
KMS
KMS-11



Roller plunger type
KMR-2
KMR
KMR-11

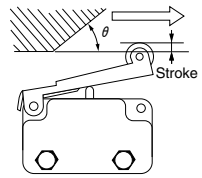


Handling Instructions and Precautions for Micro Valves

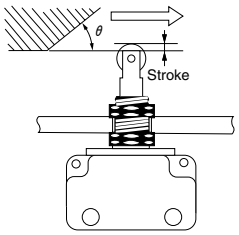
Micro valve mounting overview, and cam and dog shapes

- While normal mounting uses 2 mounting holes of ϕ 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

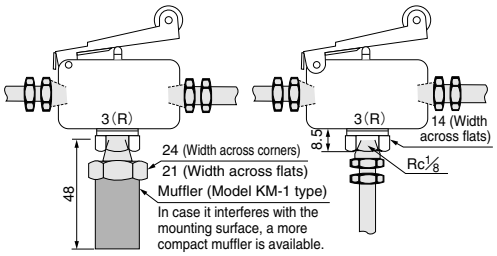


How to use units with exhaust (R) port fittings

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

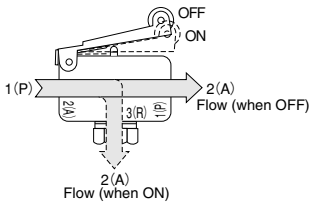
When piping on the R port



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

How to use as a divider valve

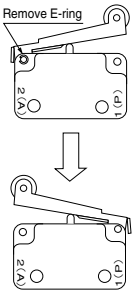
The 3-port, normally open type can be used as a divider valve.
Let air in from the 2(A) port to flow toward the 1(P) port when OFF, and toward the 3(R) port when ON.



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

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.

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.