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SM-50517-A

INSTRUCTION MANUAL

FOR

GAS SHUT OFF VALVE

Model GASB

Prior to using the Product, it is essential to read this INSTRUCTION MANUAL, especially the description of safety-use issue.

For quick reference whenever necessary, keep this INSTRUCTION MANUAL in a good manner.

CKD Corporation

FOR SAFETY USE

The Product is to be used by those who has a basic knowledge about meterial, fluid, piping electricity regarding Control Valves (solenoid valves, motor valves, air operated valves and so on.) or other products.

Never use this Product by those who have no knowledge or are not well training.

Should be any trouble or accident caused by a wrong selection and/or wrong use of the Product even by a person of basic knowledge about the product, we are not responsible therefore.

Since any customer of the Product have a variety of its application, we are not in a position to get all the information on how and where the Product is used. There may be the cases where that the Product may not meet customers' requirement or may cause any trouble or accident , by fluid, piping or other condition that are not within the specifications of the Product.
Under such a circumstance, select with their responsibility the most suitable application and use of the Product according to the customers' requirements.

The Product incorporates a various safety arrangement, however miss-handling of the product may lead to any trouble or accident on customers side ., To avoid any possible trouble, read this INSTRUCTION MANUAL carefully and understand it fully.

Pay your attention to the items described in this Text, as well as the items indicated below:

⚠ CAUTIONS

- When energized, heat is generated at coil portion of solenoid valves and motor valves paticularly "Class H" coil where may have a high tenperature.

- There my have electric shock when wire connecting portion of solenoid valves or motor valves are touched. In case of inspection, turn off power supply beforehand.
  Don't touch live portion by wet hands.

- Make piping so as not to have leakage and check for no leakage before use , because in case of control valves for high temperature fluid like steam, leakage may cause heat injury.

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Introduction

Thank you very much for adopting CKD's gas shut off valve (GASB type).
This gas shut off valve has been manufactured under CKD's strict quality control system.
Since this product is subject to a few operating conditions including temperature, pressure and so on, any user is requested to go through this manual before installation and recognize the correct installation and usage.

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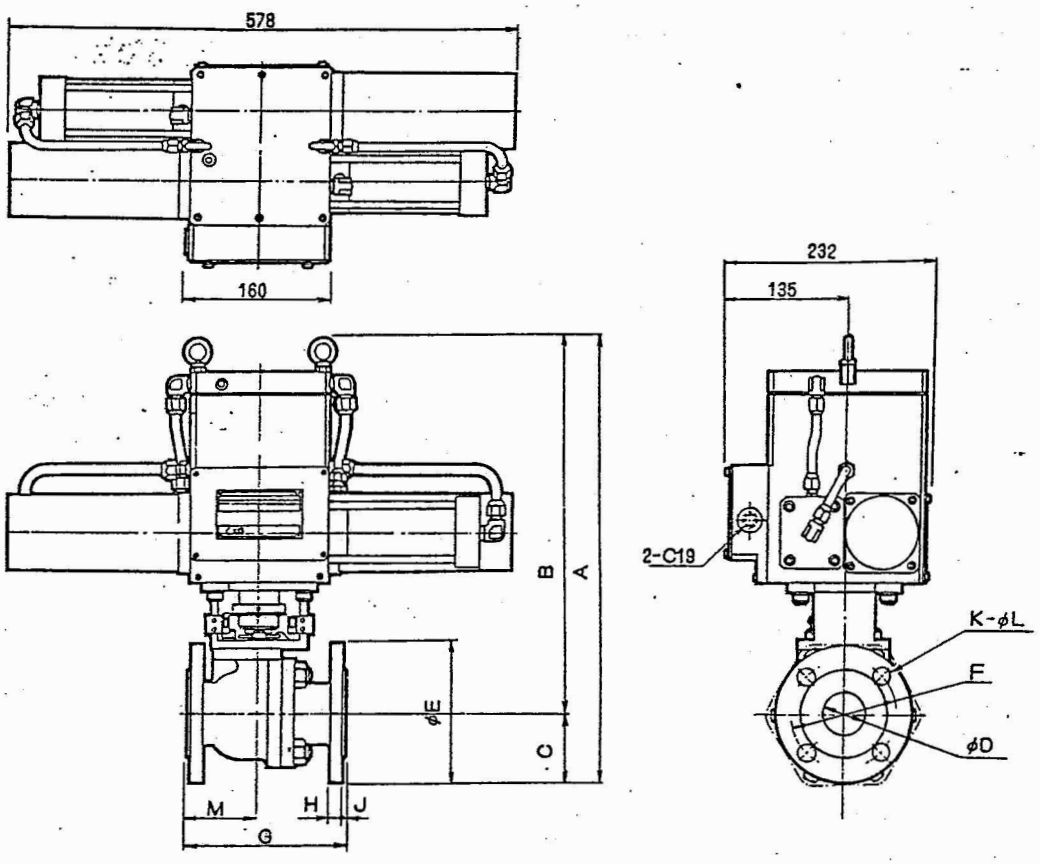
(1) Specifications

Item No. \ Model No.	GASB-2	GASB-3	GASB-4
Connector I/D	50A	80A	100A
Cv value	480	1200	860
Fluid used	City gas / natural gas / LPG		
Pressure applied	10kgf/cm2 or less		
Ambient temperature	-10°C ~ 60°c		
Valve close time	2 sec or less(at 20°C)		
Valve open time	within 20 sec(at 20°C rated voltage)		
Rated voltage	AC100V, AC200V, 50/60Hz		
Insulation type	Class B (JIS C-4003)		
Temperature rise limit	Within 70 deg (By resistance method with rated voltage)		
Power consumption	150W or less (Valve open time) 15W(After fully opening)		
Safety device	With full open/full close position checking indicator With limit switch for checking full open/full close position(AC250V10A)		
Flange shape	JIS 10kgf/cm2 RF		
Total weight	46kg	56kg	59kg

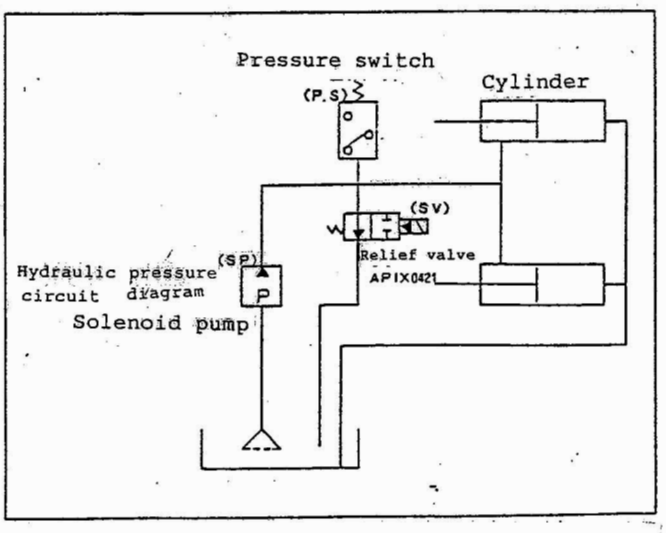
External dimension drawing



Model No. \ Mark	A	B	C	D	E	F	G	H	J	K	L	M
GASB-2	503	425	78	50	155	120	178	14	2	4	19	79
GASB-3	558	462	96	76	185	150	203	16	2	8	19	102
GASB-4	567	462	105	102	210	175	229	16	2	8	19	114

(2) Operation

When the power is supplied to the actuator section, the relief valve closes the hydraulic relief circuit and the solenoid pump works to generate the oil pressure. The oil pressure passes through the manifold and hydraulic piping to pressurize the rod side of the cylinder to drive the piston rod. The piston rod then, gives a rotation torque to the driving shaft via a yoke to let the ball rotate counterclockwise to fully open the valve.
In fully open state, the hydraulic pressure switch actuates to stop the solenoid pump. But the relief valve only continues to operate and maintains the valve open state with low power.
If the power is turned off, the relief valve opens the hydraulic circuit to lower the hydraulic pressure to the ambient pressure and the return spring makes the ball rotate clockwise to fully close the valve. The cylinder head side is interconnect with the working oil tank. The opening or closing condition of the valve can be checked visually with a pointer mounted to the coupling section of the ball valve.
By the cam mounted to the piston rod in the cylinder 2 limit swithches can be actuated and fully closed or fully opened position confirmation can be taken out by the electric signal.



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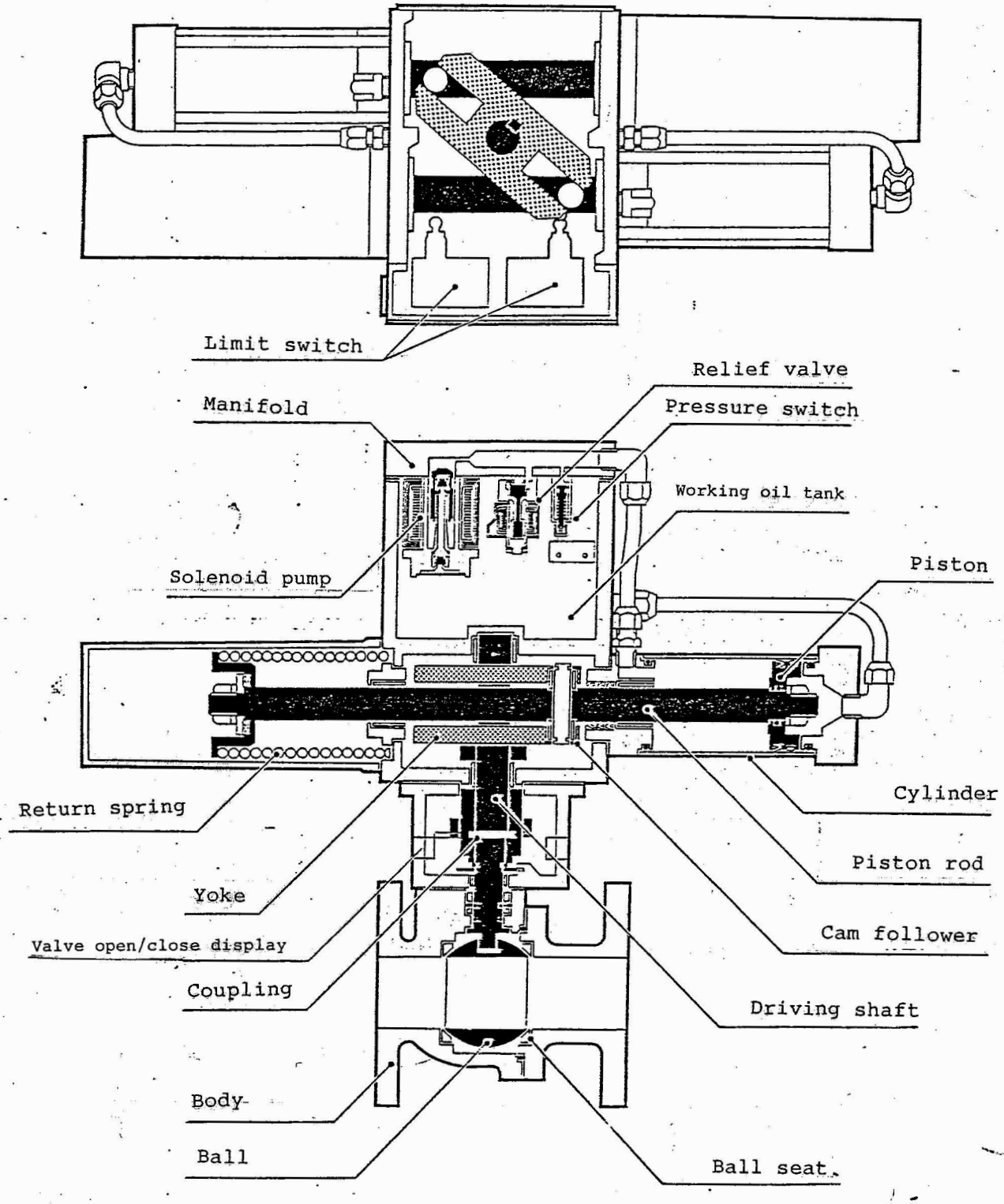
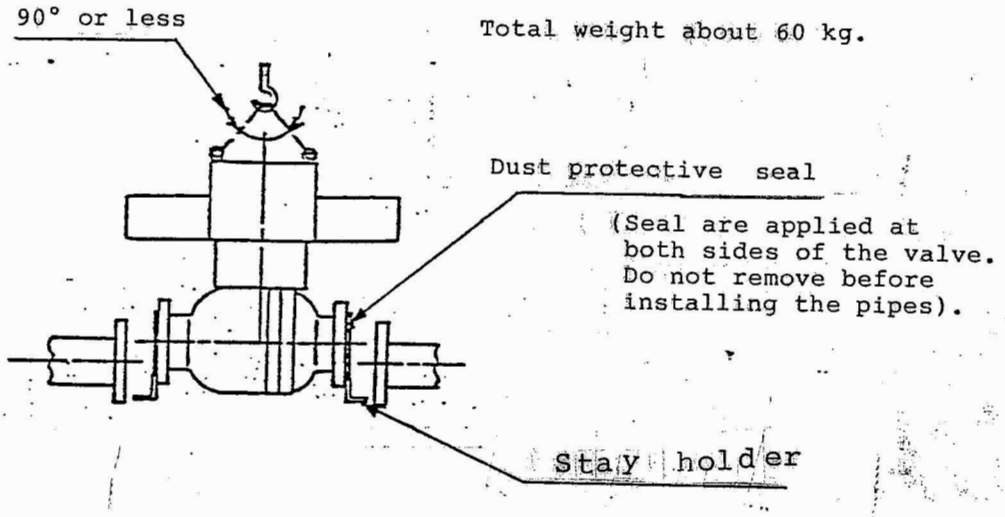
(3) Internal structural drawing



(4) Transportation and storage

The products transported from CKD's factory have dust protection seals to prevent dust and dirt from entering the internal side of the ball valve and stands are installed to prevent the product from falling down. Do not remove the seals even after unpacking until the time of installing the piping.

4-1 After unpacking, transport the valve while steadying it by passing a rope into an eyebolt at the top of the actuator. Do not transport it by holding the hydraulic pipe in the actuator otherwise it can cause oil leakage.



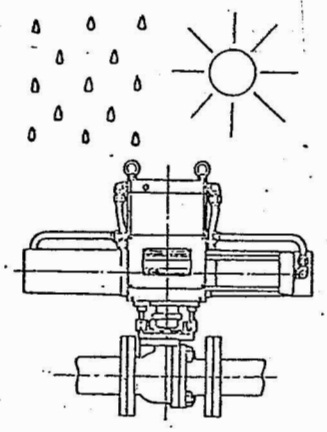
4-2 In case of storing it for a certain period of time with the case unpacked, store the goods at a position free of moisture or corrosive gas.

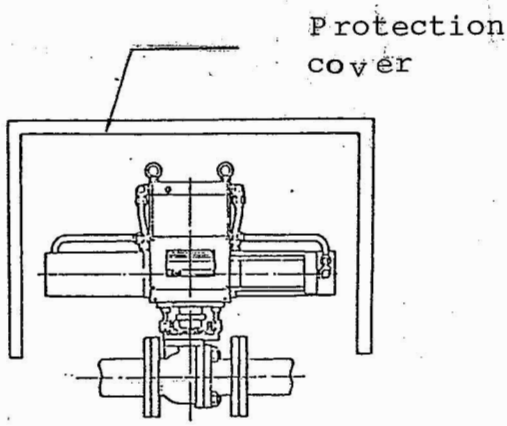
(5) Installation and piping work

5-1 Installing position

The valve is designed for in-door installation.
When installing, care should be taken in the following points.

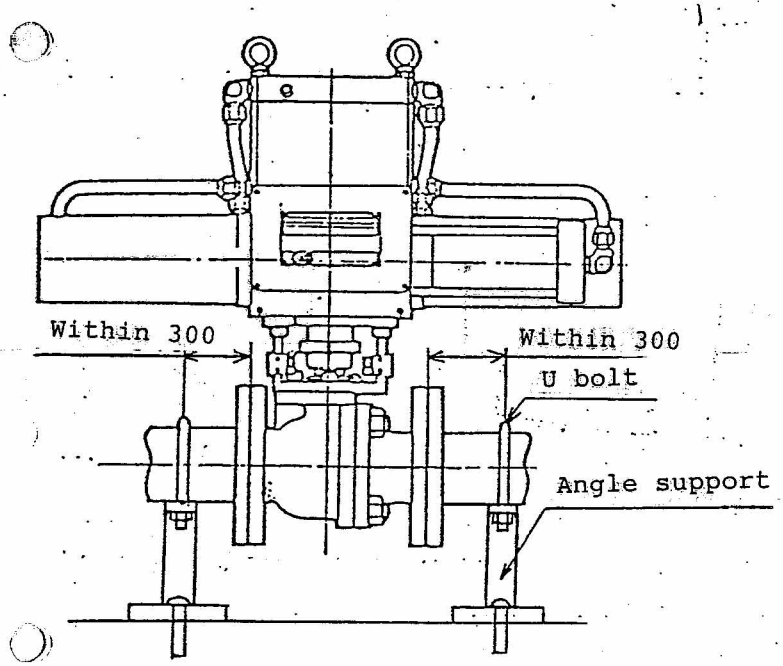
1) Install the valve at a position easily accessible for daily inspection and maintenance.
2) Install the valve away from direct sunlight, in a place where ambient temperature does not become less than -10°c and more than 60°c.
3) Avoid a place where rain drops directly pour.



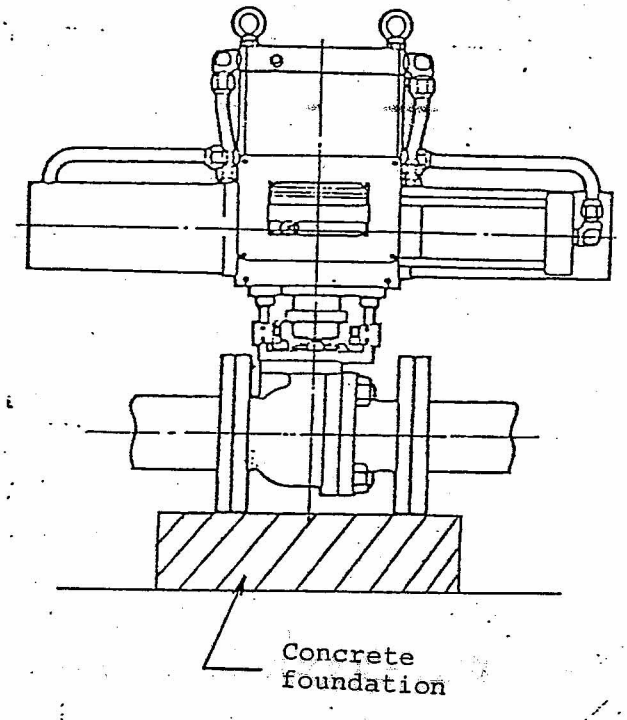


5-2 Gas piping work

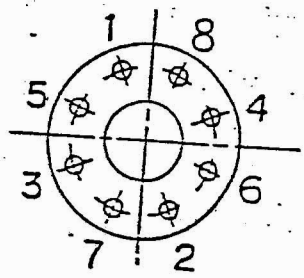
1) CKD makes utmost effort to transport the valve to the users'site. Users are requested to check its appearance for any breakage or loosen bolt which might have occured during transportation.
2) After removing the dust protective seals, clean inside of the valve flow channel and pipes. After confirming that there are no foreign matters like welding chip or scales, install the piping.
3) Since the valve is a heavy duty item, install a piping support or a foundation so that the valve weight is not directly applied to the gas piping.



a) How to support gas piping

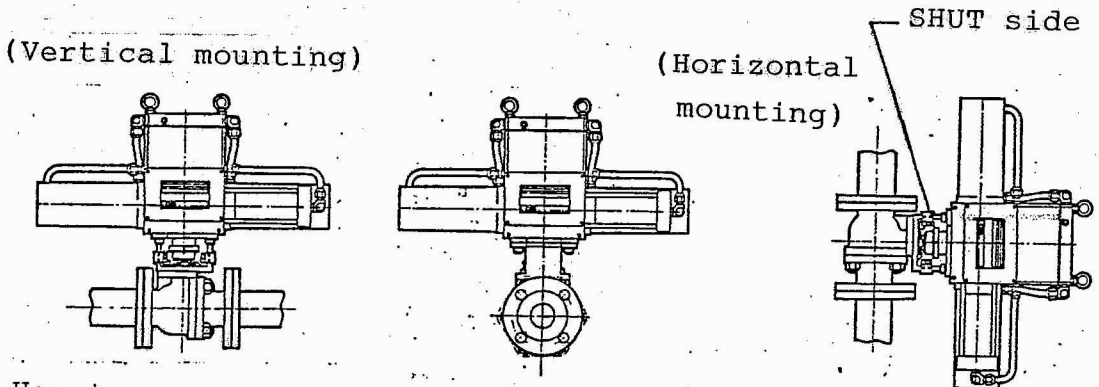


b) How to consturuct a foundation to support

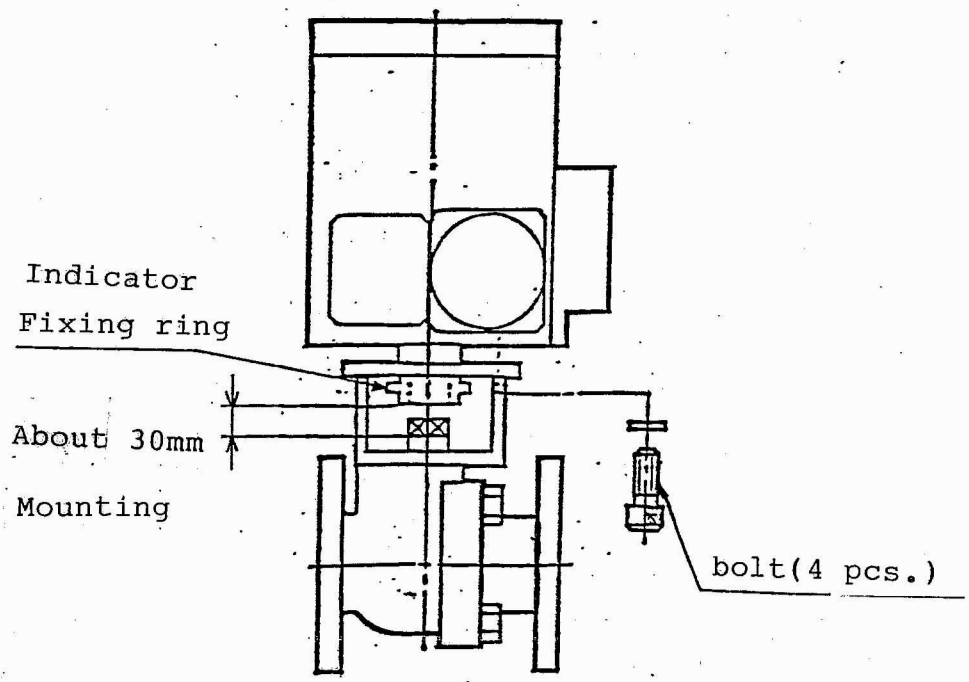


4) For the valve piping, use a proper gasket and tighten with a flange bolt applying even torque onto it so that it is not unevenly fastened as shown in the figure at right.
5) The valve posture shall be either a vertical mounting with its actuator set to upper side or a horizontal posture with its actuator set to its side. In case of horizontal mounting, set the actuator at a proper position so that SHUT indication of the valve open/close indicator comes to the upper side viewing it from the front side. If the actuator direction should be changed because of a spacing in the mounting position, remove the actuator setting bolt (4 pcs.) and push up the actuator by about 30mm and change its direction by about 90°. If necessary, change the direction after loosening the setting screw in the indicator fixing ring. After confirming open/close position of the valve, fix the setting screw without fail.

Mounting posture diagram



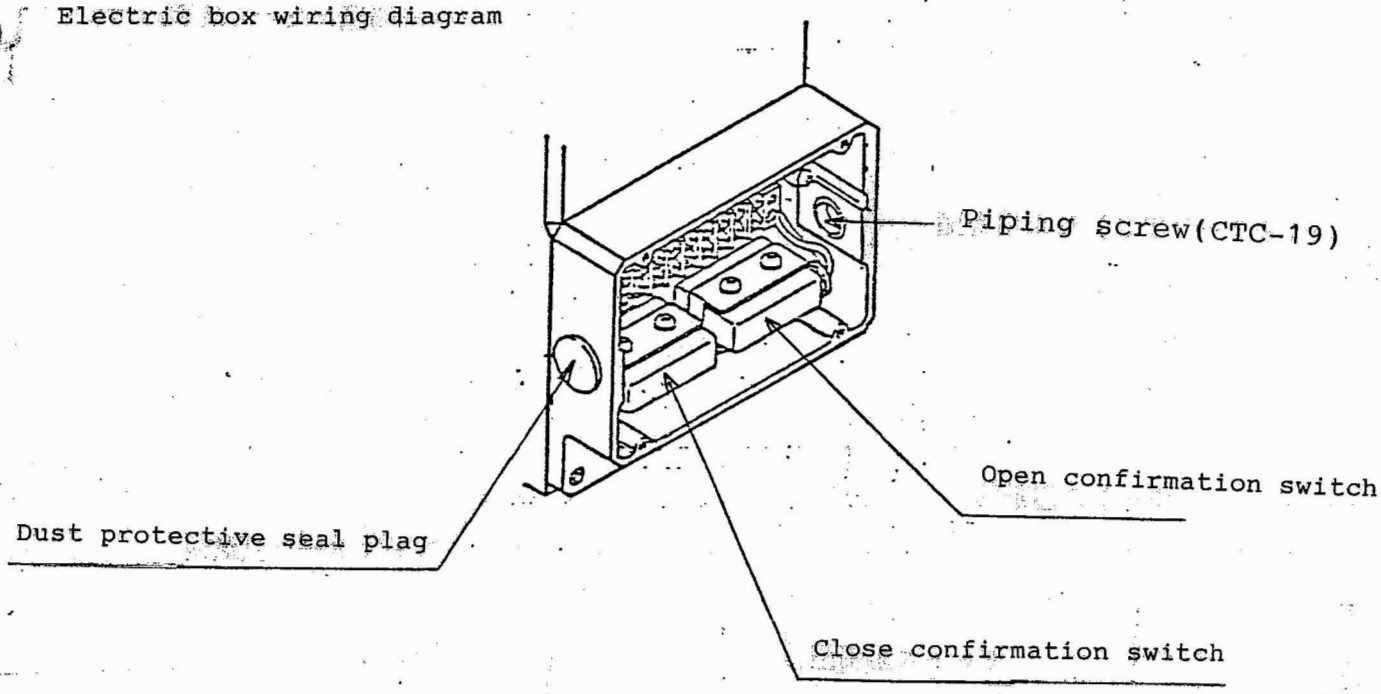
How to reversely set the actuator by 90°



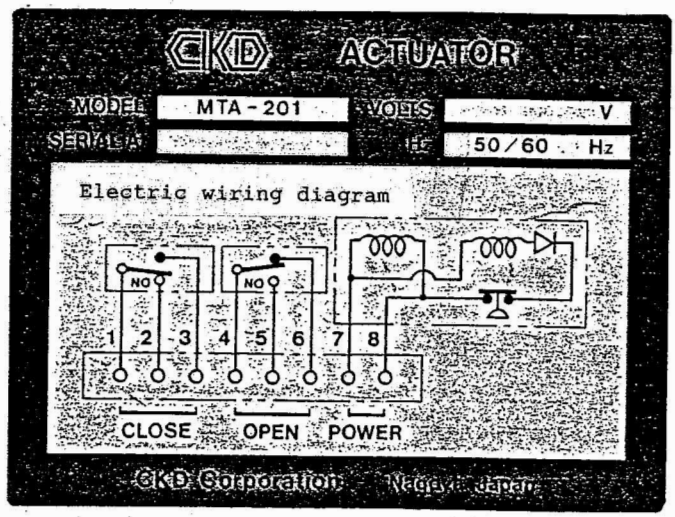
5-3 Electric wiring work

1) Make wiring to the actuator perform flexible piping and cabtyre cable work. When working, be careful not to let water enter the pipe.
2) Power consumption for valve opening is about 460VA (It is 44VA in the valve opened and sustained condition)
   Make wiring using a lead wire of 1.25mm2 or more. Use an operation relay contact and fuse with 10A capacity.
3) Connect the wire in the electric box with as little slackness as possible. Do not tack in any slacken wires from electric box to the body inside.
   (The wire contacts with the yoke and causes a trouble.)

Electric box wiring diagram



Electric wiring diagram



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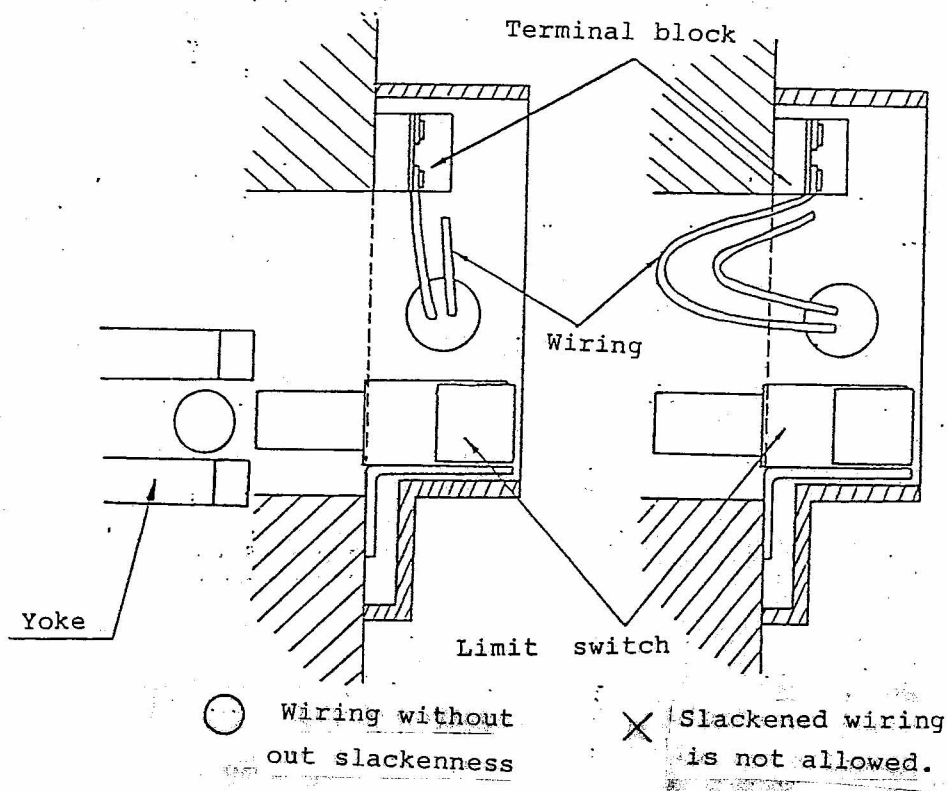
Wiring in the electric box



(6) Maintenance and inspection

Inspect the ball valve and the actuator in the following manner.

6-1 Daily inspection
Both the ball valve and the actuator are designed as an oil free condition. Do not supply oil.
(For the Hydraulic oil CHEMIFOL HTYDRAULIC 256682 (CKD is applicable).
Visually check the valve open/close condition with an indicator installed at the ball valve coupling section.

6-2 Periodic inspection
Perform periodic inspection in accordance with the periodic inspection procedure for the safety valve as described in the safety standards mentioned below:

"Guidance for the safe operation of gas boiler combustion equipment"
"Guidance for the safe operation of industrial gas combustion equipment" (Issued by Japan Gas Association)

"Safety standard for gas absorbing water cooling and heating device" (JRA-4004)
"Safety standard for small gas absorbing water cooling and heating device" (JRA-4016)
"Guidance for the periodic maintenance for the gas absorbing water cooling equipment" (Issued by Japan Refrigeration and Air-conditioning Industries Association)

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6-3 Trouble shooting

Trouble	Cause	Remedy
Gas leaks	Internal leakage	Replace or repair the ball valve.
	External leakage	Replace or repair the ball valve.
Pump working sound is not heard but doesn't open.	Operation power is not supplied.	Check the wiring in the electric circuit.
	Voltage specification is wrong.	Confirmation of rated voltage.
	Trouble in the actuator	Replace or repair the actuator
Pump wording sound is heard but doesn't open (More than 60 sec.)	Crushed or broken hydraulic piping	Replace or repair the actuator
	Trouble in the actuator	Replace or repair the actuator
	Worn ball valve	Replace or repair the ball valve.
	Voltage is low.	Confirm if the contact capacity, confirmation of rated voltage ±10%
	Improper mounting posture or ambient temperature	Check the specifications
Doesn't close	Improper insulation at the grounding side of the power supply.	Confirm the wiring in the electric
	Foreign matter has been engaged in the ball valve.	Replace or repair the ball valve.
	Trouble in the actuator	Replace or repair the actuator.