CKD

SM－1571－A

INSTRUCTION MANUAL

MECHANICAL VALVE

MM

- Please read this instruction manual carefully before using this product, particularly the section describing safety.
- Retain this instruction manual with the product for further consultation whenever necessary.

CKD Corporation

For Safety Use

To use this product safely, basic knowledge of pneumatic equipment, including materials, piping, electrical system and mechanism, is required (to the level pursuant to JIS B 8370 Pneumatic System Rules).

We do not bear any responsibility for accidents caused by any person without such knowledge or arising from improper operation.

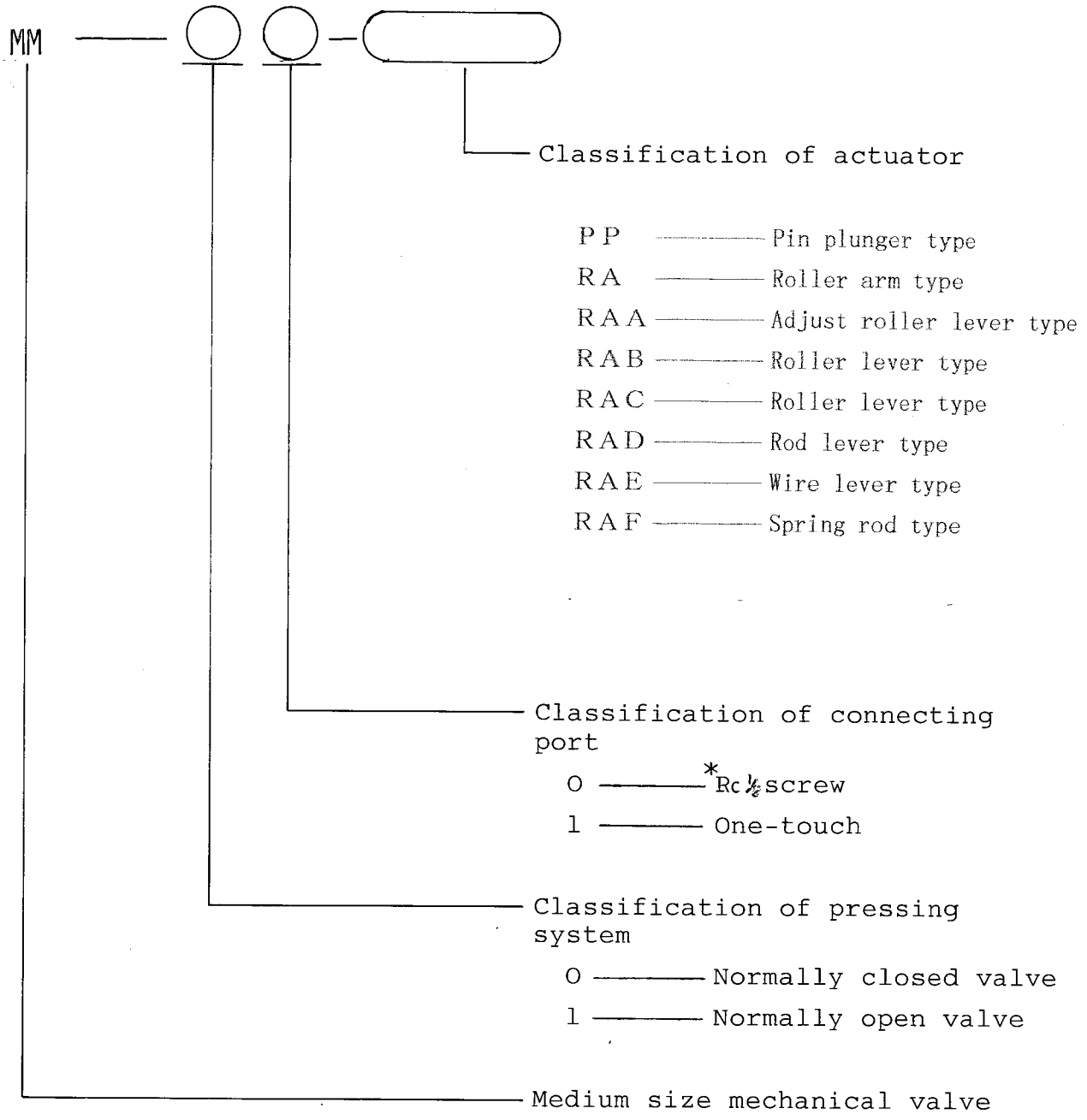
Our customers use this product for a very wide range of applications, and we cannot keep track of all of them. Depending on operating conditions, the product may fail to operate to maximum performance, or cause an accident. Thus, before placing an order, examine whether the product meets your application, requirements, and how to use it.

This product incorporates many functions and mechanisms to ensure safety. However, improper operation could result in an accident. To prevent such accidents, read this operation manual carefully for proper operation.

Thank you very much for purchasing the CKD product.
This INSTRUCTION MANUAL deals with the basic items regarding the installation, operation, maintenance, etc. required for bringing the efficiency of the product into full play.
Our products are produced under severe quality control.
You are requested to thoroughly go through this INSTRUCTION MANUAL before using the valve, and to perform correct operation and maintenance.

CONTENTS

1. Model

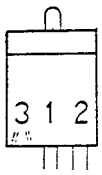
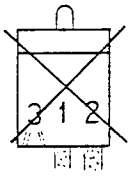
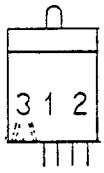
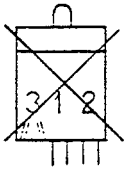
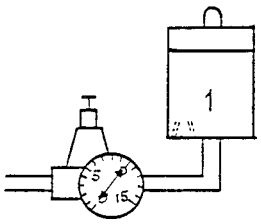
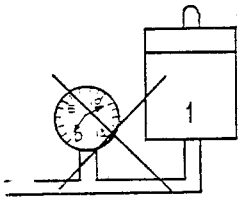
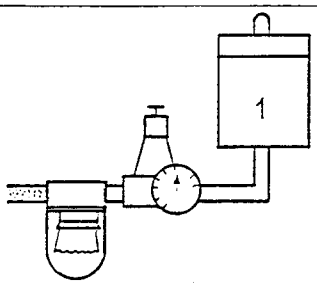
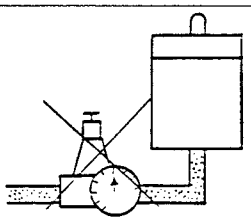


2. Specifications

(1) Fluid	.....	Air
(2) Working pressure range	.....	0 ∿ 0.8 MPa
(3) Working fluid temperature	.....	5° ∿ 60°C (not to be frozen)
(4) Working ambient temperature	.....	5° ∿ 60°C

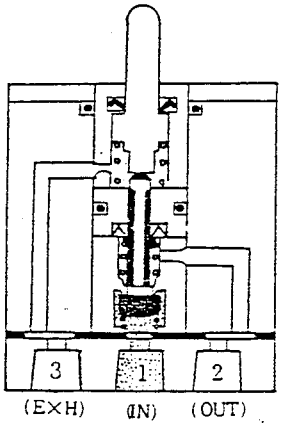
* : Rc designates previous PT

3. Cautions for Installation

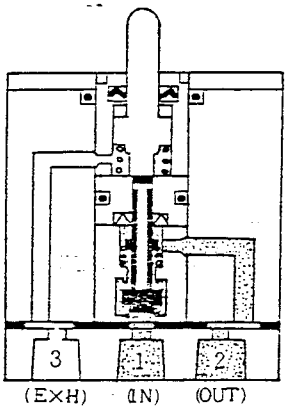
Item	Correct	Incorrect	Explanation
(1)			Prior to piping of the mechanical valve, be sure to remove all foreign materials in the pipes. (Air flushing)
(2)	 Primary pressure Secondary pressure	 Secondary pressure Primary pressure	Be careful of air flowing direction. 1 port ... Primary pressure 2 port ... Secondary pressure 3 port ... Exhaust
(3)			Pay attention not to exeed the working pressure range on the primary side (1 port). Be sure to install a regulator when using high pressure.
(4)			Provide a filter before the regulator so that no dust and water may enter.

4. Function Explanations and Major Component Parts

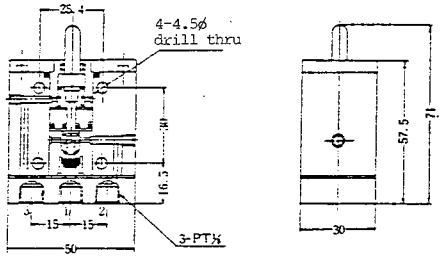
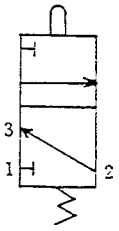
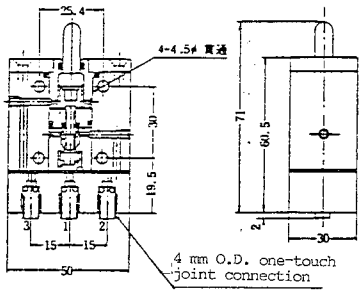
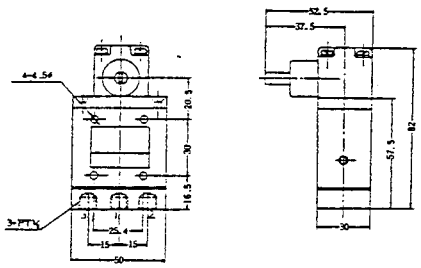
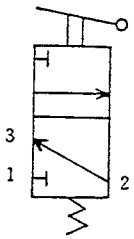
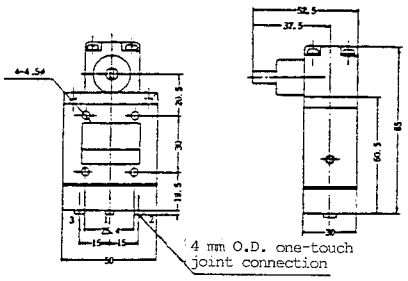
At de-energized

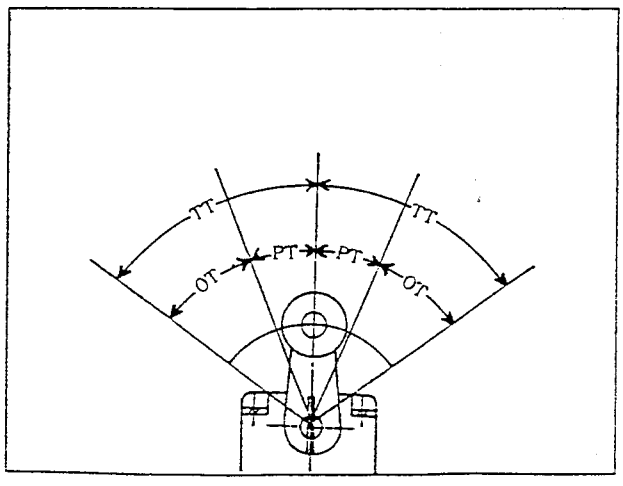


At energized



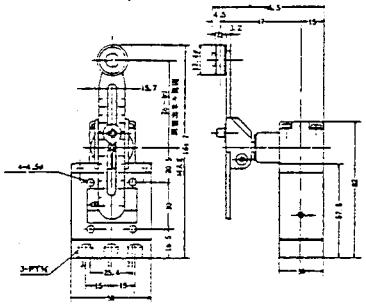
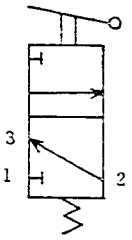
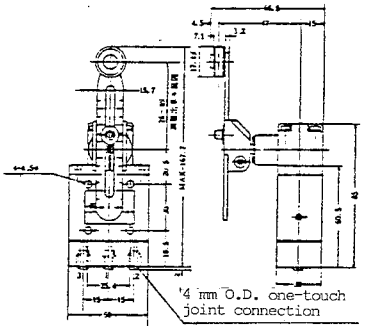
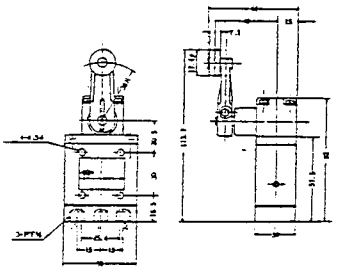
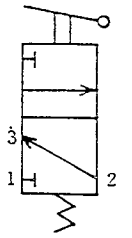
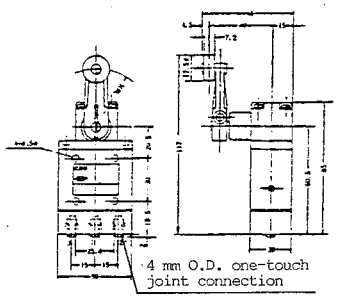
Parts	Materials
Body	Aluminium alloy
Spool	Stainless steel
Spring	Stainless steel
Valve	Nitrile rubber
Gasket	Nitrile rubber

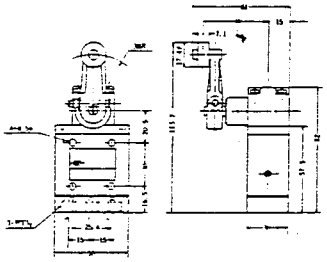
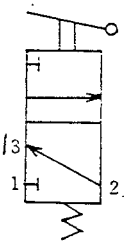
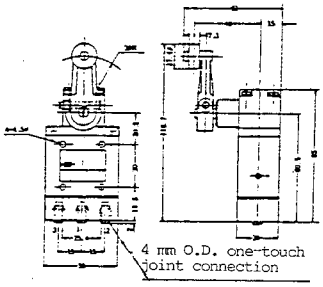
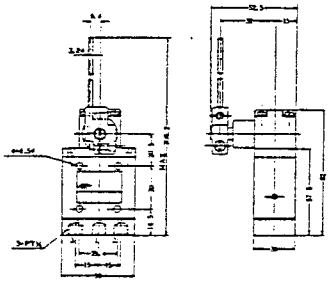
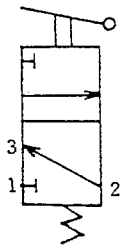
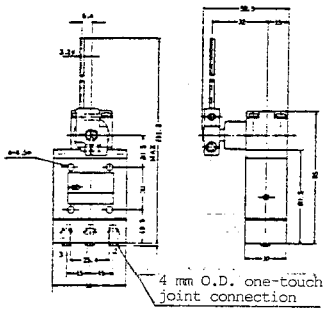
Model	External drawing	Specification	Symbol
MM-00-PP Pin plunger type *R_C 1/8 connect-ion		O. F. 25.5N(0.49MPa) P. T. 1.2mm O. T. 1.8mm T. T. 3mm	
MM-01-PP Pin plunger type One-touch connect-ion			
MM-00-RA Roller arm type *R_C 1/8 connect-ion		O. F. 39.2N·cm(0.49MPa) P. T. 20° O. T. 30° T. T. 50°	
MM-01-RA Roller arm type One-touch connect-ion			



Symbol for each actuation of actuator

Symbol	Explanation
O. F	Force necessary for actuation
P. T	Movement until the valve opens
O. T	Movement after the valve is opened
T. T	Overall movement

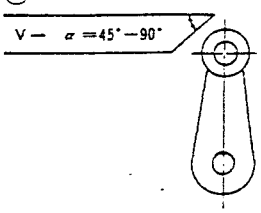
Model	External drawing	Specification	Symbol
MM-00-RAA Adjust roller lever type *Rc 1/8 connect-ion		O. F. 4.5N(0.49MPa) P. T. 20° O. T. 30° T. T. 50°	
MM-01-RAA Adjust roller lever type One-touch connect-ion			
MM-00-RAB Roller lever type *Rc 1/8 connect-ion		O. F. 9.8N(0.49MPa) P. T. 20° O. T. 30° T. T. 50°	
MM-01-RAB Roller lever type One-touch connect-ion			

Model	External drawing	Specification	Symbol
MM-00-RAC Roller lever type *R_C 1/8 connection		O.F. 9.8N(0.49MPa) P.T. 20° O.T. 30° T.T. 50°	
MM-01-RAC Roller lever type One-touch connection			
MM-00-RAD Rod lever type *R_C 1/8 connection		O.F. 2.8N(0.49MPa) P.T. 20° O.T. 30° T.T. 50°	
MM-01-RAD Rod lever type One-touch connection			

Using Method

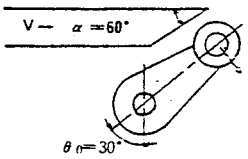
- o Dog cut angle should be less than 45°.
- o If the dog speed is too fast, make θ smaller.
- o Moving position and depth of the dog should be set according to the following formula. $(P.T + \frac{O.T}{2})$
- o Do not use the mechanical valve as a mechanical stopper.
- o The cam and the dog should be designed so that the lever returns slowly.

①V≦0.2m/s



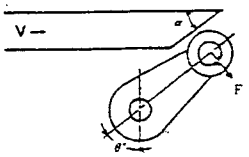
α°	Vmax (m/s)
90°	0.05
75°	0.07
60°	0.1
45°	0.2

②V≦0.1m/s



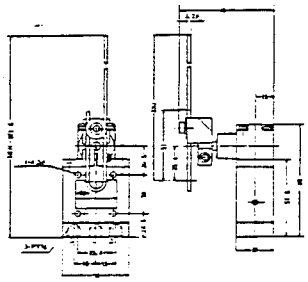
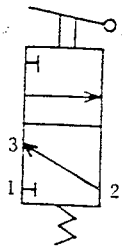
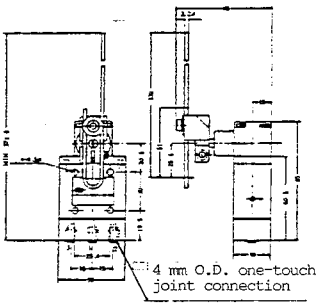
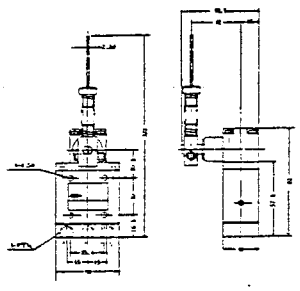
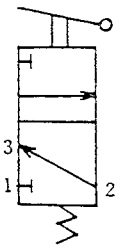
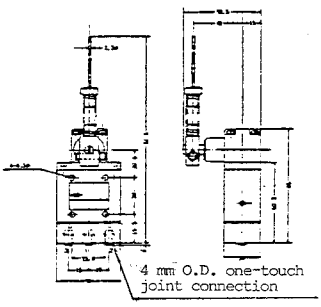
Set the arm parallel to the cut surface of the dog so that the force is applied to the arm in right angle. Generally speaking, dog designing and arm setting are easy.

③V≦2m/s

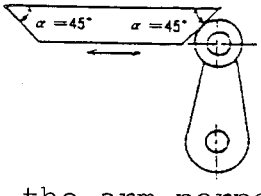


α=90—θ°	Vmax (m/s)
40°	0.7
35°	0.9
30°	1.3
25°	2.0

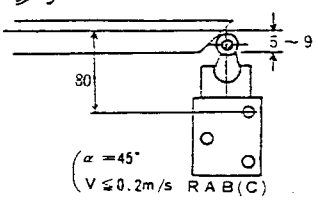
If the angle is made smaller, Vmax (maximum speed) extends. The arm should be set so that it is parallel to the cut surface of the dog.

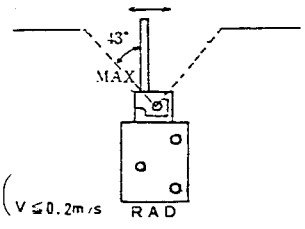
Model	External drawing	Specification	Symbol
MM-00-RAE Wire lever type *R_C 1/8 connect-ion		O. F. 1.3N(0.49MPa) P. T. 20° O. T. 30° T. T. 50°	
MM-01-RAE Wire lever typ One-touch connect-ion			
MM-00-RAF Spring rod type *R_C 1/8 connect-ion		O. F. 1.5N(0.49MPa) P. T. 30° O. T. 20° T. T. 50°	
MM-01-RAF Spring rod type One-touch connect-ion			

④ In case the dog is exceeded
(V≦0.2m/s)



参考





Set the arm perpendicularly and make a = 45°.
V 0.2 m/s is recommended.