Document No: VM∗-OMR0012-C

Operation Manual

Product Name

Mechanical valve

Model/Series

VM200-A Series
Made-to-Order Products (X207A, X219A)

SMC Corporation

Contents

Safety Instructions

These safety instructions are intended to prevent hazardous situations and/or equipment damage. These instructions indicate the level of potential hazard with the labels of **"Caution," "Warning"** or **"Danger."** They are all important notes for safety and must be followed in addition to International Standards (ISO/IEC)[*1)], and other safety regulations.

*1) ISO 4414: Pneumatic fluid power - General rules and safety requirements for systems and their components
ISO 4413: Hydraulic fluid power - General rules and safety requirements for systems and their components
IEC 60204-1: Safety of machinery - Electrical equipment of machines - Part 1: General requirements
ISO 10218-1: Robots and robotic devices - Safety requirements for industrial robots - Part 1:Robots
etc.

Danger	**Danger** indicates a hazard with a high level of risk which, if not avoided, will result in death or serious injury.
Warning	**Warning** indicates a hazard with a medium level of risk which, if not avoided, could result in death or serious injury.
Caution	**Caution** indicates a hazard with a low level of risk which, if not avoided, could result in minor or moderate injury.

Warning

1. The compatibility of the product is the responsibility of the person who designs the equipment or decides its specifications.
Since the product specified here is used under various operating conditions, its compatibility with specific equipment must be decided by the person who designs the equipment or decides its specifications based on necessary analysis and test results. The expected performance and safety assurance of the equipment will be the responsibility of the person who has determined its compatibility with the product. This person should also continuously review all specifications of the product referring to its latest catalog information, with a view to giving due consideration to any possibility of equipment failure when configuring the equipment.

2. Only personnel with appropriate training should operate machinery and equipment.
The product specified here may become unsafe if handled incorrectly. The assembly, operation and maintenance of machines or equipment including our products must be performed by an operator who is appropriately trained and experienced.

3. Do not service or attempt to remove product and machinery/equipment until safety is confirmed.
1. The inspection and maintenance of machinery/equipment should only be performed after measures to prevent falling or runaway of the driven objects have been confirmed.
2. When the product is to be removed, confirm that the safety measures as mentioned above are implemented and the power from any appropriate source is cut, and read and understand the specific product precautions of all relevant products carefully.
3. Before machinery/equipment is restarted, take measures to prevent unexpected operation and malfunction.

4. Our products cannot be used beyond their specifications. Our products are not developed, designed, and manufactured to be used under the following conditions or environments. Use under such conditions or environments is not covered.
1. Conditions and environments outside of the given specifications, or use outdoors or in a place exposed to direct sunlight.
2. Use for nuclear power, railways, aviation, space equipment, ships, vehicles, military application, equipment affecting human life, body, and property, fuel equipment, entertainment equipment, emergency shut-off circuits, press clutches, brake circuits, safety equipment, etc., and use for applications that do not conform to standard specifications such as catalogs and operation manuals.
3. Use for interlock circuits, except for use with double interlock such as installing a mechanical protection function in case of failure. Please periodically inspect the product to confirm that the product is operating properly.

Safety Instructions

⚠ Caution

We develop, design, and manufacture our products to be used for automatic control equipment, and provide them for peaceful use in manufacturing industries.
Use in non-manufacturing industries is not covered.
Products we manufacture and sell cannot be used for the purpose of transactions or certification specified in the Measurement Act.
The new Measurement Act prohibits use of any unit other than SI units in Japan.

Limited warranty and Disclaimer/Compliance Requirements

The product used is subject to the following “Limited warranty and Disclaimer” and “Compliance Requirements”. Read and accept them before using the product.

Limited warranty and Disclaimer

1. The warranty period of the product is 1 year in service or 1.5 years after the product is delivered, whichever is first.* 2)
   Also, the product may have specified durability, running distance or replacement parts. Please consult your nearest sales branch.
2. For any failure or damage reported within the warranty period which is clearly our responsibility, a replacement product or necessary parts will be provided.
   This limited warranty applies only to our product independently, and not to any other damage incurred due to the failure of the product.
3. Prior to using SMC products, please read and understand the warranty terms and disclaimers noted in the specified catalog for the particular products.

***2) Vacuum pads are excluded from this 1 year warranty.**
A vacuum pad is a consumable part, so it is warranted for a year after it is delivered.
Also, even within the warranty period, the wear of a product due to the use of the vacuum pad or failure due to the deterioration of rubber material are not covered by the limited warranty

Compliance Requirements

1. The use of SMC products with production equipment for the manufacture of weapons of mass destruction (WMD) or any other weapon is strictly prohibited.
2. The exports of SMC products or technology from one country to another are governed by the relevant security laws and regulations of the countries involved in the transaction. Prior to the shipment of a SMC product to another country, assure that all local rules governing that export are known and followed.

Design precautions

⚠ Warning

1. Actuator drive

When an actuator, such as a cylinder, is to be driven take appropriate measures to prevent potential danger caused by actuator operation.

2. Maintenance space

When installing the products, allow access for maintenance.

3. Ventilation

When using the valve in a closed control panel, etc., install ventilating openings to prevent an increase of pressure inside the control panel, and to prevent heat generated by other equipment from building up.

Selection

⚠ Warning

1. Confirm the specifications.

The product is designed for use only in compressed air systems. Do not use fluids other than compressed air. Do not operate at pressures or temperatures, etc., beyond the range of specifications, as this can cause damage or malfunction.

2. Use in low temperature environments

When using the valve in a low temperature condition, take appropriate measures to avoid freezing of drainage, moisture etc. in low temperature.

Mounting

⚠ Warning

1. If air leakage increases or the equipment does not operate properly, stop operation.

Unexpected motion can cause injury.

2. Check the mounting conditions

Make sure that screws and fittings are properly tightened and the piping is not bent or flattened. Connect the compressed air supply to the product and perform appropriate functional and leakage inspections to check it is mounted properly.

3. Painting of the valve

Models or specifications printed or marked on the product should not be erased, removed or covered up. Do not paint resin parts, as this may have an adverse effect due to the solvent in the paint.

⚠ Caution

1.Transportation, installation, piping, wiring, operation, handling, and maintenance should be performed by personnel with sufficient knowledge and experience.

There is a risk of injury.

2. Do not disassemble or modify the product.

This may cause human injury and/or an accident. Contact SMC for repairs and maintenance of the product.

3. Do not wipe the product using chemicals.

Piping

⚠ Caution

1. Before piping

Before piping, perform air blow (flushing) or cleaning to remove any cutting chips, cutting oil, dust, etc. from the piping.

2. Piping to product

When piping to the product, refer to the symbols and labels on the product to avoid mistakes in the position of the supply port, etc.

3. Sealant tape

When screwing piping or fittings into ports, ensure that chips from the pipe threads or sealing material do not enter the mechanical piping. If sealant tape is used, leave 1 thread ridges exposed at the end of the threads.

4. One-touch fitting installation

Refer to Fittings & Tubing Precautions from 1 to 5 shown in Best Pneumatics on SMC's website(URL https://www.smcworld.com) for the recommended piping conditions.

5 Connection of fittings

First, tighten the fitting by hand, then give it an additional approximately 2 to 3 turns with a tool. Standard tightening torque of the thread sizes R1/4 and NPT1/4 is 8 to 12N·m.

6. Follow the procedures of the manufacturer when fittings other than SMC are used.

Confirm that no problem will occur in the operating conditions.

7. If positioning is required, if the fitting is loosened after it has been tightened, it may cause air leakage.

Lubrication

⚠ Caution

1. The product has been lubricated for life by the manufacturer, and does not require lubrication in service.

2. Use turbine oil Class 1, ISO VG32 (with no additives), if lubricated.

Use turbine oil Class 1, ISO VG32 (with no additives), if lubricated.

Besides, if the lubrication is suspended halfway, the original lubricant will be lost and may result in a malfunction. Be sure to keep lubricating continuously. For details about lubricant manufacturers' brands, refer to the SMC website.

Air Supply

⚠ Warning

1. Use clean air.

Do not use compressed air that contains chemicals, organic solvents based synthetic oils, salts or corrosive gases, etc., as this can cause damage or malfunction.

⚠ Caution

1. Install air filters.

Install air filters close to valves on the upstream side. A filtration degree of 5 micrometer or less should be selected.

2. Install an aftercooler, air dryer or drain catch before the filter.

Compressed air that contains excessive drainage may cause malfunction of valves and other pneumatic equipment. Therefore, take appropriate measures to ensure air quality, such as by providing an after cooler, water separator.

3. If excessive carbon powder is seen, install a mist separator on the upstream side of the valve.

If excessive carbon powder is generated by the compressor, it may adhere to the inside of the valves and cause malfunction.

4. Grease is applied to the inner parts of the valve.

Grease may enter on the downstream side of the valve.

For detailed information regarding the quality of the compressed air described above, refer to SMC's Cleaning Systems".

Operating Environment

⚠ Warning

1. Do not use in an environment where corrosive gases, chemicals, sea water, water or steam are present.

2. Do not operate in a location subject to vibration or impact.

3. Use a protective cover, etc. to shield the product from direct sunlight.

4. Shield the product from radiated heat generated by nearby heat sources.

5. Employ suitable protective measures in a location where there is contact with oil or welding spatter, etc.

6. Avoid using in a location where it could be splashed by liquids such as oils, coolant and water, and dust.

Because it does not have a waterproof or dustproof construction, fluids or dust could enter the valve, leading to malfunction. Therefore, take measures such as providing a protective cover to prevent direct exposure.

Maintenance

⚠ Warning

1. Removal of equipment, and supply/exhaust of compressed air

When equipment is serviced, first confirm that measures are in place to prevent dropping of driven objects and/-or equipment running out of control, etc. Then cut the supply pressure and power, and exhaust all compressed air from the system using its residual pressure release function.

When the equipment is to be started again after remounting, first confirm that measures are in place to prevent lurching of actuators, etc., and then confirm that the equipment can operate normally.

2. Before performing maintenance, confirm that measures are taken to prevent sudden action and protect workers.

3. Draining

Remove condensate from air filters regularly. If condensate in the drain bowl is not emptied on a regular basis, the condensate will overflow and allow it to enter the compressed air lines. This will cause a malfunction of pneumatic equipment. If the drain bowl is difficult to check and remove, installation of a drain bowl with an auto drain option is recommended.

Specific Product Precautions for Mechanical Valve

Design precautions

⚠ Warning

1. Cannot be used for sealing pressure.

Since VM200 is a poppet type valve, fluid flows backwards when the pressure on port 2 rises. Since the valve is subject to a little amount of air leakage, it cannot be used for applications such as holding pressure.

2. Not suitable for use as an emergency shutoff valve, etc.

This valve is not designed for safety applications such as an emergency shutoff valve. If the valves are used in this type of system, other reliable safety assurance measures must also be adopted.

Mounting

⚠ Warning

1. Do not move the mechanical operation beyond the operating limit position.

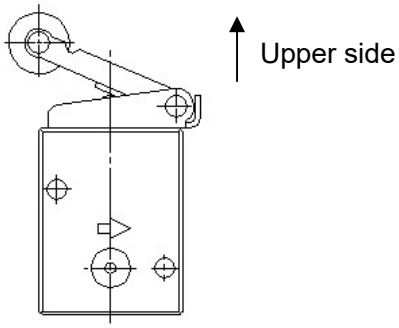
This could damage the mechanical valve itself and lead to equipment malfunction. Refer to Chapter 7, "Mechanical Operating Conditions" in this Operation Manual for the main precautions.

2. Never perform additional machining such as enlarging the body mounting hole or to the valve body.

Scratches or dust may result in air leakage or unexpected failure.

3. Roller lever type valve is recommended to be mounted in the orientation that the roller lever faces upward.

Strokes that are shown in Chapter 4 in this Operation Manual are the values when the valve is operated with the roller lever facing upward as shown in the Fig. If the valve is operated in other mounting orientations, the values may be different from those shown in Chapter 4 due to potential changes in the clearance of the components of the roller lever.



Operation

⚠ Warning

1. Operate all manual mechanical valves (e.g. button type, selector type, toggle lever type) by hand only.

If tools or other equipment such as a cylinder, cam or hammer are used, the actuator or the mechanical valve will be damaged, which may result in malfunction of the equipment.

2. Select the angle and the maximum speed of the operating cam and the dog of the mechanism so that they do not exceed the maximum values.

This could damage the mechanical valve itself and lead to equipment malfunction. Refer to Chapter 7, "Mechanical Operating Conditions" in this Operation Manual for the main precautions.

⚠ Caution

1. After operating for a long time, it will take some time for the valve to restart as the resistance between the seal and the parts increases.

Please consult SMC if the operating condition is maintained for a long period of time.

Maintenance

⚠ Warning

1. Perform inspection on a regular basis as necessary, such as at the beginning of operation, to make sure that the mechanical valve operates properly.

2. Do not disassemble, repair and modify the product.

This may lead to malfunction of equipment, injury and equipment damage. Please contact SMC for repair and maintenance of the product.

3. Strokes of the roller lever type, roller plunger type, and cross roller plunger type

When the actuator performs strokes with something like a cam always rotated in contact with the roller of the actuator, the roller may be worn and it may cause change in the strokes. Ensure that the actuator stroke is within the stroke range shown in section 7-2 when the product is serviced.

2. Application

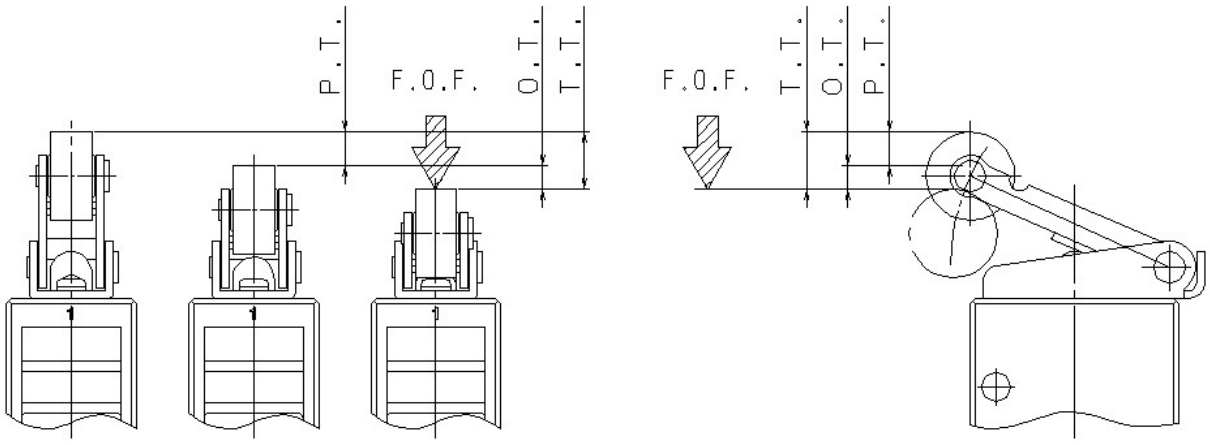
This product is a valve for signal transmission used for a pneumatic control circuit of machining equipment or general industrial machinery, etc.

3. Specifications

Fluid		Air	
Operating pressure		0 to 1 MPa	
Operating temperature		-5 to 60 °C (No freezing)	
Flow rate characteristics		1(P)→2(A)	2(A)→3(R)
	C [dm^3/(s・bar)]	4	3.5
	b	0.4	0.1
	Cv	0.87	0.69
Lubrication[Note)]		Not required	
Port size (nominal)		Rc1/4, NPT1/4, G1/4	
Function		N.C. type	
Construction		Poppet type	
Number of positions		2 or 3 (Twist selecto3 position only)	
Number of ports		2 or 3 or 5 (Twist selecto3 position only)	
Weight (Basic type)		90g	

Note) Use turbine oil Class 1 ISO VG32, if lubricated.

4. Models and Strokes



F.O.F. <Full Operating Force> --- Required force to total travel position, from free position of the actuator to total travel position.

P.T. <Pre-travel> --- From free position to initial valve operating position.

O.T. <Over Travel> --- From initial valve operating position to total travel position.

T.T. <Total Travel> --- From free position to total travel position.

Type	Model		F.O.F. at 0.5 MPa (Note 1)	P.T. (Note 1)	O.T. (Note 1)	T.T. (Note 1)
	2 port	3 port				
Basic	VM220-02-00A	VM230-02-00A	52 N	3 mm	2 mm	5 mm
Roller lever	VM220-02-01A VM220-02-01SA	VM230-02-01A VM230-02-01SA	24 N	6.5 mm	4.5 mm	11 mm
One way lever	VM220-02-02A VM220-02-02SA	VM230-02-02A VM230-02-02SA	22 N	7 mm	5 mm	12 mm
Straight plunger	VM220-02-05A	VM230-02-05A	56 N	3.5 mm	2 mm	5.5 mm
Roller plunger	VM220-02-06A VM220-02-06SA	VM230-02-06A VM230-02-06SA	56 N	3.5 mm	2 mm	5.5 mm
Cross roller plunger	VM220-02-07A VM220-02-07SA	VM230-02-07A VM230-02-07SA	56 N	3.5 mm	2 mm	5.5 mm
Toggle lever	VM220-02-08A	VM230-02-08A	12 N	-	-	60°
Mushroom push button	VM220-02-30RA VM220-02-30BA VM220-02-30GA VM220-02-30YA	VM230-02-30RA VM230-02-30BA VM230-02-30GA VM230-02-30YA	52 N	-	-	6.5 mm
Extended push button	VM220-02-32RA VM220-02-32BA VM220-02-32GA VM220-02-32YA	VM230-02-32RA VM230-02-32BA VM230-02-32GA VM230-02-32YA	52 N	-	-	6.5 mm
Flush push button	VM220-02-33A	VM230-02-33A	52 N	-	-	6.5 mm
Twist selector (2 position)	VM220-02-34RA VM220-02-34BA VM220-02-34GA VM220-02-34YA	VM230-02-34RA VM230-02-34BA VM230-02-34GA VM230-02-34YA	32 N	-	-	90º
Key selector (2 position)	VM220-02-36A	VM230-02-36A	32 N	-	-	90º
Twist selector (3 position)	(3 port) VM230-02-35RA VM230-02-35BA VM230-02-35GA VM230-02-35YA	(5 port) VM250-02-35RA VM250-02-35BA VM250-02-35GA VM250-02-35YA	40N	-	-	45°
Foot pedal	VM220-02-40A	VM230-02-40A	65 N	-	-	1.2°

Note 1) Representative values are shown here.

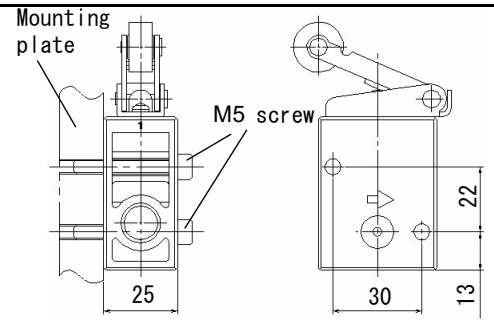
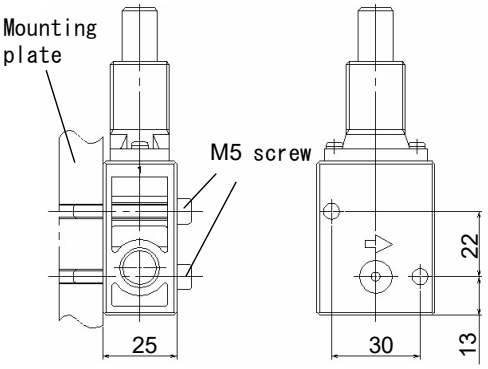
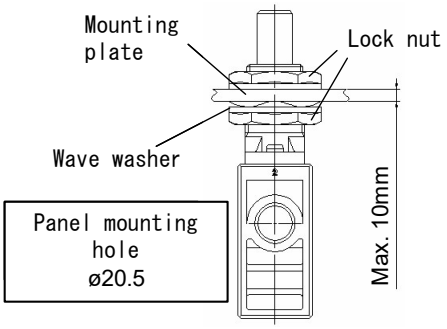
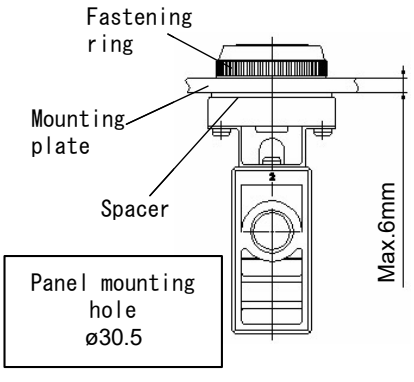
Note 2) Actuator can be changed and replaced (excluding 3 position selector and foot pedal types).

Note 3) Refer to page 19 for replacement of the mushroom push button, extended push button, flush push button, and single unit of the fastening ring.
Parts other than mentioned above cannot be replaced.

Note 4) The handle of the selector head (for 2 position or 3 position) cannot be removed or replaced on its own.

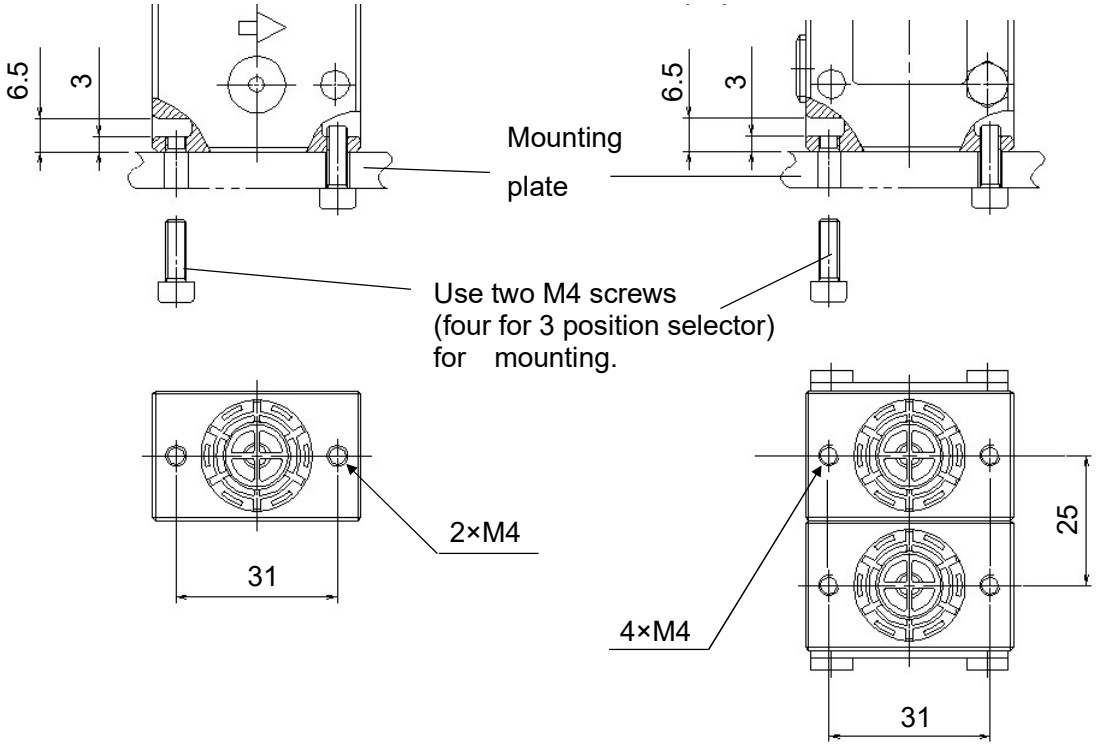
5. Installation and Mounting Orientation

5-1. Product number with each actuator

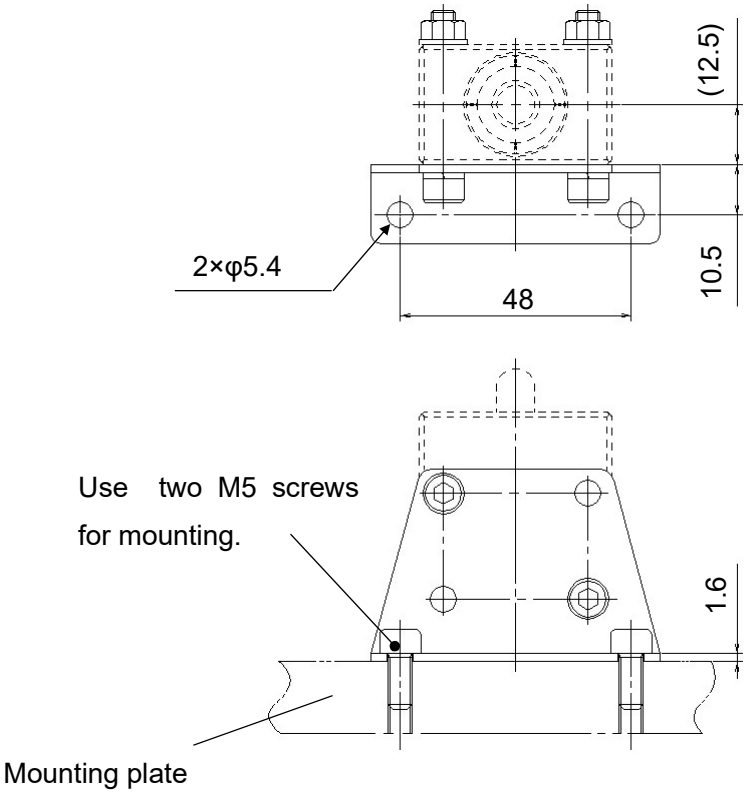
Type	Model		Mounting dimensions
	2 port	3 port	
Roller lever	VM220-02-01A VM220-02-01SA	VM230-02-01A VM230-02-01SA	 Fix at two points using M5 screws.
One way roller lever	VM220-02-02A VM220-02-02SA	VM230-02-02A VM230-02-02SA	
Straight plunger	VM220-02-05A	VM230-02-05A	 Fix at two points using M5 screws.
Roller plunger	VM220-02-06A VM220-02-06SA	VM230-02-06A VM230-02-06SA	
Cross roller plunger	VM220-02-07A VM220-02-07SA	VM230-02-07A VM230-02-07SA	
Toggle lever	VM220-02-08A	VM230-02-08A	
			 Use two lock nuts of M20 and with width across flats of 27 for mounting.
Mushroom push button	VM220-02-30RA VM220-02-30BA VM220-02-30GA VM220-02-30YA	VM230-02-30RA VM230-02-30BA VM230-02-30GA VM230-02-30YA	 Mount to ø30.5 hole using the fastening ring on top. When the product is mounted onto a board with thickness of about 6mm, use a 1.5mm spacer.
Extended push button	VM220-02-32RA VM220-02-32BA VM220-02-32GA VM220-02-32YA	VM230-02-32RA VM230-02-32BA VM230-02-32GA VM230-02-32YA	
Flush push button	VM220-02-33A	VM230-02-33A	
Selector (2 position)	VM220-02-34RA VM220-02-34BA VM220-02-34GA VM220-02-34YA	VM230-02-34RA VM230-02-34BA VM230-02-34GA VM230-02-34YA	
Key selector (2 position)	VM220-02-36A	VM230-02-36A	
Selector (3 position)	VM230-02-35RA VM230-02-35BA VM230-02-35GA VM230-02-35YA	VM250-02-35RA VM250-02-35BA VM250-02-35GA VM250-02-35YA	

5-2. Bottom mounting type

Only the selector type (for 3 position) has four mounting screw positions.



5-3. With bracket



6. Operating Force

Full operating force increases according to the increase of the supply pressure.

Full operating force for each product type can be found by the formula below.

$$F \fallingdotseq \frac{F1}{52} \times F2$$

F1: Full operating force at 0.5MPa of the product type (F.O.F on page 11)

F2: Full operating force at supply pressure found from Fig.1

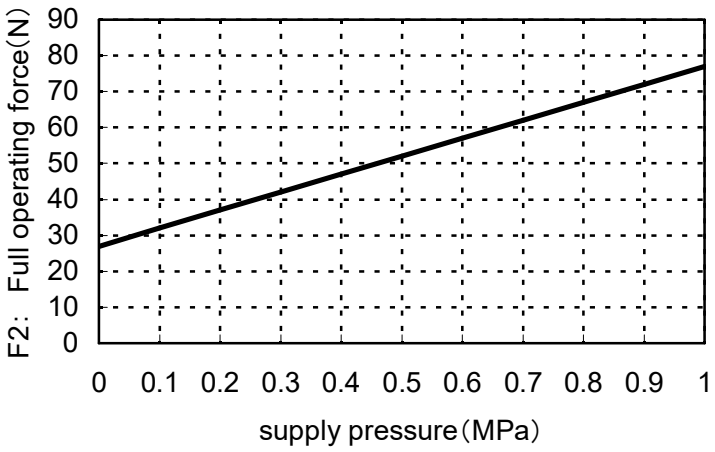


Fig. 1

7. Mechanical Operating Conditions

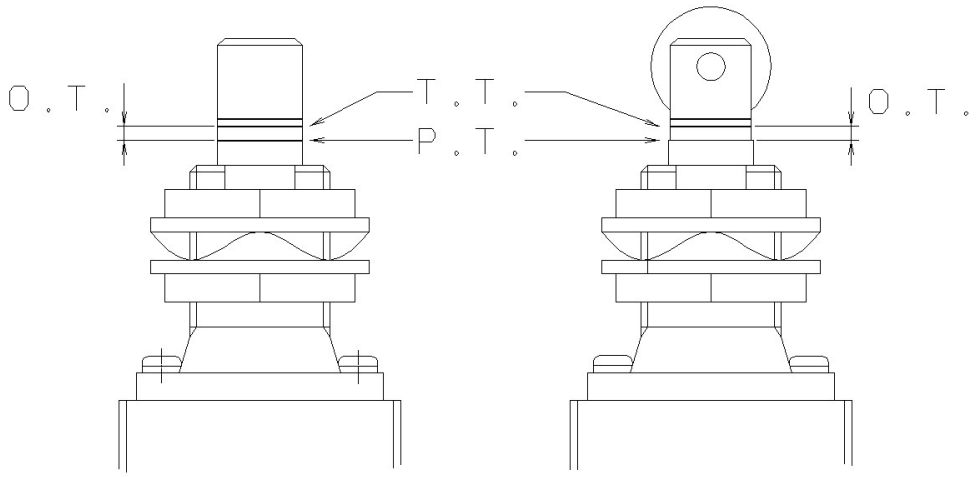
7-1. Stroke range

Use a mechanical operating product within the stroke range calculated by the formula below.

Stroke range = (P.T. + 0.5 x O.T.) to (P.T. + O.T. -0.1)

Actuator	Stroke range (mm)
Basic	4.0 to 4.9
Roller lever	8.7 to 10.9
One way lever	9.5 to 11.9
Straight plunger	4.5 to 5.4
Roller plunger	4.5 to 5.4
Cross roller plunger	4.5 to 5.4

Fig. shown below shows the groove and step as a guide for P.T. and T.T. point positions of plunger type. Please use these values as a guide for adjusting stroke.



7-2. Maximum angle and maximum speed limit for cam and dog

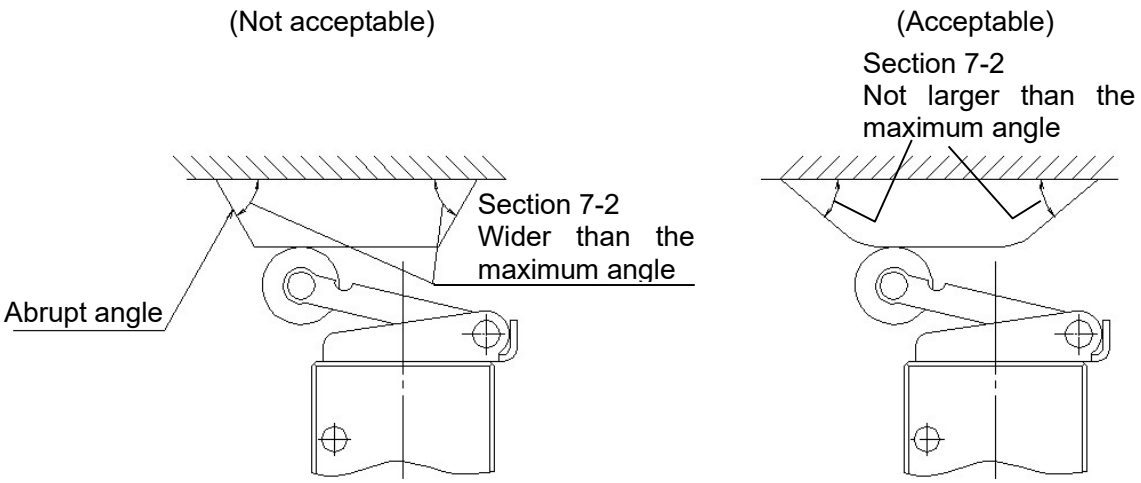
Actuator	Dog angle	Max. speed for dog (m/s)
Roller lever	30°	0.7
	45°	0.3
One way roller lever	30°	0.7
	45°	0.3
Straight plunger	-	0.2
Roller plunger	30°	0.3
Cross roller plunger	30°	0.3

7-3. Cam and dog materials

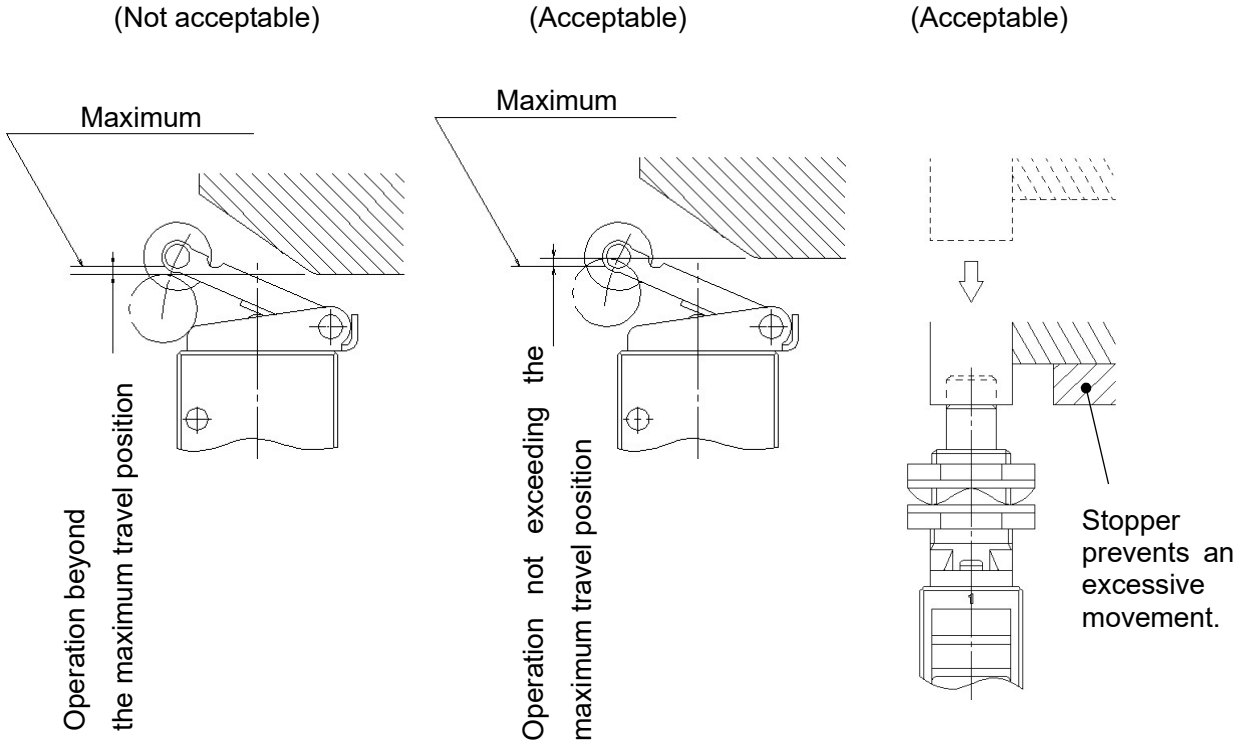
Roller material	Dog material	Finish accuracy for dog
Polyacetal	Metal	Rz 6.3 or less
Hard steel	Metal, resin	Rz 25 or less

7-4. Operation mechanism and configuration

1. Avoid acute angles on limit switch actuator.



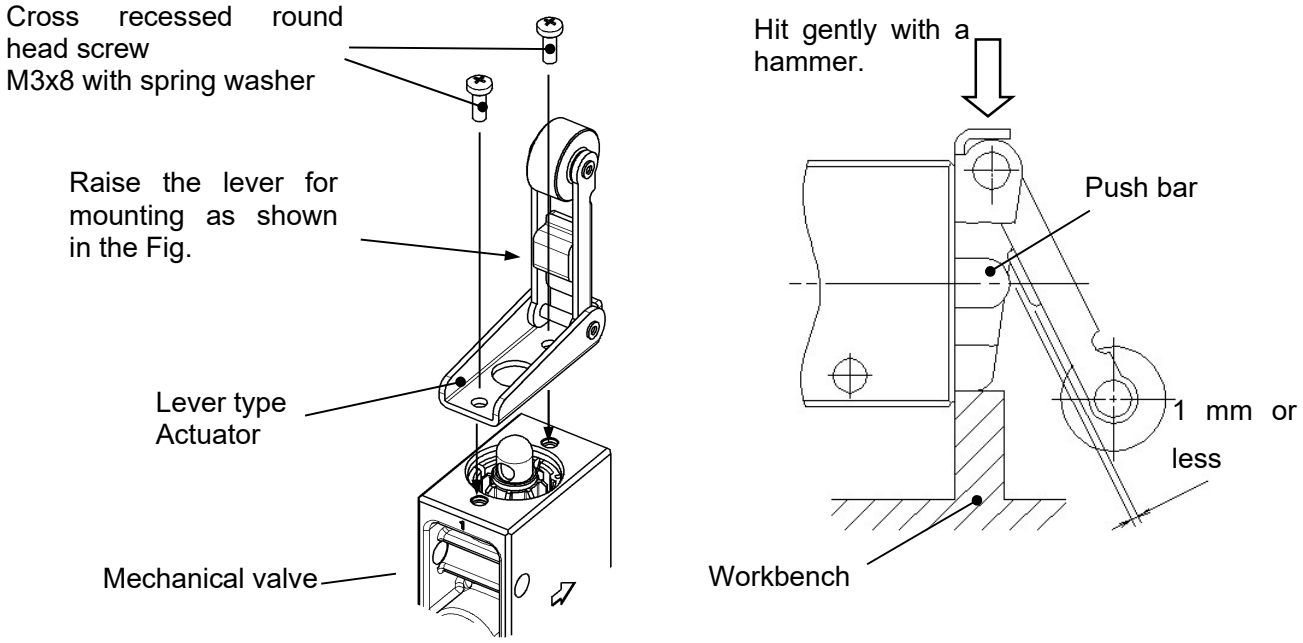
2. Do not allow stroke beyond the maximum travel position.



8. Replacement of the Actuator

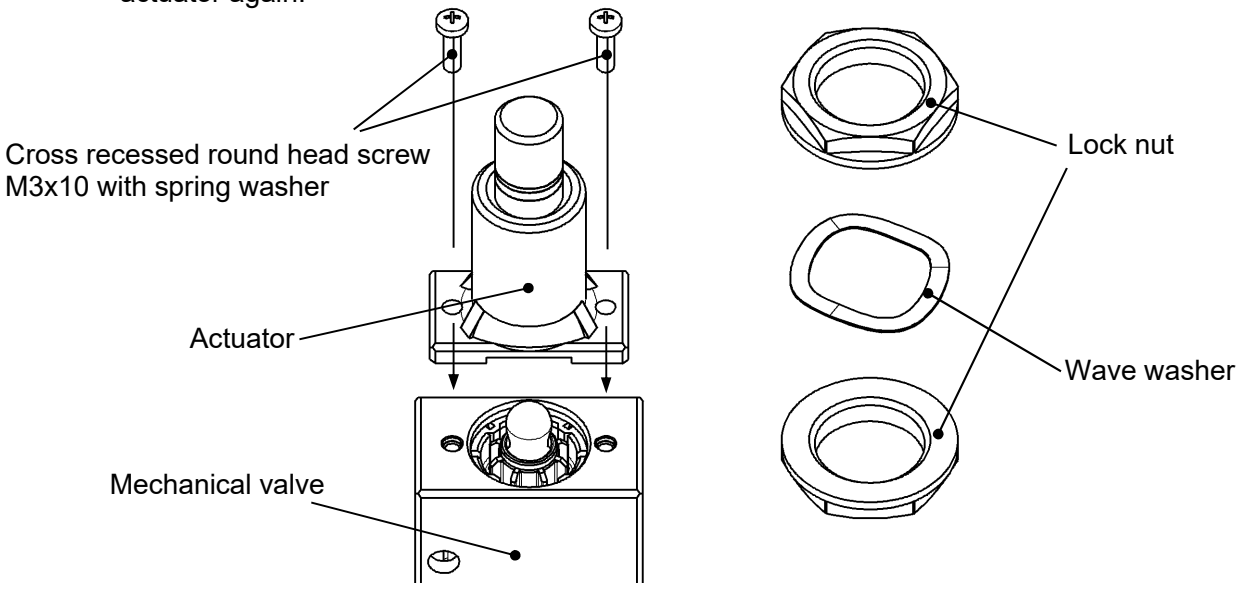
8-1. Lever type

1. Raise the lever of the actuator as shown in Fig. and mount the actuator to the mechanical valve with two screws (M3x8).
2. Gently hit the end part of the lever support with a hammer so that the lever will not rise after mounting, and adjust the clearance between the end of the push bar and the bottom part of the lever to be not more than 1mm. Phillips head screwdriver, hand hammer, and workbench are necessary for this work.



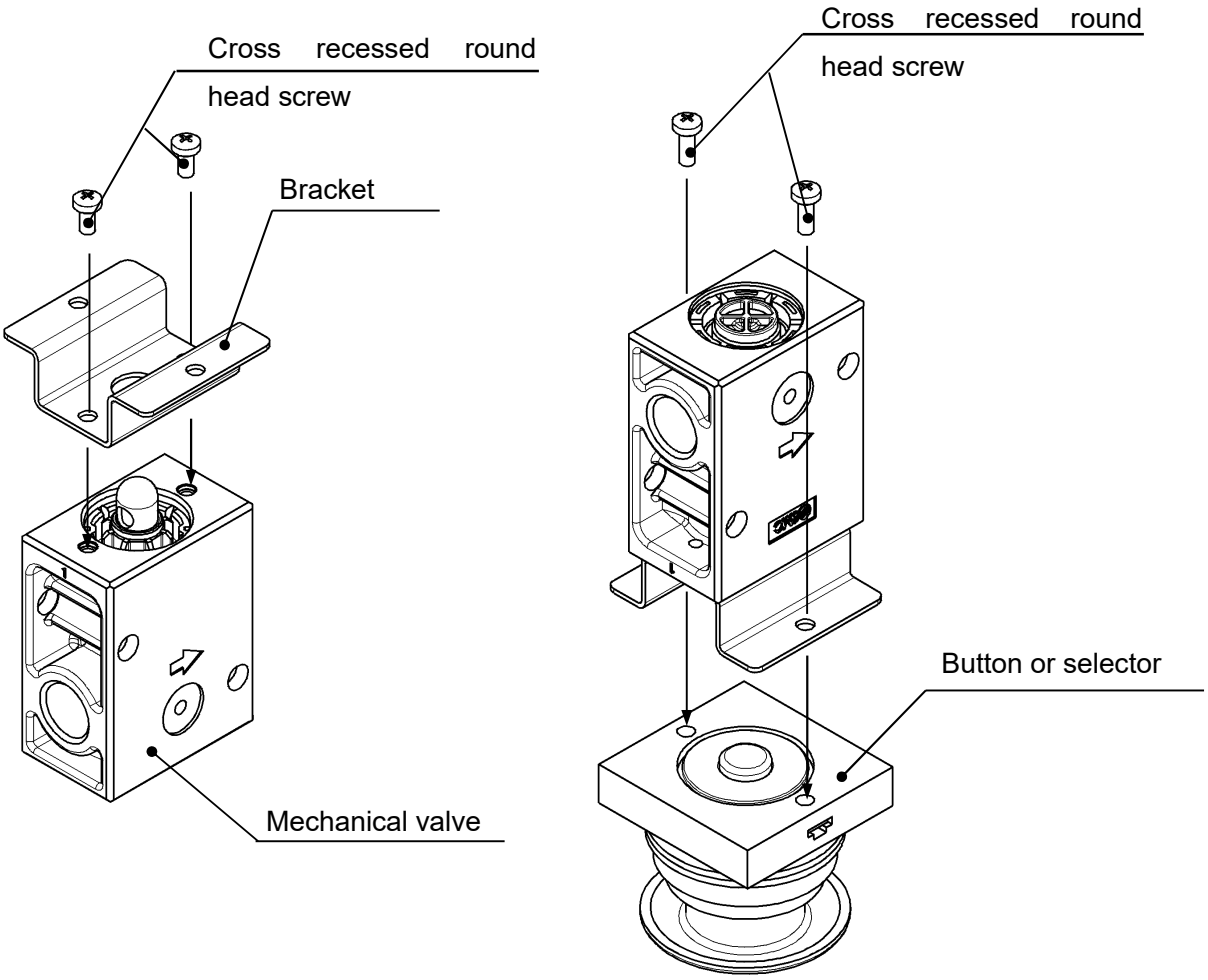
8-2. Plunger and toggle lever types

1. Remove the two lock nuts and the wave washer from the actuator.
2. Mount an actuator to the mechanical valve with two screws (M3x10) as shown in the Fig. below. Phillips head screw driver is needed.
3. After mounting the actuator, assemble the two lock nuts and the wave washer to the actuator again.



8-3. Button type, Selector type

1. Mount a bracket to the mechanical valve using two screws (M3x8 with spring washer).
2. Mount a button or selector to the bracket (that is already mounted to the mechanical valve) with two screws (M3 x8 with spring washer).



[Supplied screws]

Type	Qty.	Remarks
M3x6 with spring washer	2	Not required for mounting of VM200 series valve.
M3x8 with spring washer	4	

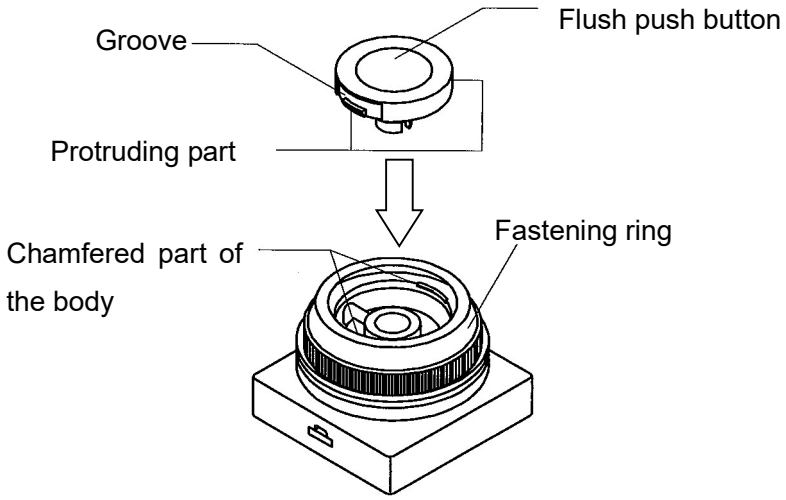
8-4. Replacement of the button

Follow the procedure below to change the button.

1. Flush push button

Installation - Choose the button from 4 colors (red, green, black and yellow). Push the protruding part of the button into the body.

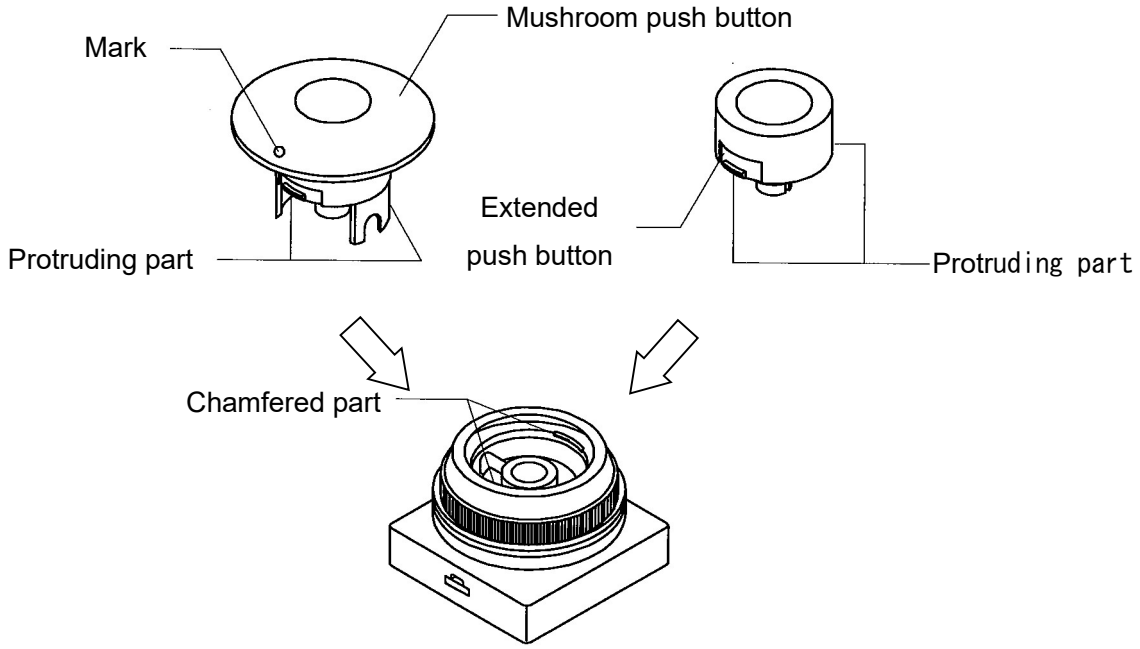
Removal - Remove fastening ring. Insert a small screwdriver into the groove of the button to take the button out.



2. Mushroom push button and extended push button

One specified button is set when the product is shipped.

	Mushroom push button	Extended push button
Mounting	Align the protruding part of the button with the recessed part of the body and push in. (Use the mark on the button as a reference to align the protruding part)	Align the protruding part of the button with the recessed part of the body and push in.
Removal	Use your thumb to pry the button upwards.	Remove the fastening ring. Insert a small screwdriver into the groove of the button to take the button out.



9. Product Number of the Actuator

[Actuator number]

	Actuator	Actuator Component No.	Remarks
Mechanical operation	Basic	—	—
	Roller lever	VM-01A	POM roller
		VM-01AS	Hard steel roller
	One way roller lever	VM-02A	POM roller
		VM-02AS	Hard steel roller
	Straight plunger	VM-05A	—
	Roller plunger	VM-06A	POM roller
		VM-06AS	Hard steel roller
	Cross roller plunger	VM-07A	POM roller
		VM-07AS	Hard steel roller
Manual operation	Toggle lever	VM-08A	—
	Mushroom push button	VM-30AR	Red
		VM-30AB	Black
		VM-30AG	Green
		VM-30AY	Yellow
	Extended push button	VM-32AR	Red
		VM-32AB	Black
		VM-32AG	Green
		VM-32AY	Yellow
	Flush push button	VM-33A	One set includes red, black, green and yellow.
	Twist selector (2 position)	VM-34AR	Red
		VM-34AB	Black
		VM-34AG	Green
		VM-34AY	Yellow
	Key selector (2 position)	VM-36A	—
	Twist selector (3 position)	—	—
	Foot pedal	—	—

[Button number]

Color	Mushroom push button	Extended push button	Flush push button
Red	3402186R	3402187R	3402188R
Black	3402186B	3402187B	3402188B
Green	3402186G	3402187G	3402188G
Yellow	3402186Y	3402187Y	3402188Y

Fastening ring number: 3402184

[Bracket part number]

・VM2-B

Applicable only to side mounting type.However, not applicable to twist selector (3 position) and foot pedal.

10. Precautions on Made-to-Order Products (X207A, X219A)

10-1. Specifications

X207A・・・・Alternate Type, Mushroom Push Button

X219A・・・・Push-lock Turn-reset Type, Mushroom Push Button

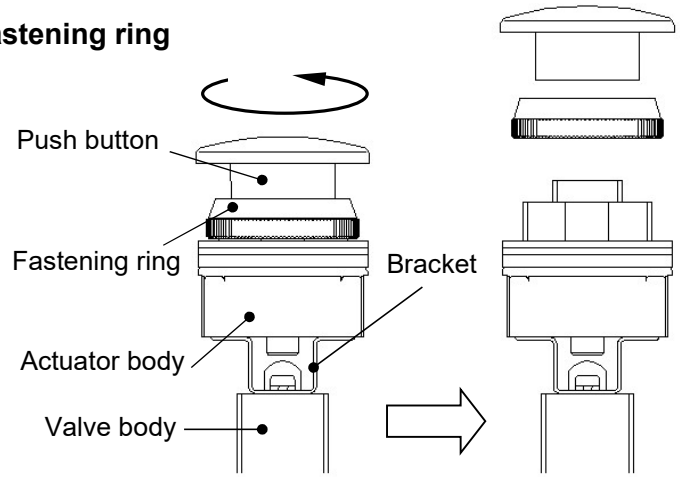
10-2. Precautions for mounting

[Task 1] Removal of the push button and fastening ring

Remove them from the body turning them counterclockwise in the order of the pushbutton and fastening ring.

⚠ Caution

When mounting on a panel, be sure to hold the actuator body to tighten or remove the push button and fastening ring. If you work by holding the valve body, a load is applied in the tensile direction, which may lead to deformation of the bracket.
If the bracket is deformed, the mechanical valve will not operate properly.



Remove the push button by holding the actuator body.

[Task 2] Mounting the valve to the panel

By holding the actuator body, insert the valve to the panel and fix it by using the fastening ring.

Remove three spacers attached to the valve depending on the panel thickness

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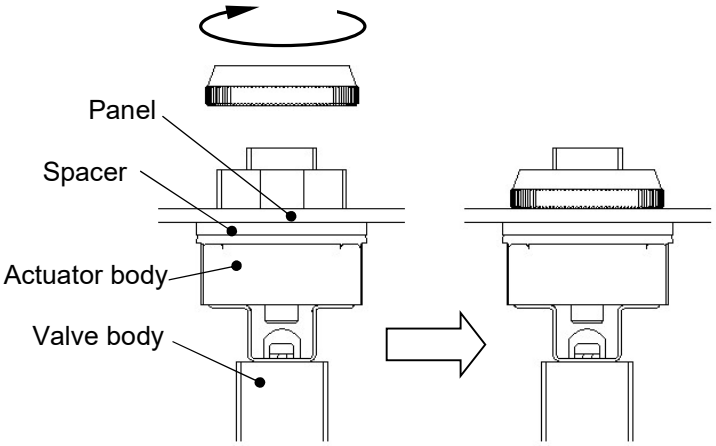
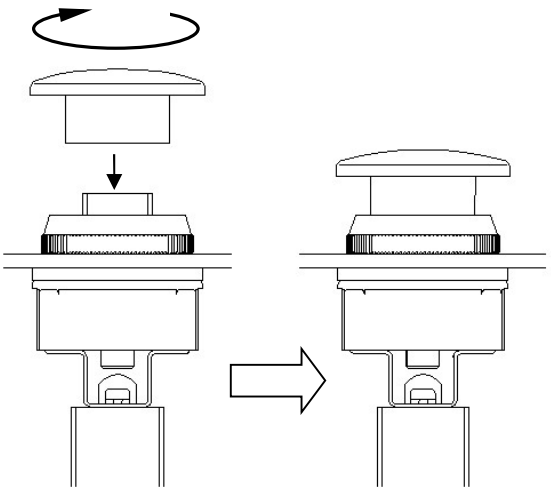


Mount the push button by holding the actuator body

[Task 3] Mouting the push button

Tighten the push button clockwise by hand and further tighten it until load is applied.



Revision history
A: Stroke range correction B: Safety Instructions changed. 2023.12 C: Change of the note on the operating environment (6) and Safety Instructions. Addition of Made-to-Order Products. 2024.2

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