



Mechanical valve

•MS •MM •MAVL Series

- **MS** Small type, manual operation or mechanical detection
3/2 - 5/2 functions, One-touch joint or 1/8" port
- **MM** Medium type, wide range of mechanical detectors
3/2 function, One-touch joint or 1/8" port
- **MM** Large flow type, wide range of mechanical
3/2 function, 1/4" port.





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• MAVL	<i>Large flow type, wide range of mechanical 3/2 function, 1/4" port.</i>	14

A small type 3-way valve for air pressure control operated by manual operation or by mechanical detection, and is equivalent to the micro switch for electrical equipments.

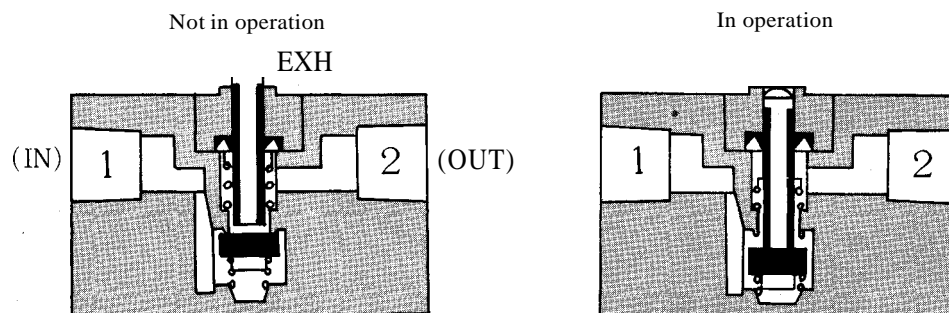
Features

1. Compact and light-weighted. So handling is easy.
2. A large flow can be obtained in spite of its small size.
3. The main valve opens after the exhaust valve is closed, so no bleed between the valves will be observed.
4. The stroke before and after operation can be made small and large respectively.
5. Lubrication is not required.
6. There are two types of pipe connectors available; pipe connecting screw thread and one-touch joint.

Common specifications

Items		
Pressure resistance	kgf/cm ²	15
Media		Air
Pressure differential	kgf/cm ²	0 ~ 8
Ambient temperature	°C	5 ~ 60
Ambient humidity	%	less than 90
Port size		PT 1/8 or 4 mm dia. tube one-touch joint
Flow rate P T1/8	NI/min	150(5kgf/cm ²)
One-touch	NI/min	100(5kgf/cm ²)
Effective sectional area	mm ²	2.5 (Orifice 30)
Weight	gf	1 0 0

Explanation of operation



Note: Pressuring from opposite direction (pressuring from the port 2) is not possible.

Main parts and materials

Part	Material
Body	Zinc alloy
Spool	Stainless steel
Spring	Stainless steel
Valve	Nitril rubber
Gasket	Nitril rubber

MS series

Ordering code indication

MS-

Classification of actuator

Classification of port size

0: PT thread 1: One-touch joint

Classification of pressuring

0: Normally closed valve 1: Normally open valve 4: 4-way valve

Small type mechanical valve

Types

Name	Ordering code	Port size	Valve type	Type	Ordering code	Port size	Type
Pin plunger type	MS-00-P P	P T1/8	Normally closed valve	Toggle switch type	MS-00-T G	P T1/8	Normally closed valve
	MS-01-P P	One-touch			MS-01-TG	One-touch	
	# MS-10-PP	PT1/8	Normally open valve		# MS-10-TG	PT1/8	Normally open valve
	# MS-11-PP	One-touch			# MS-11-TG	One-touch	
Roller lever type	MS-00-R L	PT1/8	Normallyclosed valve	Pushbutton valve type	MS-00-P B I	PT1/8	Normally closed valve
	MS-01-R L	One-touch			MS-01-P B I	One-touch	
	# MS-10-R L	P T 1/8	Normally open valve		# MS-10-P B I	PT1/8	Normally open valve
	# MS-11-R L	One-touch			# MS-11-P B I	One-touch	
One-way roller lever type	MS-00-R L OW	PT1/8	Normally closed valve	Poppet valve type	MS -00- ESP	PT1/8	Normally closed valve
	MS-01-R LOW	One-touch			MS-01-E S P	One-touch	
	# MS-10-R LOW	PT1/8	Normally open valve		# MS-10-ESP	P T1/8	Normally open valve
	# MS-11-R LOW	One-touch			# MS-11-ESP	One-touch	
Roller plunger type	MS-00-R P		Normally closed valve	Selectvalve type	MS-00-S E I	P T1/8	Normally closed valve
	MS-01-RP	One-touch			MS-01-S E I	One-touch	
	# MS-10-RP	PT1/8	Normally open valve		# MS-10-S E I	P T1/8	Normally open valve
	# MS-11-RP	One-touch			# MS-11-S E I	One-touch	
Straight plunger type	MS-00-S P	PT1/8	Normally closed valve	Select valve type (double type)	# MS -40- S E	P T1/8	4-way valve
	MS-01-S P	One-touch				One-touch	
	# MS-10-SP	P T1/8	Normally open valve				
	# MS-11-SP	One-touch					

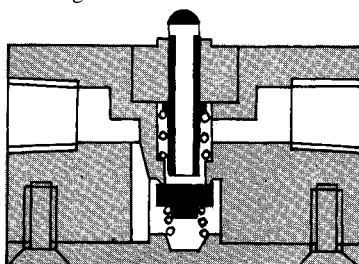
#=Special order products

Piping method

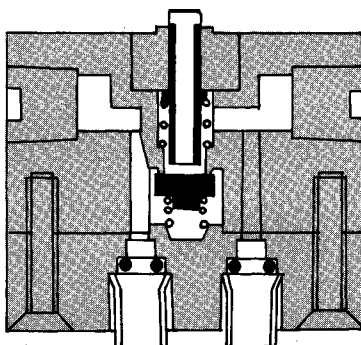
There are two types of piping, which are PT 1/8 gas screw thread connection and one-touch joint for 4 mm outer diameter tube.

MS-00- Type

PT 1/8 gas screw thread



MS-01- Type



One-touch joint for 4 x 2.5 mm dia. nylon tube

MS-00 type uses a PT 1/8 gas screw thread connection

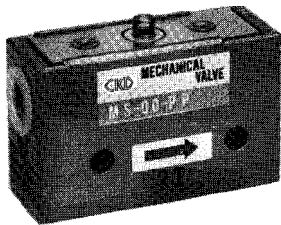
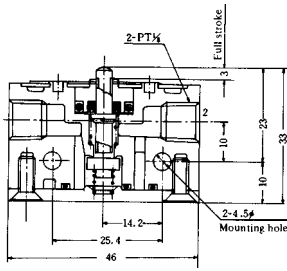
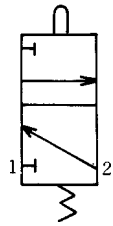
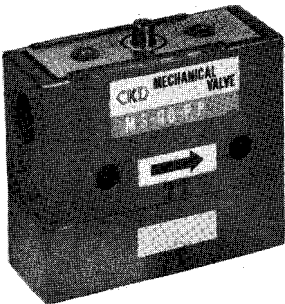
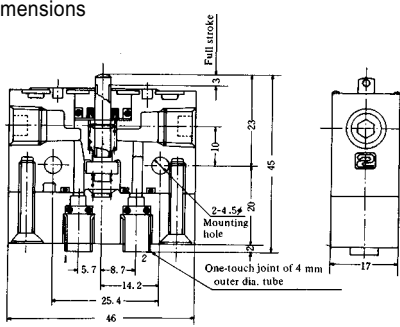
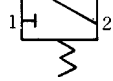
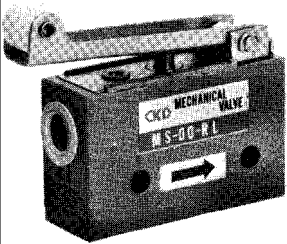
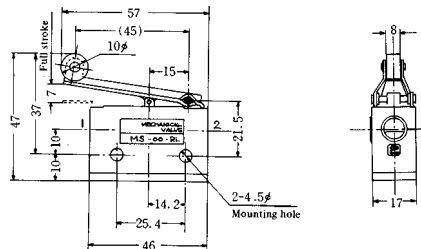
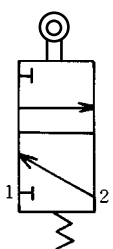
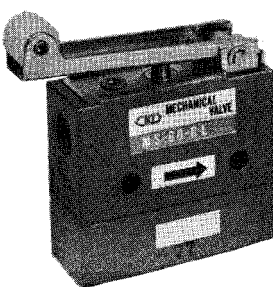
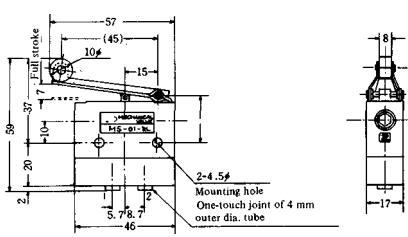
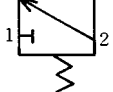
- For general use.
- More flow rate than the MS-01 type can be obtained.

MS-01 type uses one-touch joint for 4 mm outer dia. nylon tube.

- Simply push the nylon tube in for connection. So piping time can be saved.
- No connecting bracket is not required.

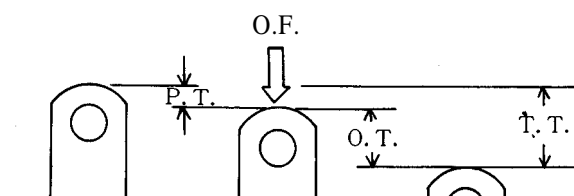
Therefore you do not have to consider about the space for such brackets.

Small type mechanical valve

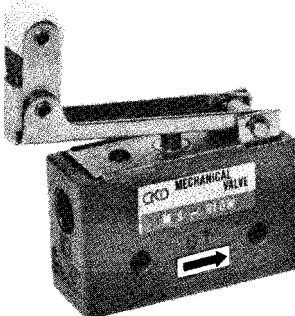
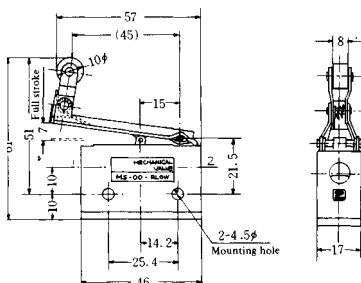
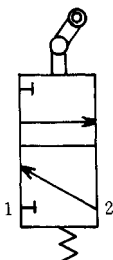

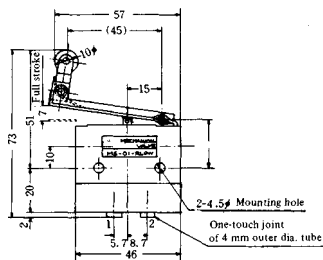
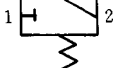

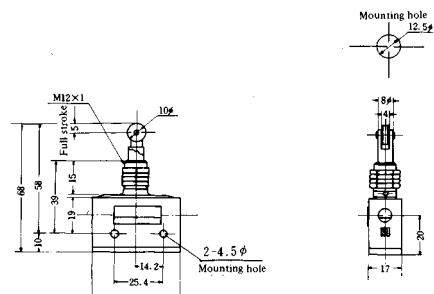
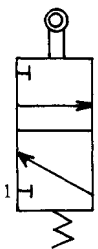
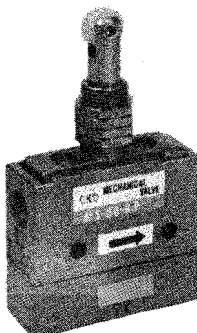
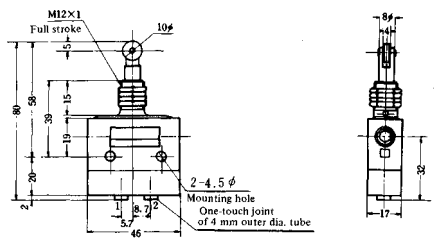

Appearance	Type	Dimensions	Specifications	Symbol								
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Explanation of actuator operation

Mark	Explanation
O.F	A force necessary for operation
P.T	Movement until the vale opens
O.T	Movement after the valve opened
T.T	Total movement

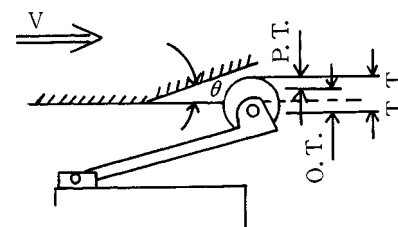


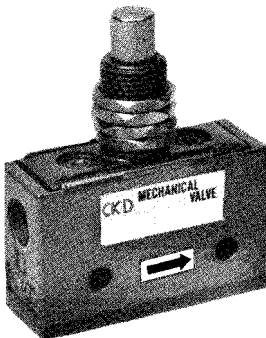
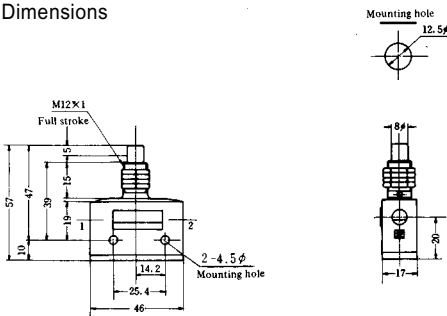
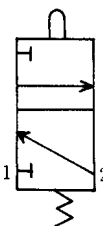
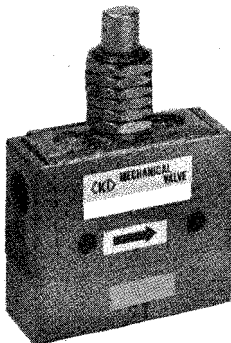
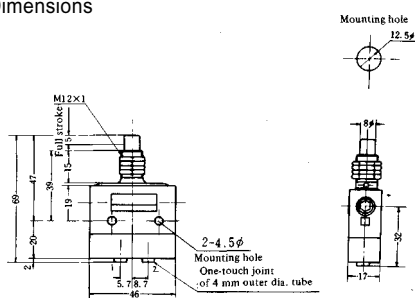
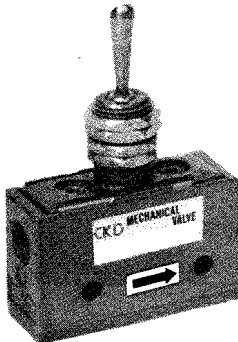
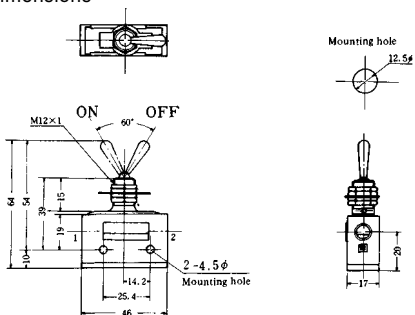
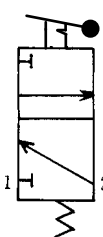

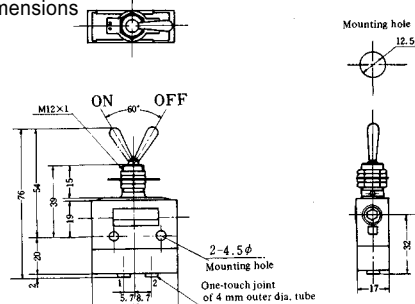
MS series

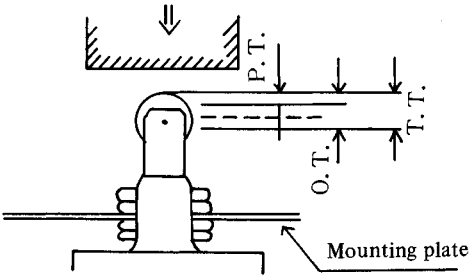
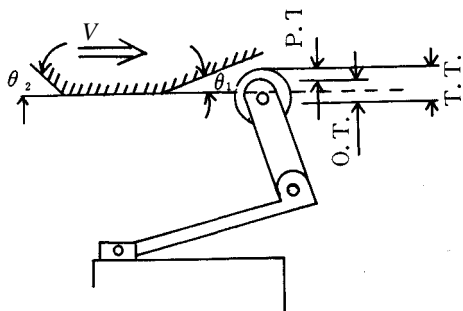
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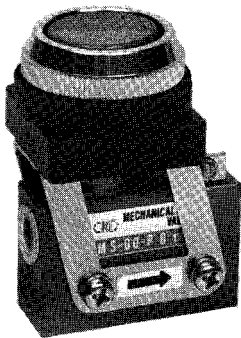
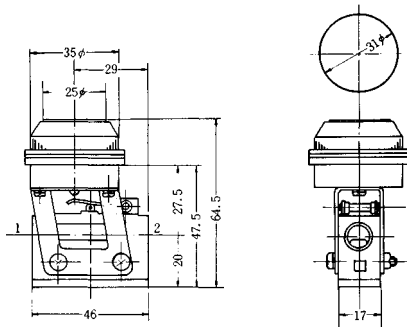
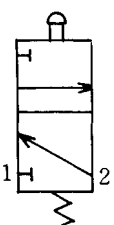
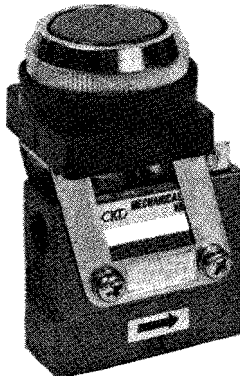
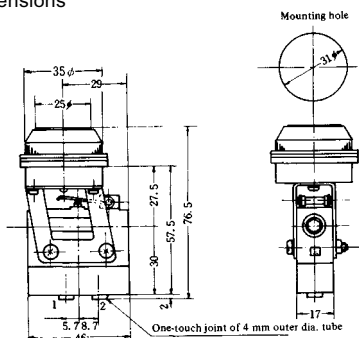
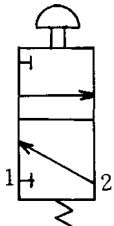
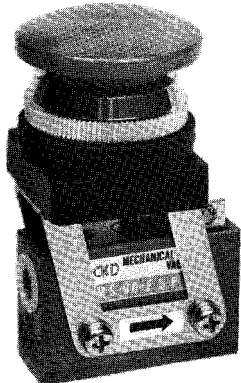
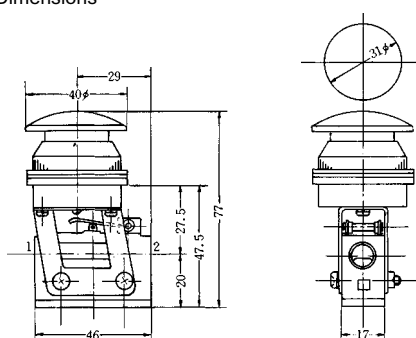
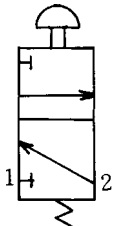
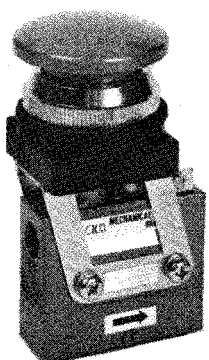
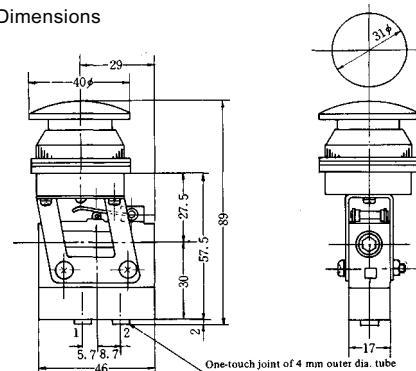
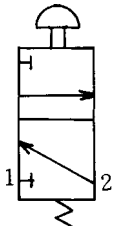
Cautions

- The dog cut angle θ shall not exceed 45°.
- Make the value θ small if the dog speed is too fast.
- The dog moving position and depth shall be calculated based on the equation; $(P.T + OT/2)$. (Never use exceeding T.T.)
- Do not use the mechanical valve itself for a mechanical stopper.
- Design the cam and dog so that the lever slowly returns.

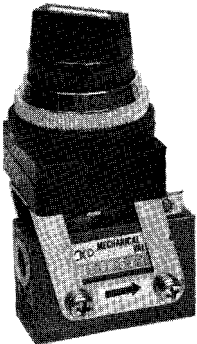
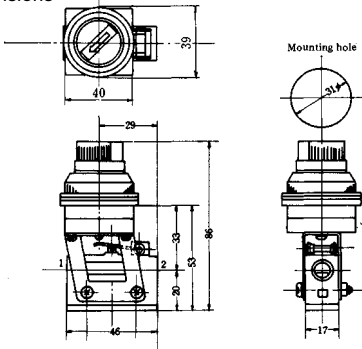

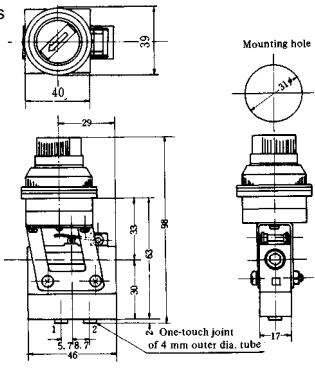
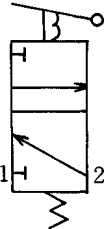
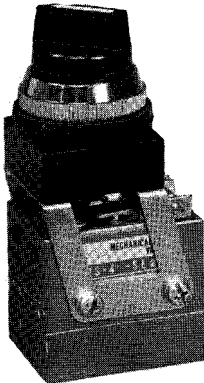
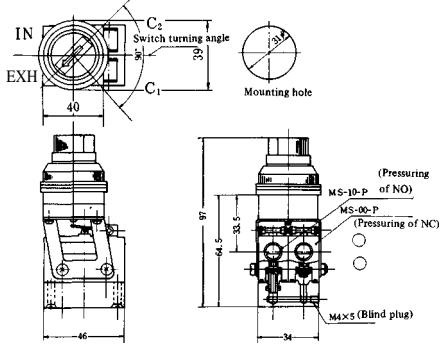
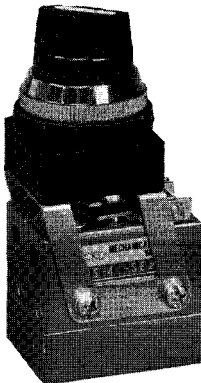
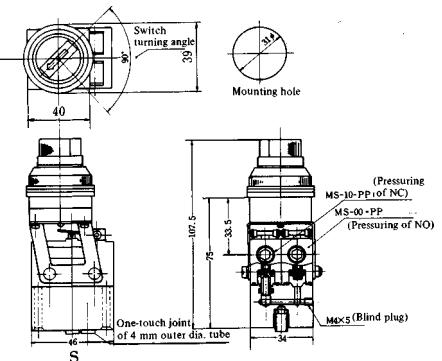
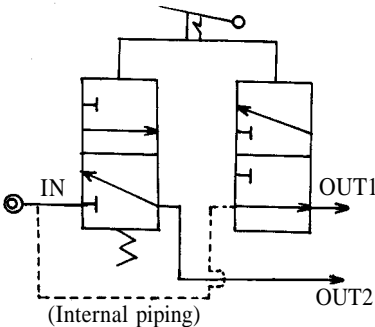


Appearance	Type	Dimensions	Specifications	Symbol								
	Straight plunger type, PT1/8	<p>Dimensions</p> 	<table><tr><td>O. F.</td><td>1.1kg(5kgf/cm²)</td></tr><tr><td>P. T.</td><td>1.3mm</td></tr><tr><td>O. T.</td><td>3.7mm</td></tr><tr><td>T. T.</td><td>5mm</td></tr></table>	O. F.	1.1kg(5kgf/cm ²)	P. T.	1.3mm	O. T.	3.7mm	T. T.	5mm	
O. F.	1.1kg(5kgf/cm ²)											
P. T.	1.3mm											
O. T.	3.7mm											
T. T.	5mm											
	Straight plunger type, one-touch joint	<p>Dimensions</p> 										
	Toggle switch type, PT1/8	<p>Dimensions</p> 	<table><tr><td>Switch tilting angle</td><td>60°</td></tr></table>	Switch tilting angle	60°							
Switch tilting angle	60°											
	Toggle switch type, one-touch joint	<p>Dimensions</p> 										



Appearance	type	Dimensions	Specifications	Symbol								
	<p>MS-00-PB₁- Push- button valve type, PT1/8</p> <table><tr><td>※ Pushbutton type</td><td></td></tr><tr><td>R</td><td>Red</td></tr><tr><td>G</td><td>Green</td></tr><tr><td>B</td><td>Black</td></tr></table>	※ Pushbutton type		R	Red	G	Green	B	Black	<p>Dimensions</p> 	<p>Color of push button</p> <p>Red (PB₁-R) Green (PB₁-G) Black (PB₁-B)</p>	
※ Pushbutton type												
R	Red											
G	Green											
B	Black											
	<p>MS-01-PB₁-# Push- button valve type, one-touch joint</p> <table><tr><td>※ Pushbutton type</td><td></td></tr><tr><td>R</td><td>Red</td></tr><tr><td>G</td><td>Green</td></tr><tr><td>B</td><td>Black</td></tr></table>	※ Pushbutton type		R	Red	G	Green	B	Black	<p>Dimensions</p> 	<p>Color of push button</p> <p>Red (PB₁-R) Green (PB₁-G) Black (PB₁-B)</p>	
※ Pushbutton type												
R	Red											
G	Green											
B	Black											
	<p>MS-00-ESP-# Poppet valve type, PT 1/8</p> <table><tr><td>※ Pushbutton type</td><td></td></tr><tr><td>R</td><td>Red</td></tr><tr><td>G</td><td>Green</td></tr><tr><td>B</td><td>Black</td></tr></table>	※ Pushbutton type		R	Red	G	Green	B	Black	<p>Dimensions</p> 	<p>Color of push button</p> <p>Red (PB₁-R) Green (PB₁-G) Black (PB₁-B)</p>	
※ Pushbutton type												
R	Red											
G	Green											
B	Black											
	<p>MS-01-ESP-# Poppet valve type, one-touch joint</p> <table><tr><td>※ Pushbutton type</td><td></td></tr><tr><td>R</td><td>Red</td></tr><tr><td>G</td><td>Green</td></tr><tr><td>B</td><td>Black</td></tr></table>	※ Pushbutton type		R	Red	G	Green	B	Black	<p>Dimensions</p> 	<p>Color of push button</p> <p>Red (PB₁-R) Green (PB₁-G) Black (PB₁-B)</p>	
※ Pushbutton type												
R	Red											
G	Green											
B	Black											

Small type mechanical valve

Appearance	Type	Dimensions	Specifications	Symbol
	MS-00-SE, Select valve type PT1/8	<p>Dimensions</p> 		
	MS-01-SE, Select valve type, one-touch joint	<p>Dimensions</p> 	<p>Switch turning angle: 90° Color of knob: Black</p>	
	MS-40-SE ₂ Select valve type, PT1/8 4-way valve	<p>Dimensions</p> 		
	MS-41-SE ₂ Select valve type, one-touch joint 4-way valve	<p>Dimensions</p> 		

MM series

A medium type 3-way valve for air pressure control operated by the mechanical detection, and is equivalent to equipments.

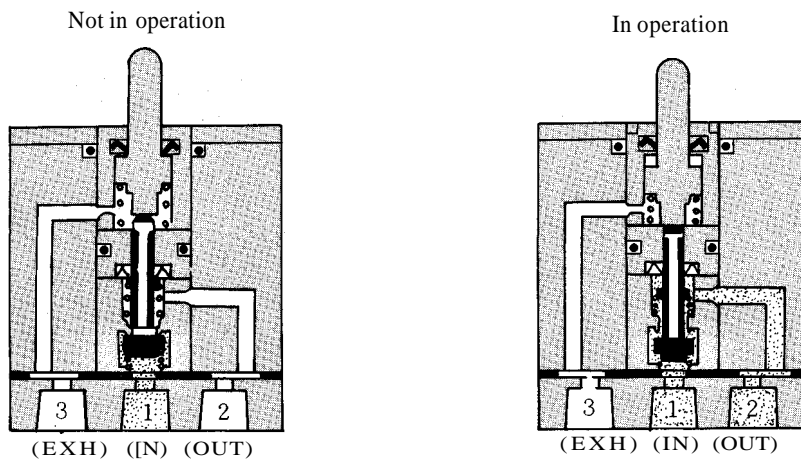
Features

1. The main valve opens after the exhaust valve is closed. So no bleed between the valves will be observed.
2. The stroke before and after operation can be made small and large respectively.
3. Lubrication is not required.
4. The housing head arm of the limit switch is mountable.
5. The arm moving position can be set at any position.
6. The housing head can be set at any four positions.
7. There are two types of pipe connectors available; pipe connecting screw thread and one-touch joint.

Common specifications

Item		
Pressure resistance	kgf/cm ²	15
Media		Air
differential	kgf/cm ²	0~8
Ambient temperature	°C	5~60
Ambient humidity	%	less than 90
Port size		PT 1/8 screw thread or tube one-touch joint
Flow rate	PT 1/8 NI2/min	150(5kg/cm ²)
	One-touch NI/min	100(5kg/cm ²)
Effective sectional area	mm ²	2.5 (Orifice 30)
Weight	gf	200

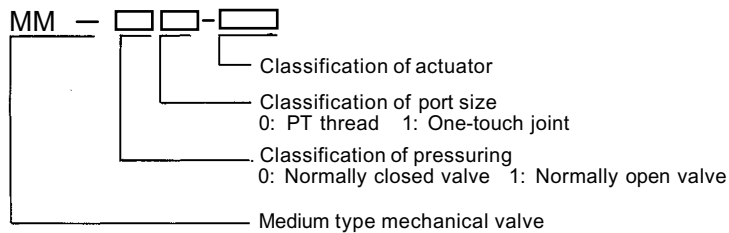
Explanation of operation



Main parts and materials

Part	Material
Body	Aluminum alloy
Spool	Stainless steel
Spring	Stainless steel
Valve	Nitril rubber
Gasket	Nitril rubber

Ordering code indication



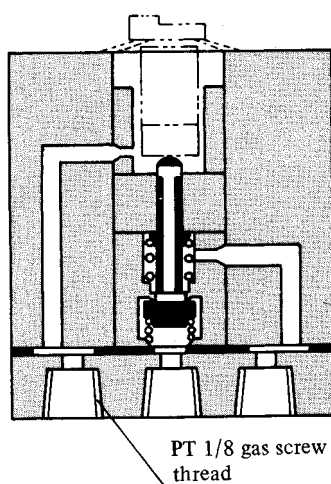
Types

Name	Ordering code	Port size	Valve type	Type	Ordering code	Port size	Type
Pin plunger type	MM-00-P P	PT1/8	Normally closed valve	Rod lever type	MM-00-R AD	PT1/8	Normally closed valve
	MM-01-P P	One-touch			MM-01-R AD	One-touch	
Roller arm type	MM-00-R A	PT1/8	Normally closed valve	Wire lever type	MM-00-R A F	PT1/8	Normally closed valve
	MM-01-R A	One-touch			MM-01-R A E E	One-touch	
Adjust roller arm type	MM-00-R A A	PT1/8	Normally closed valve	Spring rod type	MM-00-R A F	PT1/8	Normally closed valve
	MM-01-R A A	One-touch			MM-01-R A F	One-touch	
Roller lever type	MM-00-R A B	PT1/8	Normally closed valve	Roller lever type	MM-00-R A H	PT1/8	Normally closed valve
	MM-01-R A B	One-touch			MM-01-R A H	One-touch	
Roller lever type	MM-00-R A C	PT1/8	Normally closed valve				
	MM-01-R A C	One-touch					

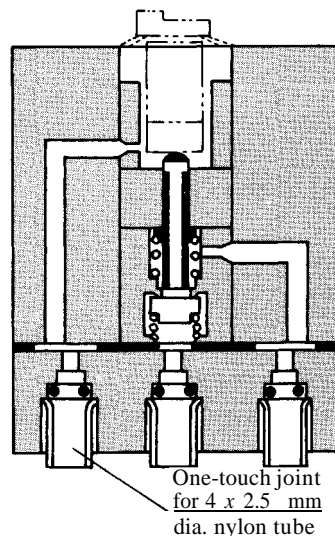
Piping method

There are two types of piping, which are PT 1/8 gas screw thread connection and one-touch joint for 4 mm outer diameter tube.

MM-00 Type



MM-01 Type



MM-00 type uses a PT 1/8 gas screw thread connection

- For general use.
- More flow rate than the MS-01 type can be obtained.


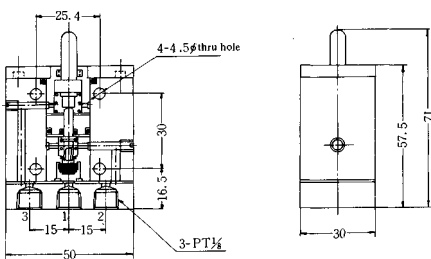
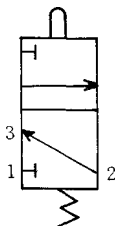
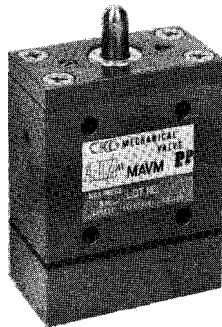
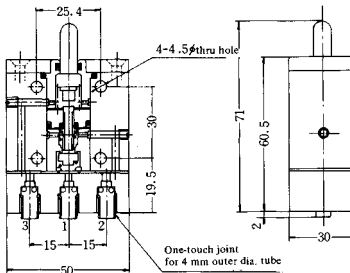
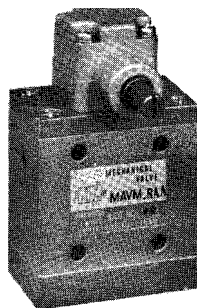
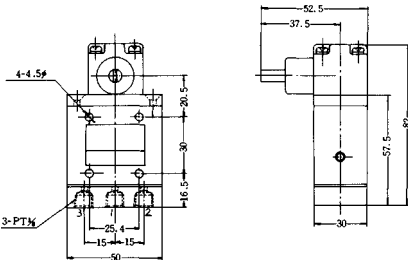
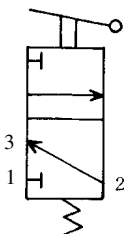

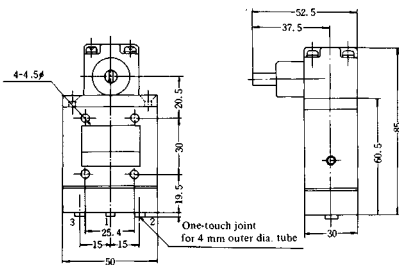
MM-01 type uses one-touch joint for 4 mm outer dia. nylon tube.

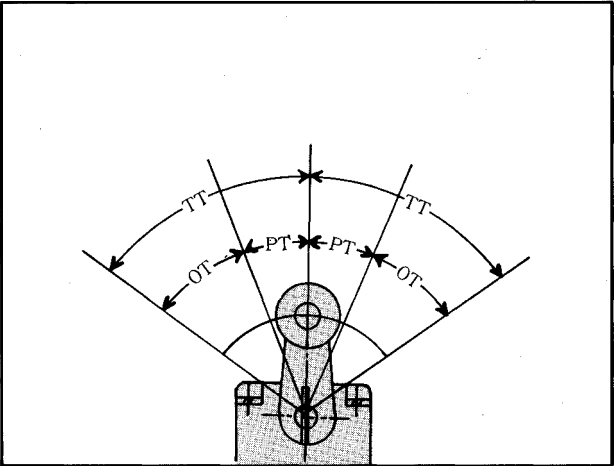
- Simply push the nylon tube in for connection. So piping time can be saved.
- Connecting bracket is not required.

Therefore you do not have to consider about the space for such brackets.

The size for MM-01 will be---higher.

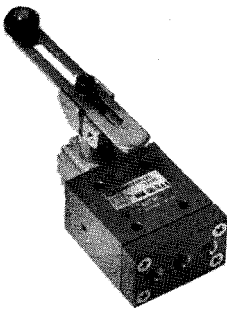
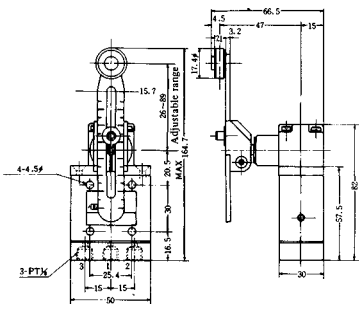
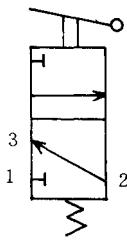
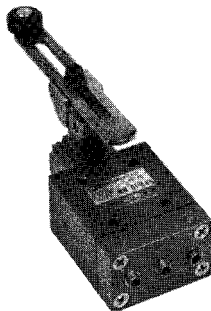
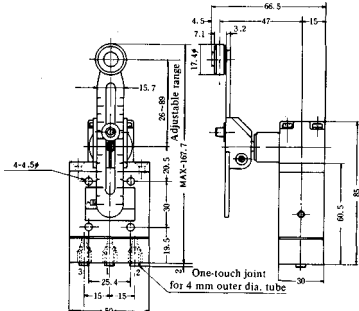
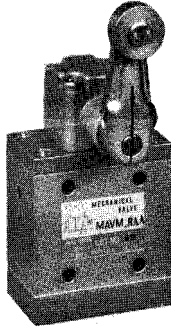
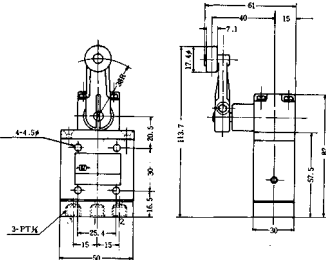
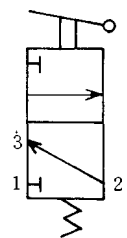
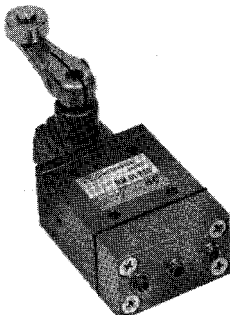
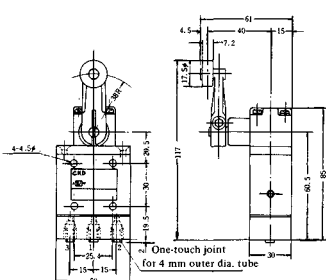
MM series

Appearance	Type	Dimensions	Specifications	Symbol								
	MM-00-PP Pin plunger type, PT1/8		<table><tr><td>O. F.</td><td>2.6kg(5kgf/cm²)</td></tr><tr><td>P. T.</td><td>1.2mm</td></tr><tr><td>O. T.</td><td>1.8mm</td></tr><tr><td>T. T.</td><td>3mm</td></tr></table>	O. F.	2.6kg(5kgf/cm ²)	P. T.	1.2mm	O. T.	1.8mm	T. T.	3mm	
O. F.	2.6kg(5kgf/cm ²)											
P. T.	1.2mm											
O. T.	1.8mm											
T. T.	3mm											
	MM-01-PP Pin plunger type, one-touch joint											
	MM-00-RA Roller arm type, PT1/8		<table><tr><td>O. F.</td><td>4kg • cm(5kgf/cm²)</td></tr><tr><td>P. T.</td><td>20°</td></tr><tr><td>O. T.</td><td>30°</td></tr><tr><td>T. T.</td><td>50°</td></tr></table>	O. F.	4kg • cm(5kgf/cm ²)	P. T.	20°	O. T.	30°	T. T.	50°	
O. F.	4kg • cm(5kgf/cm ²)											
P. T.	20°											
O. T.	30°											
T. T.	50°											
	MM-01-RA Roller arm type, one-touch joint											



Explanation of actuator operation

Mark	Explanation
O. F	A for necessary for operation
P. T	Movement until the valve opens.
O. T	Movement the valve opened.
T. T	Total movement

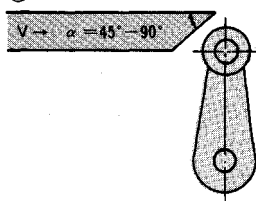
	Type	Dimensions	Specifications	Symbol								
	MM-00-RAA Adjust roller lever type, PT1/8		<table><tr><td>O. F.</td><td>0.45kg(5kgf/cm²)</td></tr><tr><td>P. T.</td><td>20°</td></tr><tr><td>O. T.</td><td>30°</td></tr><tr><td>T. T.</td><td>50°</td></tr></table>	O. F.	0.45kg(5kgf/cm²)	P. T.	20°	O. T.	30°	T. T.	50°	
O. F.	0.45kg(5kgf/cm²)											
P. T.	20°											
O. T.	30°											
T. T.	50°											
	MM-01-RAA Adjust roller lever type, one-touch joint											
	MM-00-RAB Roller lever type, PT 1/8		<table><tr><td>O. F.</td><td>1 kg(5 kg f/cm²)</td></tr><tr><td>P. T.</td><td>20°</td></tr><tr><td>O. T.</td><td>30°</td></tr><tr><td>T. T.</td><td>50°</td></tr></table>	O. F.	1 kg(5 kg f/cm²)	P. T.	20°	O. T.	30°	T. T.	50°	
O. F.	1 kg(5 kg f/cm²)											
P. T.	20°											
O. T.	30°											
T. T.	50°											
	MM-01-RAB Roller lever type, one-touch joint											

Appearance	Type	Dimensions	Specifications	Symbol								
	MM-00-RAC Roller lever type, PT1/8		<table><tr><td>O. F.</td><td>1kg(5kgf/cm²)</td></tr><tr><td>P. T.</td><td>20°</td></tr><tr><td>O. T.</td><td>30°</td></tr><tr><td>T. T.</td><td>50°</td></tr></table>	O. F.	1kg(5kgf/cm ²)	P. T.	20°	O. T.	30°	T. T.	50°	
O. F.	1kg(5kgf/cm ²)											
P. T.	20°											
O. T.	30°											
T. T.	50°											
	MM-01-RAC Roller lever type, one-touch joint		<table><tr><td>O. F.</td><td>1kg(5kgf/cm²)</td></tr><tr><td>P. T.</td><td>20°</td></tr><tr><td>O. T.</td><td>30°</td></tr><tr><td>T. T.</td><td>50°</td></tr></table>	O. F.	1kg(5kgf/cm ²)	P. T.	20°	O. T.	30°	T. T.	50°	
O. F.	1kg(5kgf/cm ²)											
P. T.	20°											
O. T.	30°											
T. T.	50°											
	MM-00-RAD Rod lever type, PT1/8		<table><tr><td>O. F.</td><td>0.28kg(5kgf/cm²)</td></tr><tr><td>P. T.</td><td>20°</td></tr><tr><td>O. T.</td><td>30°</td></tr><tr><td>T. T.</td><td>50°</td></tr></table>	O. F.	0.28kg(5kgf/cm ²)	P. T.	20°	O. T.	30°	T. T.	50°	
O. F.	0.28kg(5kgf/cm ²)											
P. T.	20°											
O. T.	30°											
T. T.	50°											
	MM-01-RAD Rod lever type, one-touch joint		<table><tr><td>O. F.</td><td>0.28kg(5kgf/cm²)</td></tr><tr><td>P. T.</td><td>20°</td></tr><tr><td>O. T.</td><td>30°</td></tr><tr><td>T. T.</td><td>50°</td></tr></table>	O. F.	0.28kg(5kgf/cm ²)	P. T.	20°	O. T.	30°	T. T.	50°	
O. F.	0.28kg(5kgf/cm ²)											
P. T.	20°											
O. T.	30°											
T. T.	50°											

Cautions

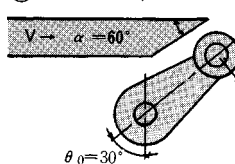
- The dog cut angle θ shall not exceed 45° .
- Make the value 6 small if the dog speed is to fast.
- The dog moving position and depth shall be calculated based on the equation; $(P.T + OT/2)$. (Never use exceeding T.T)
- Do not use the mechanical valve itself for a mechanical stopper.
- Design the cam and dog so that the lever slowly returns.

① $V \leq 0.2 \text{ m/s}$



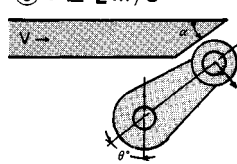
α°	Vmax (m/s)
90°	0.05
75°	0.07
60°	0.1
45°	0.2

② $V \leq 0.1 \text{ m/s}$



Set the arm parallel to the cut surface of the dog. So that the force is applied perpendicular to the arm. Generally speaking, the dog designing and arm setting are both easy. $\alpha = 60^\circ$ and $\varphi_0 = 30^\circ$ are desirable.

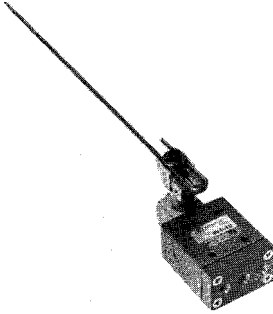
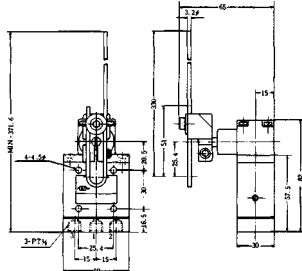
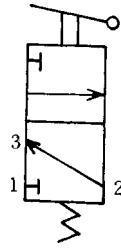
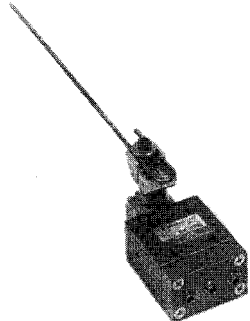
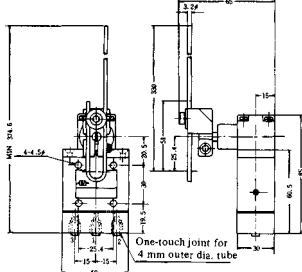
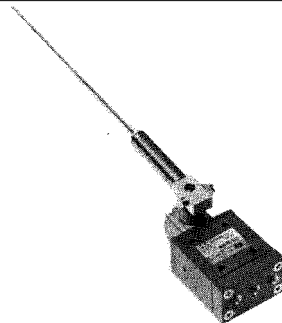
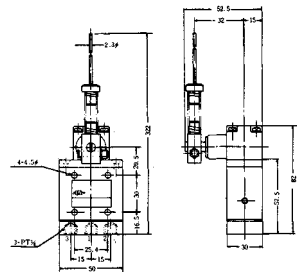
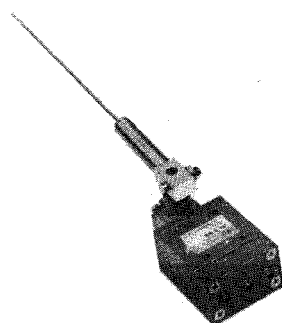
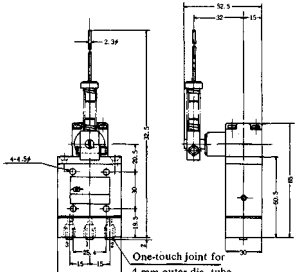
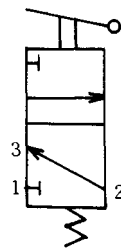
③ $V \leq 2 \text{ m/s}$



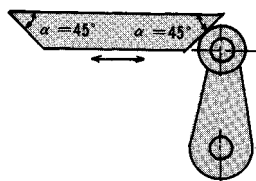
$\alpha = 90 - \varnothing_0$	Vmax (m/s)
40°	0.7
35°	0.9
30°	1.3
25°	2.0

Smaller the angle is, bigger V_{max} (max. speed) becomes. Always set the arm parallel to the cut surface of the dog.

Medium type mechanical valve

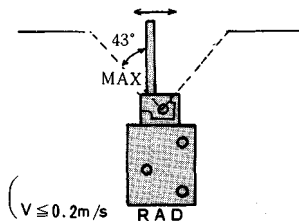
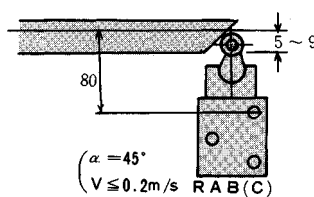
Appearance	Type	Dimensions	Specifications	Symbol								
	MM-00-RAE Wire lever type, PT1/8		<table><tr><td>O. F.</td><td>0.13kg(5kgf/cm²)</td></tr><tr><td>P. T.</td><td>20°</td></tr><tr><td>O. T.</td><td>30°</td></tr><tr><td>T. T.</td><td>50°</td></tr></table>	O. F.	0.13kg(5kgf/cm ²)	P. T.	20°	O. T.	30°	T. T.	50°	
O. F.	0.13kg(5kgf/cm ²)											
P. T.	20°											
O. T.	30°											
T. T.	50°											
	MM-01-RAE Wire lever type, one-touch joint		<table><tr><td>O. F.</td><td>0.13kg(5kgf/cm²)</td></tr><tr><td>P. T.</td><td>20°</td></tr><tr><td>O. T.</td><td>30°</td></tr><tr><td>T. T.</td><td>50°</td></tr></table>	O. F.	0.13kg(5kgf/cm ²)	P. T.	20°	O. T.	30°	T. T.	50°	
O. F.	0.13kg(5kgf/cm ²)											
P. T.	20°											
O. T.	30°											
T. T.	50°											
	MM-00-RAF Spring rod type, PT1/8		<table><tr><td>O. F.</td><td>0.15kg(5kgf/cm²)</td></tr><tr><td>P. T.</td><td>30°</td></tr><tr><td>O. T.</td><td>20°</td></tr><tr><td>T. T.</td><td>50°</td></tr></table>	O. F.	0.15kg(5kgf/cm ²)	P. T.	30°	O. T.	20°	T. T.	50°	
O. F.	0.15kg(5kgf/cm ²)											
P. T.	30°											
O. T.	20°											
T. T.	50°											
	MM-01-RAF Spring rod type, one-touch joint		<table><tr><td>O. F.</td><td>0.15kg(5kgf/cm²)</td></tr><tr><td>P. T.</td><td>30°</td></tr><tr><td>O. T.</td><td>20°</td></tr><tr><td>T. T.</td><td>50°</td></tr></table>	O. F.	0.15kg(5kgf/cm ²)	P. T.	30°	O. T.	20°	T. T.	50°	
O. F.	0.15kg(5kgf/cm ²)											
P. T.	30°											
O. T.	20°											
T. T.	50°											

(4) If the dog is exceeded,
($V \leq 0.2 \text{ m/s}$)



Set the arm perpendicular
and make $\alpha = 45^\circ$.
So $V \leq 0.2 \text{ m/s}$ is desirable.

Reference



A medium type 3-way valve for air pressure control operated by the mechanical detection, and is equivalent to the small type vertical limit switch for electrical equipments.

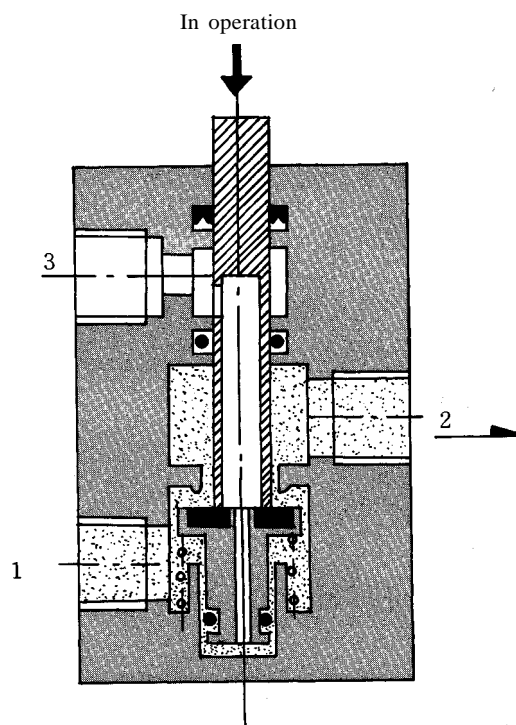
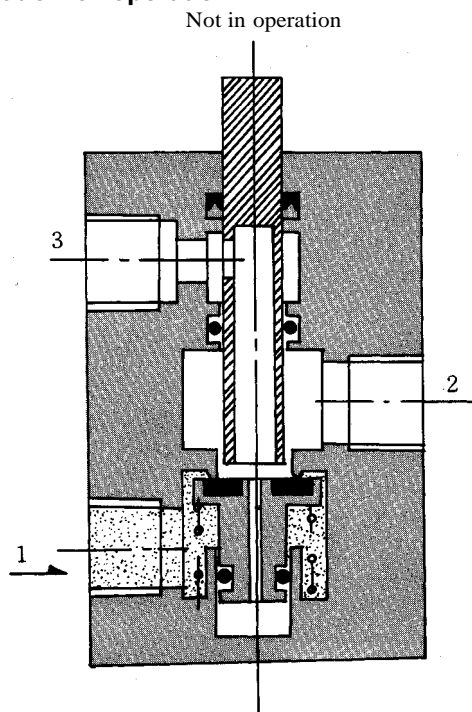
Features

1. The main valve opens after the exhaust valve is closed. So no bleed between the valves will be observed.
2. Since the pressure can be applied from three different directions, this valve can be used as a normally open valve, normally closed valve and distribution valve.
3. The housing head arm of the limit switch is mountable.
4. Because of the pressure balance mechanism, the force necessary to activate will not change even if the supply pressure changes.
5. The stroke before and after operation can be made small and large respectively.
6. The arm moving position can be set at any position.
7. The housing head can be set at any four positions.

Common specifications

Item		
Pressure resistance	kgf/cm ²	15
Media		Air
differential	kgf/cm ²	0~10
Ambient temperature	°C	5~60
Ambient humidity	%	less than 90
Port size		PT 1/4
Flow rate	NI/min	1800(5kgf/cm ²)
Effective sectional area	mm	31

Explanation of operation



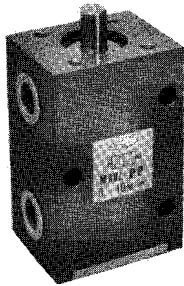
(Pressure application to each port of the 3-way valve)

1. When the pressure is applied to the port 1, the port 2 works as OUT port and the port 3 as EXH port. (Normally closed valve).
2. When the pressure is applied to the port 3, the port 2 works as OUT port and the port 1 as EXH port. (Normally open valve)
3. When the pressure is applied to the port 2, both ports 1 and 2 work as OUT ports. (Distribution valve)

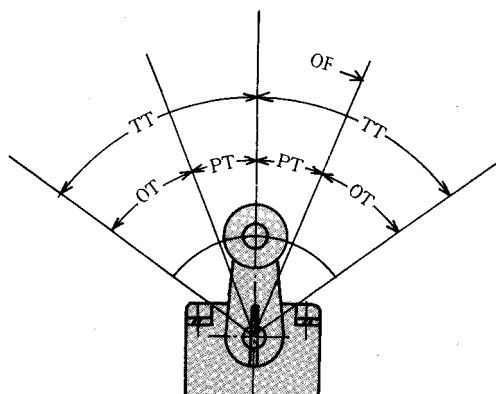
Main parts and materials

Port	Material
Body	Aluminium alloy
Spool	Stainless steel
Spring	Stainless steel
Valve	Nitril rubber
Gasket	Nitril rubber

Large type mechanical valve


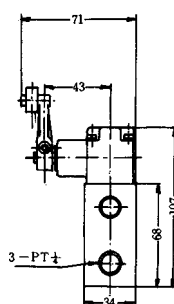
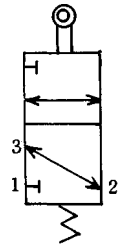
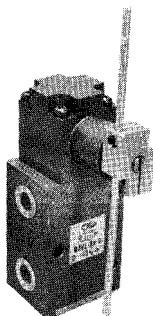
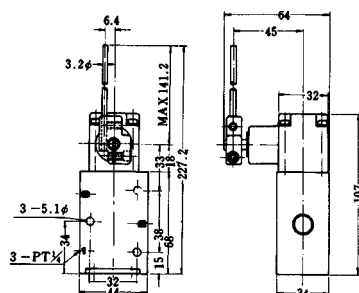
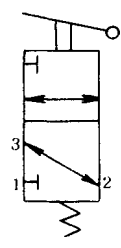

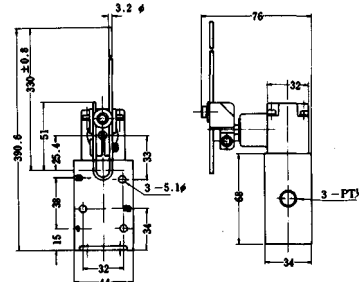
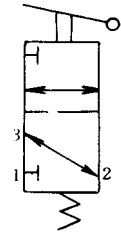

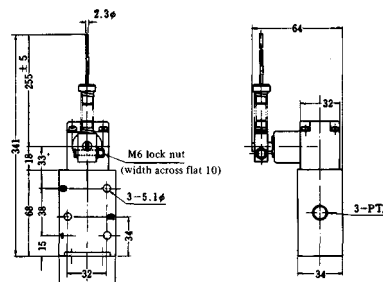
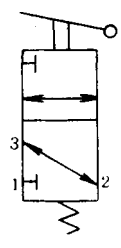
Appearance	Type	Dimensions	Specifications	Symbol
	Pin plunger type MAVL-PP			

Explanation of actuator operation



Mark	Explanation
O . F	A force required for operation
P . T	Movement until the valve opens
O . T	Movement after valve opened
T . T	Total movement

MAVL series

Appearance	Type	Dimensions	Specifications	Symbol										
	Roller lever type MAVL-RAC		<table><tr><td>O. F</td><td>NC pressure 2.2 kg (5 kgf/cm²)</td></tr><tr><td></td><td>NO pressure 2 kg (5 kgf/cm²)</td></tr><tr><td>P. T</td><td>25°</td></tr><tr><td>O. T</td><td>30°</td></tr><tr><td>T. T</td><td>55°</td></tr></table>	O. F	NC pressure 2.2 kg (5 kgf/cm ²)		NO pressure 2 kg (5 kgf/cm ²)	P. T	25°	O. T	30°	T. T	55°	
O. F	NC pressure 2.2 kg (5 kgf/cm ²)													
	NO pressure 2 kg (5 kgf/cm ²)													
P. T	25°													
O. T	30°													
T. T	55°													
	Rod lever type MAVL-RAD		<table><tr><td>O. F</td><td>NC pressure 0.5 kg (5 kgf/cm²)</td></tr><tr><td></td><td>NO pressure 0.4 kg (5 kgf/cm²)</td></tr><tr><td>P. T</td><td>25°</td></tr><tr><td>O. T</td><td>30°</td></tr><tr><td>T. T</td><td>55°</td></tr></table> <p>Since the rod lever is made of a hard aluminium, it can be processed in any way by cutting and deforming it.</p>	O. F	NC pressure 0.5 kg (5 kgf/cm ²)		NO pressure 0.4 kg (5 kgf/cm ²)	P. T	25°	O. T	30°	T. T	55°	
O. F	NC pressure 0.5 kg (5 kgf/cm ²)													
	NO pressure 0.4 kg (5 kgf/cm ²)													
P. T	25°													
O. T	30°													
T. T	55°													
	Wire lever type MAVL-RAE		<table><tr><td>O. F</td><td>NC 0.18 kg (5 kgf/cm²) Lever top end</td></tr><tr><td></td><td>NO 0.12 kg (5 kgf/cm²) Lever top end</td></tr><tr><td>P. T</td><td>25°</td></tr><tr><td>O. T</td><td>30°</td></tr><tr><td>T. T</td><td>55°</td></tr></table>	O. F	NC 0.18 kg (5 kgf/cm ²) Lever top end		NO 0.12 kg (5 kgf/cm ²) Lever top end	P. T	25°	O. T	30°	T. T	55°	
O. F	NC 0.18 kg (5 kgf/cm ²) Lever top end													
	NO 0.12 kg (5 kgf/cm ²) Lever top end													
P. T	25°													
O. T	30°													
T. T	55°													
	Spring rod type MAVL-RAF		<table><tr><td>O. F</td><td>NC 0.3kg (5kgf/cm²)</td></tr><tr><td></td><td>NO 0.16kg (5kgf/cm²)</td></tr><tr><td>P. T</td><td>45°</td></tr><tr><td>O. T</td><td>10°</td></tr><tr><td>T. T</td><td>55°</td></tr></table>	O. F	NC 0.3kg (5kgf/cm ²)		NO 0.16kg (5kgf/cm ²)	P. T	45°	O. T	10°	T. T	55°	
O. F	NC 0.3kg (5kgf/cm ²)													
	NO 0.16kg (5kgf/cm ²)													
P. T	45°													
O. T	10°													
T. T	55°													

NOTE :

Handwriting practice lines with a large, faint watermark reading "KDP" diagonally across the page.

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