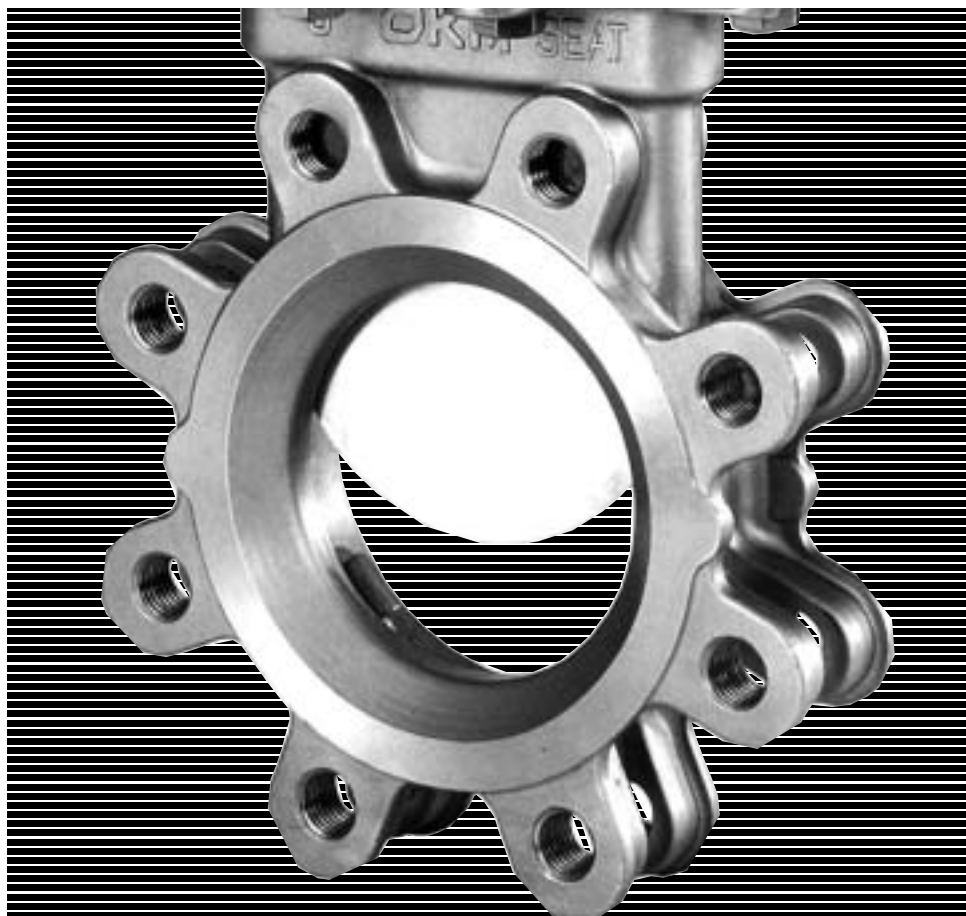




All Stainless Steel
Knife Gate Valves

336J / 336Y



Handling Manual

OKUMURA ENGINEERING corp.

Structural Drawing

336J

The Figure Shown : 50mm to 150mm

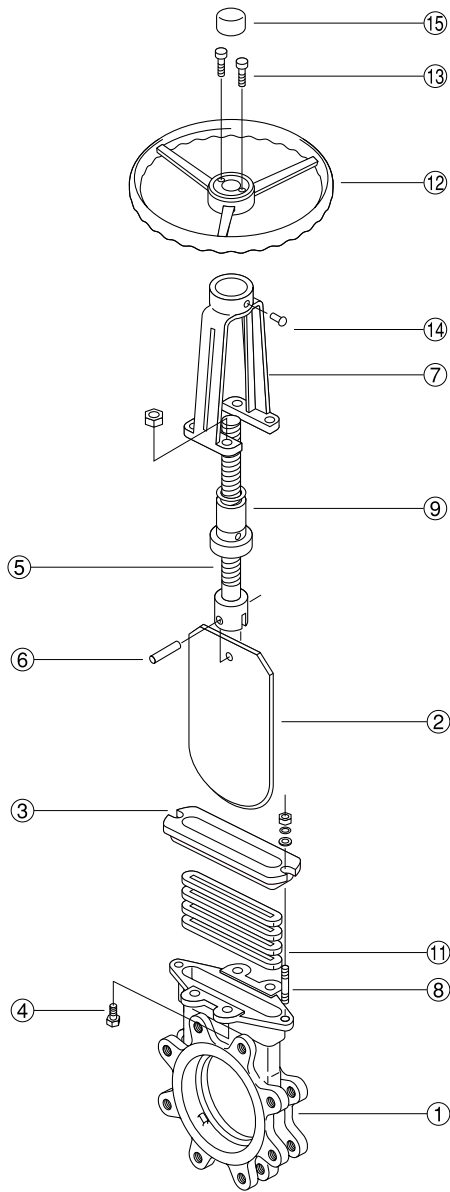


Fig 1 - A

336J

The Figure Shown : 200mm to 300mm

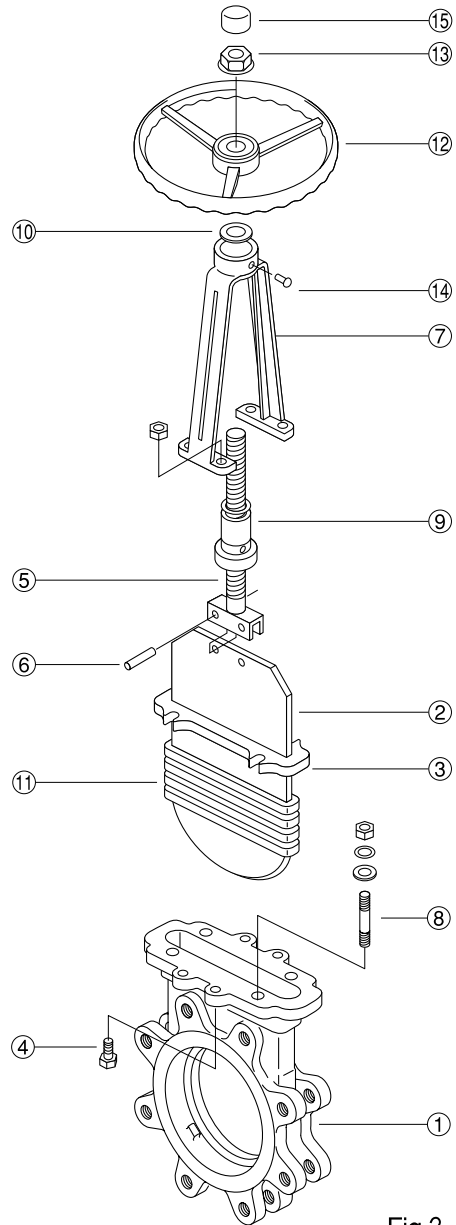
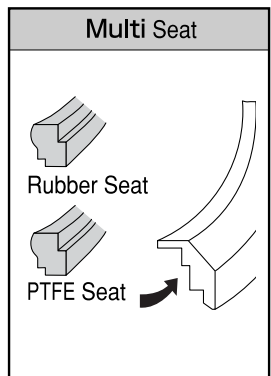
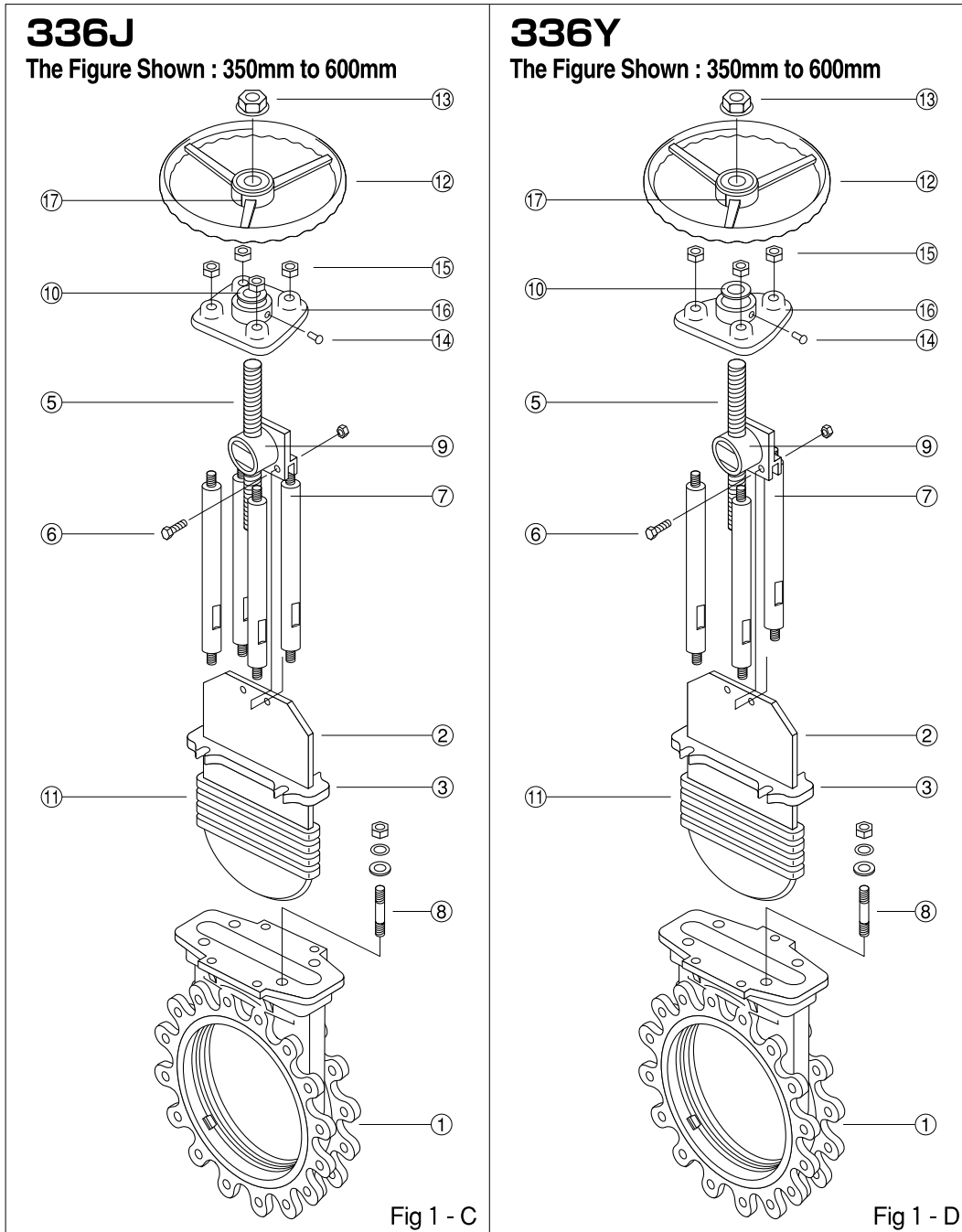


Fig 2 - B

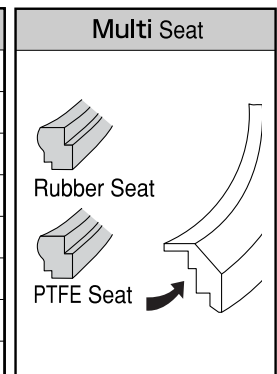
No.	Parts Name	Q'ty	No.	Parts Name	Q'ty
①	Body	1	⑧	Gland Bolt Nut	1 set
②	Plate	1	⑨	Yoke Sleeve	1
③	Gland Flange	1	⑩	Thrust Ring	1
④	Bolt	1 set	⑪	Gland Packing	1
⑤	Stem	1	⑫	Hand Wheel	1
⑥	Set Pin (50mm to 150mm)	1	⑬	Nut	1
⑥	Set Pin (200mm to 300mm)	2	⑭	Grease Nipple	1
⑦	Yoke	1 set	⑮	Stem Cap	1

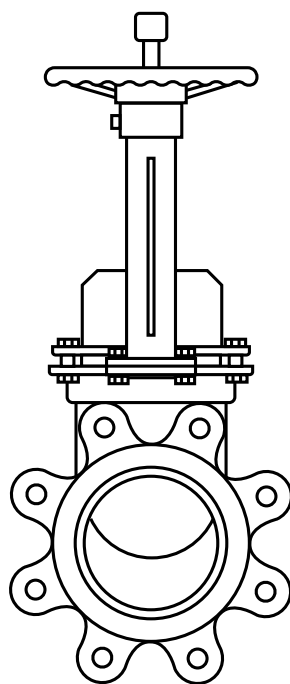


Structural Drawing



No.	Parts Name	Q'ty	No.	Parts Name	Q'ty
①	Body	1	⑩	Thrust Bearing	1
②	Plate	1	⑪	Gland Packing	1
③	Gland Flange	1	⑫	Hand Wheel	1
⑤	Stem	1	⑬	Nut	1
⑥	Set Bolt、Nut、SW	1 set	⑭	Grease Nipple	1
⑦	Yoke (336J)	4	⑮	Nut、SW	1 set
⑦	Yoke (336Y)	3	⑯	Actuator Stand	1
⑧	Gland Bolt Nat	1 set	⑰	Key	1
⑨	Sleeve、Plate Set	1			





Please read this instruction manual carefully before operating this valve.

This manual explains the general handling instructions of the Knife gate valve.

OKM knife gate valve is suitable for powder, sludge, slurry etc.

Please read these instructions carefully for correct usage.

●Contents

Structural Drawing	1
Pre-usage / Standard specification	3
Storage, Handling, Packing	4
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Actuator malfunction and trouble shooting	1 9

Storage, Handling, Packing

The Knife gate valve is a precision product. Avoid storing in an area that is susceptible to vibrations, dust and severe temperature change.

● Drawings are instruction of the handwheel operation.

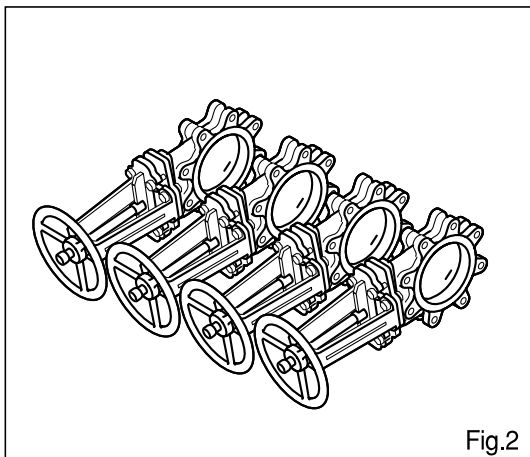
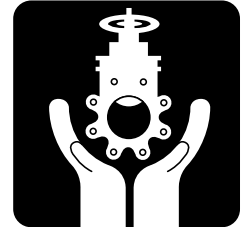


Fig.2

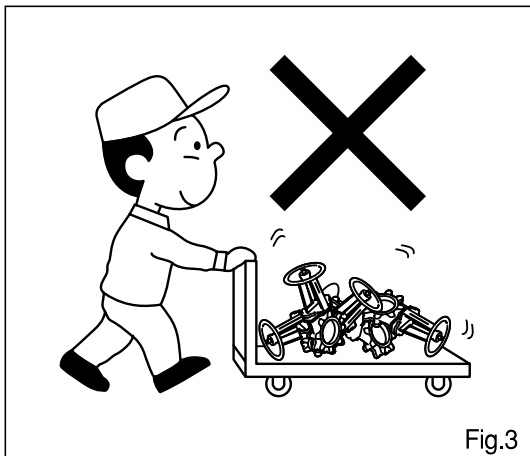


Fig.3

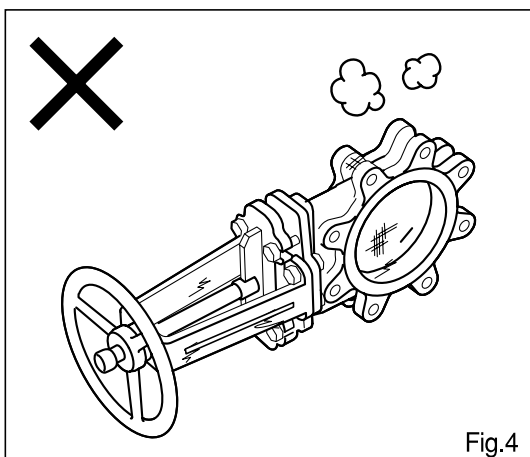


Fig.4

1, Storage

- **Normal storage** : Store the valve in packing condition inside building (temperatur -5°C to 60°C , humidity below 70%)
- **Unpacked storage** : If store in unpacked condition, avoid any excessive force to the body and actuator.
To avoid dust, use sheet to cover the valve. (Fig.2)
- **Long storage** : If valve is stored for long period of time (1 year or longer), apply specified anti rust solution to the plated parts (bolt, nut etc.) once a year.

2, Handling

- **Cares when handling** : Loading and shipping should be done while the valve is properly packed. Arrange the valve so that valve does not fall during transportation. In case the valve is not properly packed, arranged properly and place a cover on top in order to avoid any unnecessary force or dust. (Fig.3)
- **Land transportation** : Use vehicle with protected canopy to transport valve. In case no such vehicle is available, use sheet to cover the valve.
- **Ocean transportation** : Use container to avoid ocean wind.

3, Unpacking

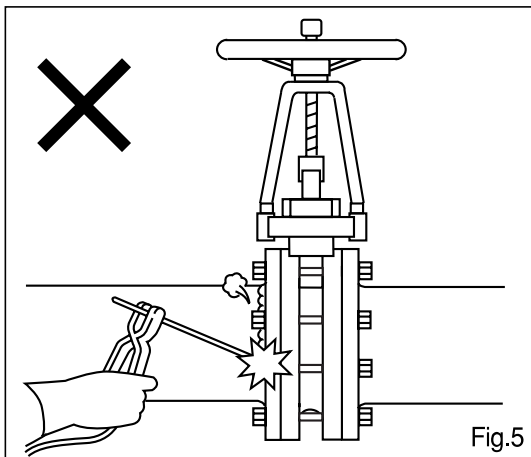
- **Unpacking** : If possible unpacking to be done right before piping works. Valve will not function correctly if left unpacked for long period due to dust and foreign substance. (Fig.4)
Teflon[®] and rubber seat can easily to be damaged.
- **Disc position** : Valve shall be in slightly open position when transporting.

Teflon[®] is manufactured by Mitsui-Dupont Fluoro Chemical.

Piping works 1

Cares before valve installation

● Please check and clean the valve body, flange and piping carefully before installation.



1, Checking the valve body

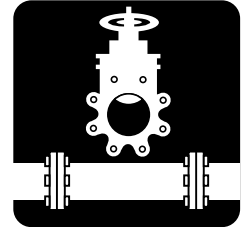
- **Valve checking** : Check the packing and product name plate for size, material.
- **Piping dimension checking** : Check piping size and valve size to see if both match.
- **Piping bolt checking** : Check that the numbers required and dimensions are correct. When required, bolt and nut, are to be applied with anti rust solution.

2, Welding works before piping

- **Caution during flange welding** : When welding the piping flange, make sure flange temperature has come down before installing the valve. (Touch with hand to confirm). Do not weld the flange when the valve is installed. (Fig.5)
- **Other welding works** : Make sure all welding works are done before installing the valve. Welding spark will damage the valve.

3, Piping flange checking

- **Crack and damage checking** : Check crack on piping flange, centering, damage and dirt. Especially, seat ring edge can easily be damaged.
- **Cleaning** : Flange installation surface to be clean by air purge. Clean rust and foreign substance. After cleaning, wipe off completely not leaving solvent on the seat ring to avoid quality change and damage. Be caution that Teflon® and rubber seat type can easily be damaged.



4, Cares before installation

■ **Installation place** : Avoid installing in areas with vibrations.
Provide enough space for maintenance. (Fig.6)

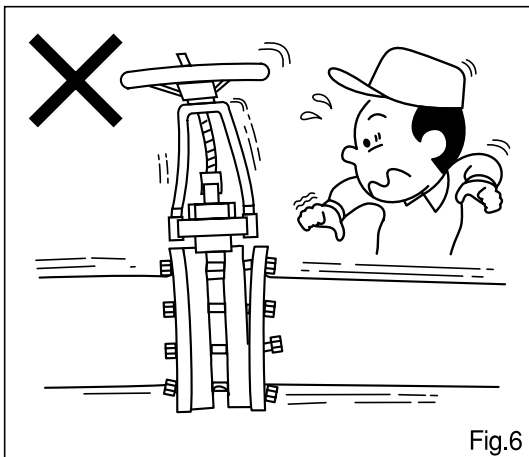


Fig.6

■ **Installation works** : To avoid leakage, avoid flange damage, crack, not center, not parallel etc. (Fig.7)

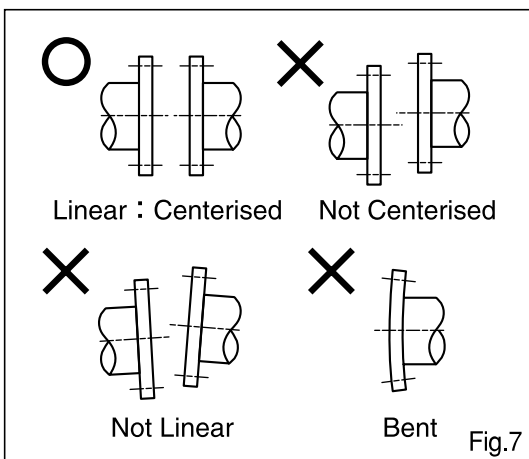


Fig.7

■ **Plate condition** : During installation, plate must be in closed position.

■ **Installation at bending pipe** : During valve installation, direction does not have its limits. However, refer to figure (Fig 8), stem installation direction is to be consider.

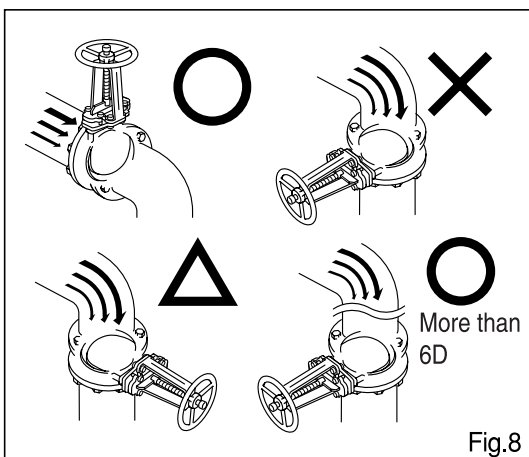


Fig.8

Piping work 2

Piping works / cares after piping

● Read the below procedure carefully.

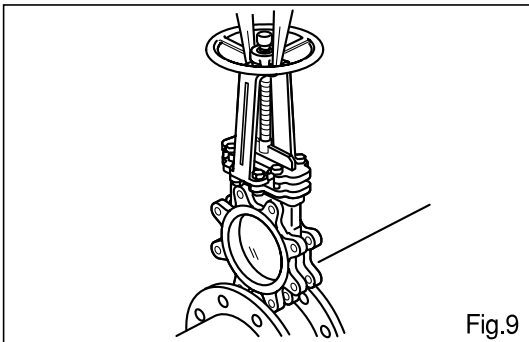


Fig.9

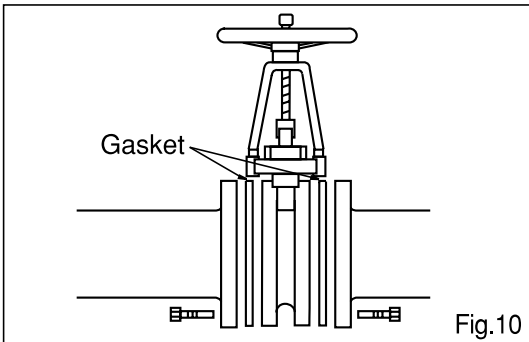


Fig.10

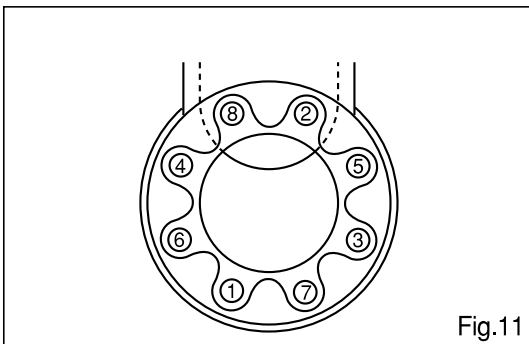


Fig.11

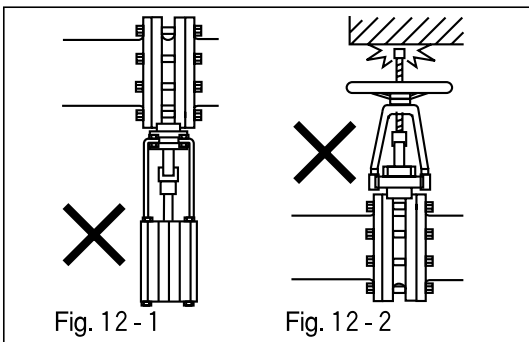


Fig. 12 - 1

Fig. 12 - 2

1, Piping works

1. **Cleaning** : Clean valve seal part with air blow. Remove foreign substance completely.
2. **Plate position** : Confirm that plate is in closed position.
3. **Valve installation** : Use nylon sling at valve neck to lift the valve with balance to avoid damage. Avoid using actuator to lift the valve up. Do not stand under the valve. Install the valve as not to damage the installation surface. (Fig.9)



Caution

- This type of valve has flow direction indication. Make sure the direction is correct when installing the valve.

This type of valve requires piping gasket. When installing the valve into the piping, make sure valve center and piping gaskets are centered. Piping flange, face to face, shall expand plus 3 to 5 mm from the thickness of valve face to face and piping gasket. (Fig.10).

The Synthetic rubber and Teflon® seat type have set inserts. When removing valve from the piping, be caution that seat and set ring may come out.

4. **Centering** : By supporting the valve, insert bolt in the remaining flange holes to have valve and piping flange centering.
5. **Bolt tightening** : After centering works, tighten the flange bolts. Bolts must be tightening diagonally with even force. Make sure valve is not leaning. After the piping flange touches the metal part of the valve body the tightening works is completed.



Caution

- For automatic valve (cylinder and electric), avoid installing valve with the actuator below the horizontal (Fig.12-1). Make sure valve's stem and plate do not hit surroundings items. (Fig.12-2)
- Do not install valve immediately after the elbow. Space valve from elbow.

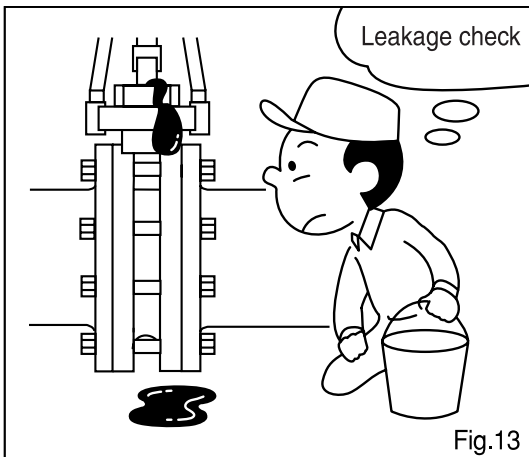
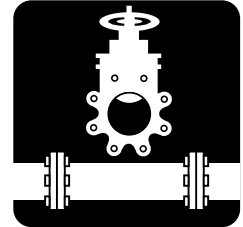


Fig.13

2, Caution after piping

- **Leakage check** : Before operating the valve, increase the pressure inside the valve, check leakage from valve flange. (Use soapy water when checking gas). At this time, valve shall be full opened, inside pressure shall not exceed rating pressure.(Fig.13)
- **Action when leakage occurs** : When valve leaks, bring down pressure, and tighten flange bolts. Make sure bolts are tightening diagonally with even force. In case leak occurs from gland part, tighten gland bolts evenly until leak stops.

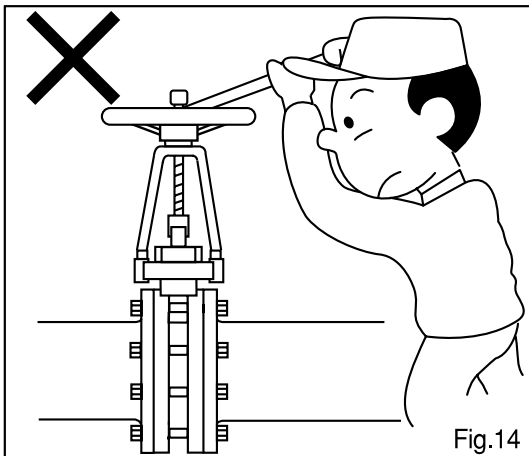


Fig.14

3, Other Cares

- **Preparation** : Before Operation the valve, always operate the valve open and close 1 to 2 times.
- **Cares when operation by handle** : Operate handle with hand. Valve will damage if handle is operated by lever or other tools. Avoid using them. (Fig.14)
- **Blind flange** : Valve shall be in full open position when conducting endurance test. Avoid using valve as blind flange.

Caution

- Operational test shall be conducted after piping. Valve will cut substances inside the valve diameter. For cylinder type valve, be careful that plate will move suddenly. (Fig.15)
- For electric type valve, turn off the power source, before operate manually.

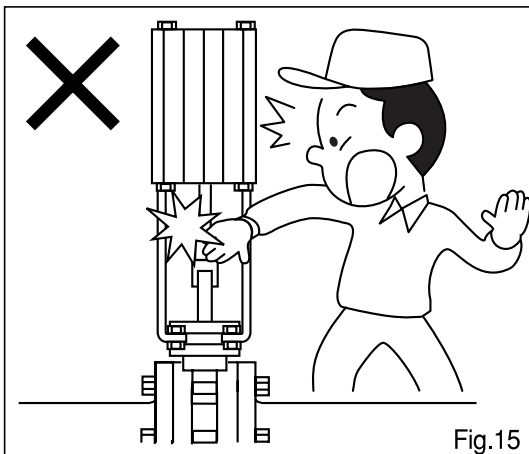


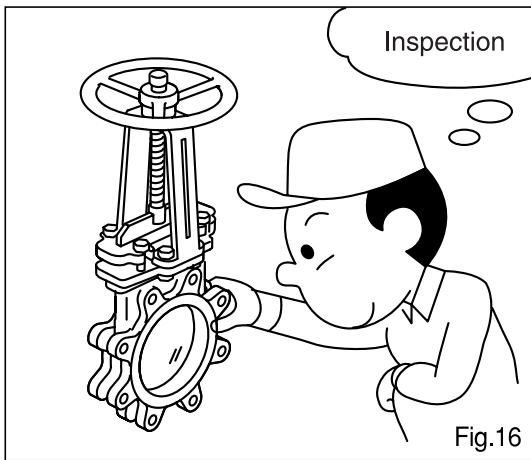
Fig.15

Inspection and Maintenance 1

Periodical inspection, removing valve from piping

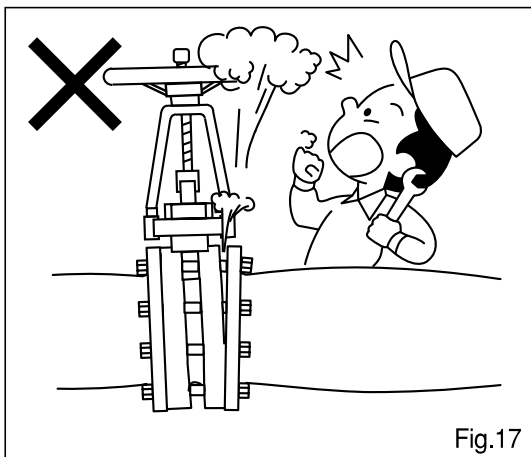
● To maintain high performance and reliability, valve shall be inspected and maintained periodically.

● Secure valve with vices.



1, Inspection

- **Periodical inspection** : Check plate corrosion, seat ring wear and tear 1 to 2 times a year. (Fig.16)
- **When not in operation for long period** : When not operating for a long period, operate the valve several times, opening and closing, 1 to 2 times a month. Check for unusual matter.
- **Unusual operation** : When unusual happens, there may be foreign substances or seat damage. Refer to page and for countermeasure.



2, Removing valve from piping

- **Cares before removing** : Before removing, check to determine that the pressure and temperature inside pipe has decreased. Avoid loosening bolts when valve is still under pressure. Drain off all flow. (Fig.17)
- **Removing works** : Loosen bolts and nuts when plate is in closed position.

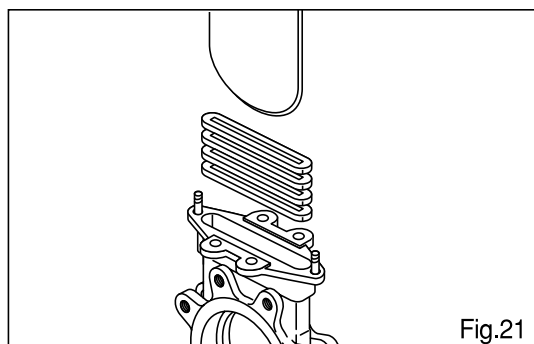
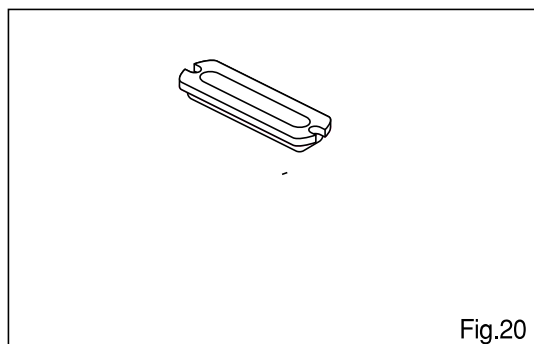
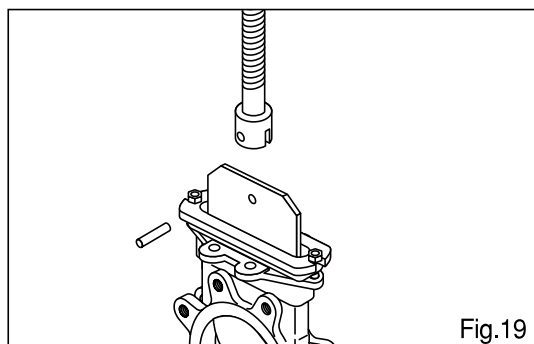
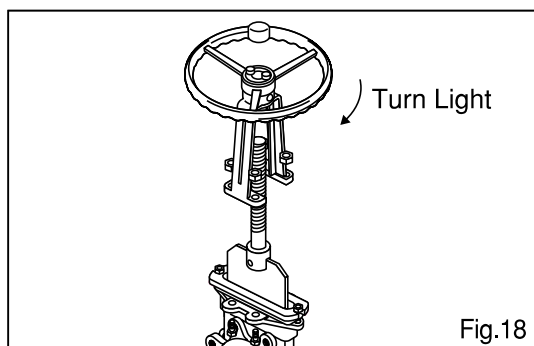
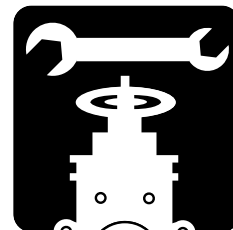
Inspection and maintenance 2

Dismantle procedure for manual type valve [50 mm to 150 mm]

● Refer to diagram for inner structure when dismantling the valve.

● Secure valve with vices.

● Parts no. is in page 1.



1, Actuator assembly

1. Removing yoke, yoke sleeve, handle : Remove bolt ④, which stopped the body ① and yoke ⑦ after removing stem cap ⑮ from the stem ⑤. Remove yoke ⑦, yoke sleeve ⑨, handle ⑫ from the stem by turning the handle ⑫ clockwise. (Fig.18)

2. Removing stem : Remove set pin ⑥ to separate plate and stem ⑤. (Fig.19)

3. Removing gland flange : Remove gland bolt nut ⑧ to remove gland flange ③. (Fig.20)

4. Removing plate : Remove gland packing ①. Remove plate ② from the body ①. (Fig.21)

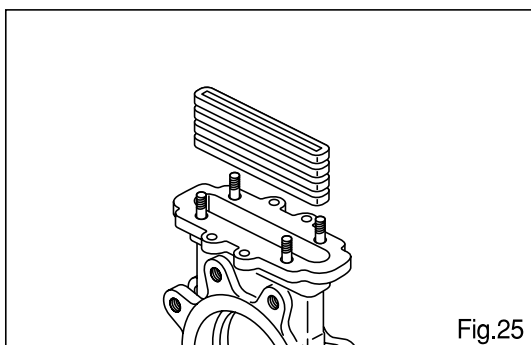
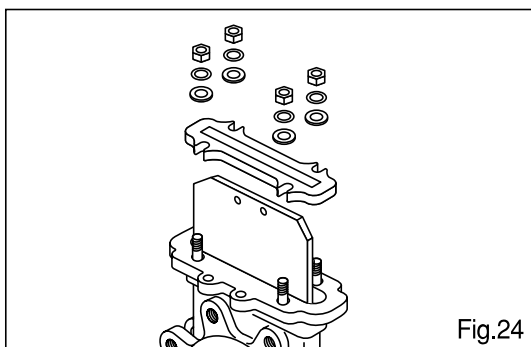
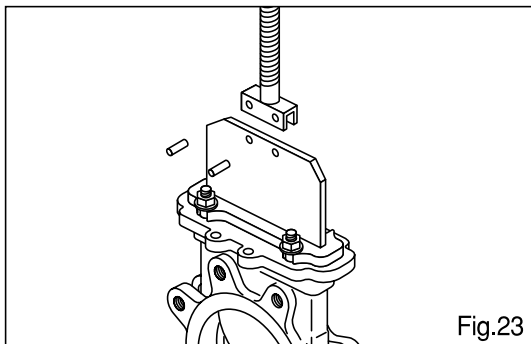
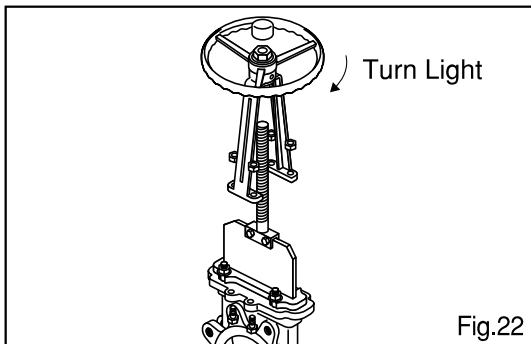
Inspection and maintenance 3

Removing manual type actuator [200 mm to 300 mm]

● Refer to parts diagram when removing the parts.

● Secure the valve body with a vice.

● Parts no. is in page 1.



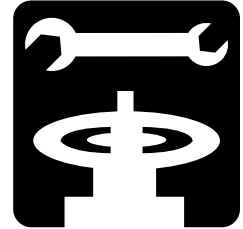
1, Actuator

1. Removing yoke, yoke sleeve, handle : Remove body ① and yoke bolt ④, after removing stem cap ⑮ from the stem ⑤. Remove yoke ⑦, yoke sleeve ⑨, handle ⑫ from the stem ⑤ by turning the handle ⑫ clockwise. (Fig.22)

2. Removing stem : Remove set pin ⑥ to separate plate ② and stem ⑤. (Fig.23)

3. Removing gland : Remove gland bolt nut ⑧ to remove gland ③. (Fig.24)

4. Removing plat : Remove gland packing ⑪. Remove plate ② from the body ①. (Fig.25)
(Careful not to damage the plate edge)



2, Removing yoke sleeve

When Inspecting or replacing yoke sleeve ⑨, do the following procedure by referring to parts diagram. (Fig.26)

Remove the split pin to prevent the nut from loosening.

2. Remove nut ⑬. (Fig.27)

3. Remove handle ⑫ from the yoke sleeve ⑨. (Fig.28)

4. Remove yoke sleeve ⑨ from inside the yoke ⑦ and remove thrust-bearing ⑩. (Fig.29)

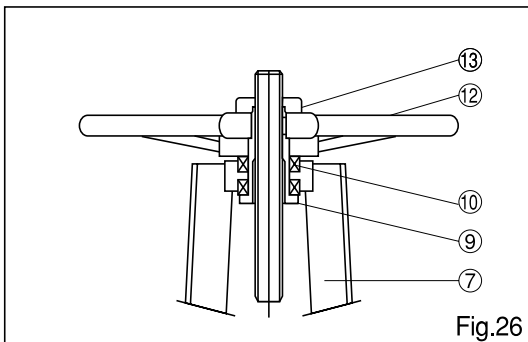


Fig.26

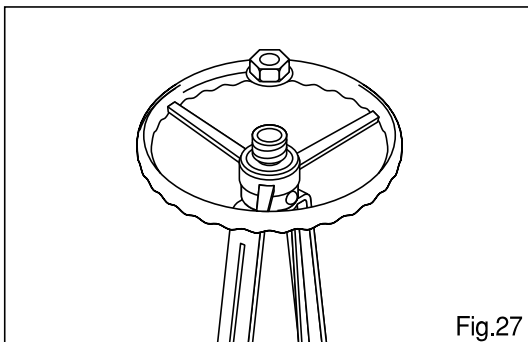


Fig.27

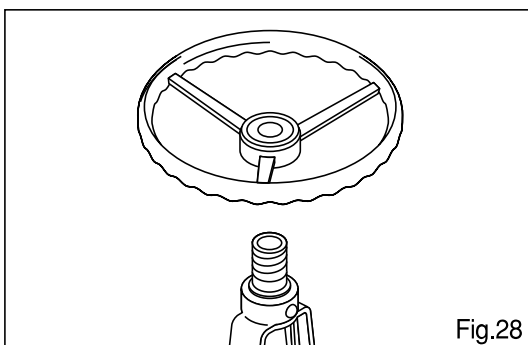


Fig.28

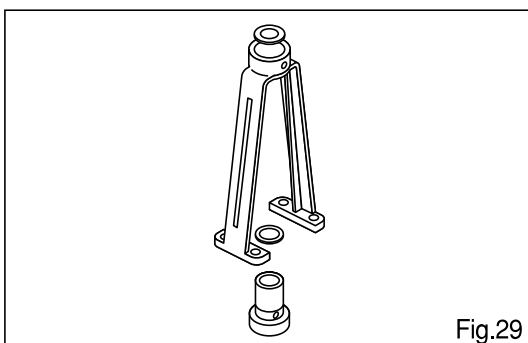


Fig.29

Inspection and maintenance 4

Removing manual actuator [350mm to 600 mm]

● Refer to parts diagram when removing the parts.

● Secure the valve body with a vice.

● Parts no. is in page 1 and 2.

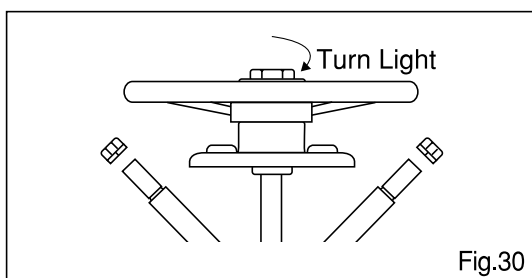


Fig.30

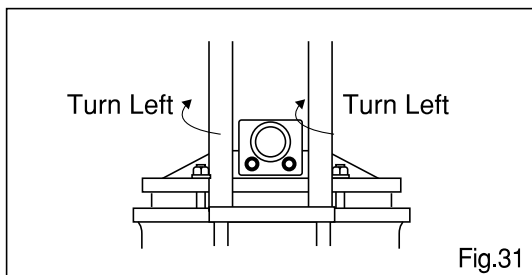


Fig.31

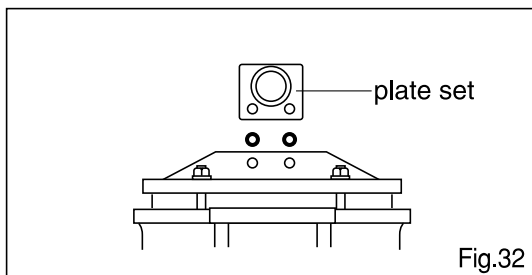


Fig.32

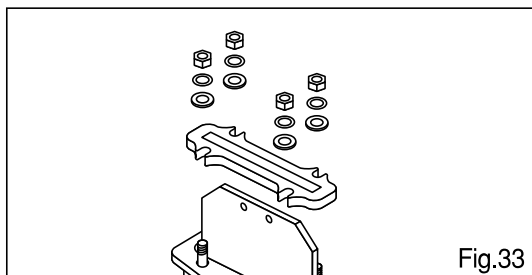


Fig.33

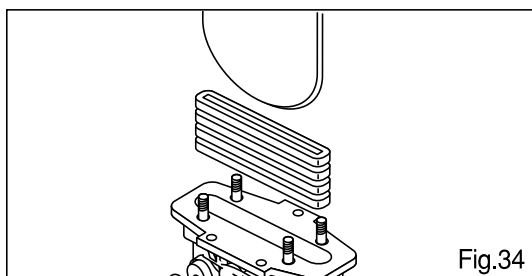


Fig.34

1, Removing actuator

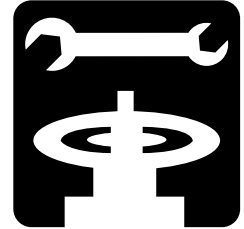
1. Removing stem, actuator plate, handle : Remove yoke ⑦ and actuator plate nut. Remove stem ⑤, actuator plate ⑩, handle ⑫ from the yoke sleeve ⑨ by turning the handle ⑫ clockwise. (Fig.30)

2. Removing yoke : Remove yoke from body ① by turning the yoke ⑦ anti clock wise. (Fig.31)

3. Removing plate set : Remove set bolt ⑥ to separate plate ② and plate set. (Fig. 32)

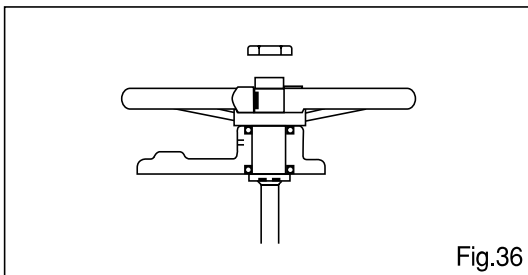
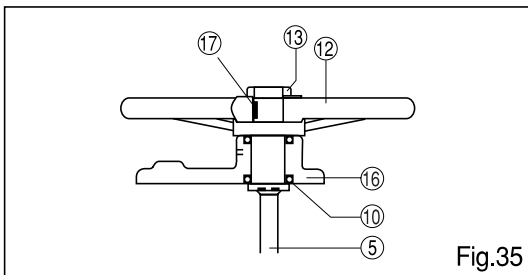
4. Removing gland : Remove gland bolt nut ⑧ and remove gland flange ③. (Fig.33)

5. Removing plate : Remove gland packing ⑪. Remove plate ② from the body ①. (Fig.34)
(Careful not to damage the plate edge).

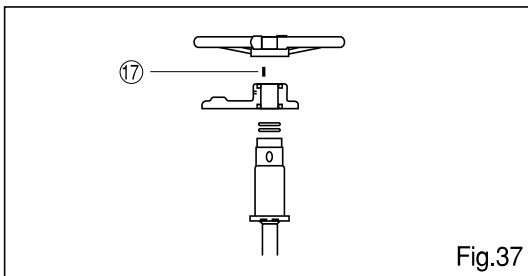


2, Removing thrust bearing

When inspection and replacing inner parts refer to parts diagram. (Fig.35)



1. Remove nut ⑬. (Fig.36)



2. By removing handle ⑫ from the actuator plate ⑯, key ⑰, stem ⑤, thrust-bearing ⑩ will be removed together. (Fig.37)

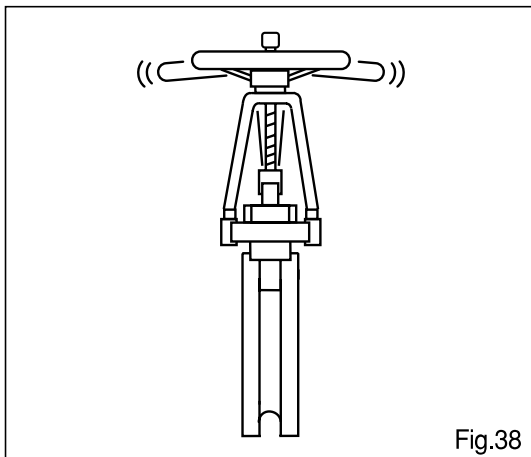
Inspection and maintenance 5

Manual type actuator assembly

● Refer to parts diagram when removing the parts.

● Secure valve with vices.

● Parts no. is in page 1 and 2.

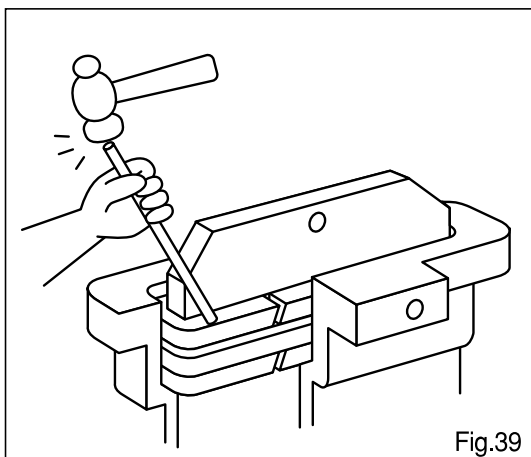


1, Assembly

1. **For manual type** : Apply grease to yoke sleeve ⑨, stem ⑤, screw.

For electric type : Apply grease with molybutene to stem ⑤ and screw.

2. **Check centering** : Check for stem centering to avoid valve leakage and rough operation. (Fig.38)



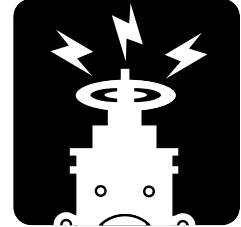
3. **Method to set gland packing** : When replacing the gland packing, use suitable size bar to hit the packing surface evenly, hammer each layer to avoid gap between layers. Place packing edge (Fig.39)

After gland packing insertion is completed, set the gland and tighten up. To avoid uneven tightening, bolt shall be tightened diagonally. Initially, strongly tighten the land packing when it is in the gland box, loosen it and re-tightened it again by hand. Finally, tighten it 1/4 turn with wrench when valve leaks during operation, stop the flow and readjust the valve.

Inspection and maintenance 6

Maintenance

● To maintain high performance and reliability, periodical maintenance shall be conducted.



Maintenance	Maintenance period
Gland packing Tightening	Min. 1 time/year Min. 1 time/half year (Open close : Min. 1 time/hour)
Replace gland packing	Min. 1 time/2 years (If required) Min. 1 time/half year (Open close : Min. 1 time/hour)
Apply grease at stem bolts	Min. 1 time/half year (For manual operation) Min 1 time/1 to 3 months (For electric operation) 1 time/1 to 2 weeks (Open close frequency : more than 1/hour)
Apply grease at yoke sleeve	Min. 1 time/half year
Replace seat ring	Min. 1 time/year (If required)
Actuator packing	Refer to actuator handling instruction.

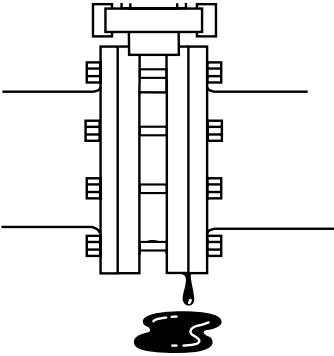
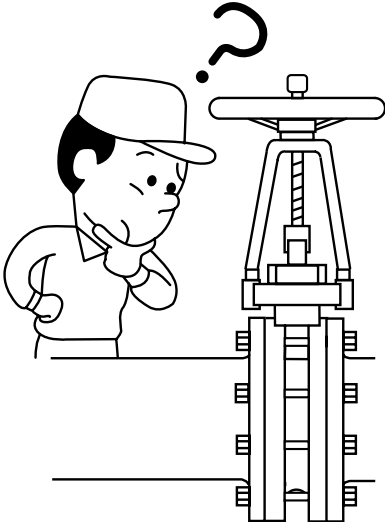
The above maintenance period is a general guide.

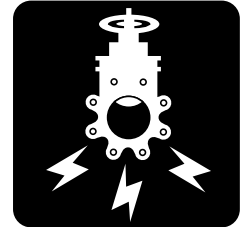
It shall be changed by the specification of flowmedia or operating condition.

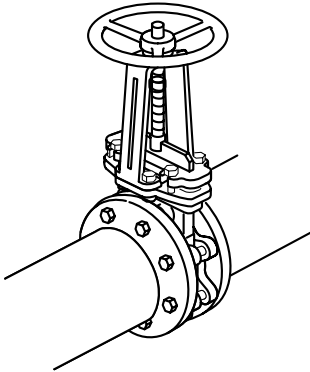
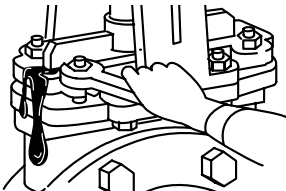
In case of electric motor actuator, please use good-quality grease. Contains molybdenum disulfide.

Malfunction and Trouble Shooting

● In case of malfunction, refer to the following for trouble shooting.

Trouble	Possible cause	Countermeasure
<p>Leak between body and flange</p> 	<ul style="list-style-type: none"> ● Piping bolts loose. ● Flange damaged ● Valve not centered 	<ul style="list-style-type: none"> ● Loosen the bolts, then retighten valve ● Remove valve, check flange surface and cleaning. ● Loosen bolts, redo flange and valve centering.
<p>Disc malfunction. (Not function or hard to operate)</p> 	<ul style="list-style-type: none"> ● Foreign substance inside piping ● Not supply to the actuator according to specification ● Valve damage (seat ring, stem etc.) 	<ul style="list-style-type: none"> ● Put valve in full open position, remove foreign substance. Or remove valve and remove foreign substance. ● Check supply by using pressure gauge and tester. ● Remove valve, replace damage parts.

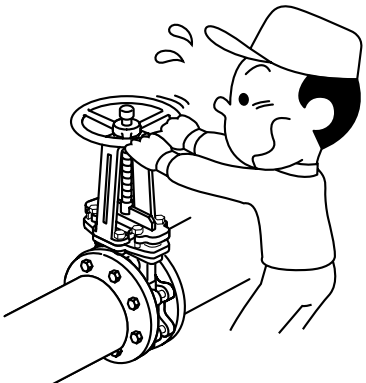
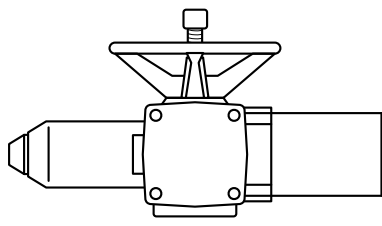


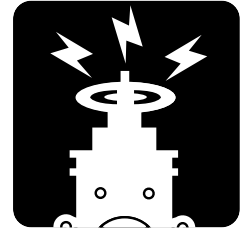
Trouble	Possible cause	Countermeasure
<p>Leak inside piping.</p> 	<ul style="list-style-type: none"> ● Seat ring wear and tear ● Flow medium specification not according to valve specification. (Over-specification) ● Disc damage, foreign substance. ● Corrosion by flow medium ● Assembly and adjustment during maintenance not properly. ● Wrong flow direction 	<ul style="list-style-type: none"> ● Replace valve. ● Recheck specification. ● Remove valve, check disc. Parts with damage that can cause leakage shall be replaced. Remove foreign substance. ● Change to suitable material. contact person in-charge. ● Adjust full closed position. ● Set to correct flow direction.
<p>Leak from gland.</p> 	<ul style="list-style-type: none"> ● Gland bolt nut loosen. ● Tightening not even ● Gland packing damage 	<ul style="list-style-type: none"> ● Tightening gland nut evenly until leakage stops. ● Loosen gland packing nut, then retighten the nut. ● Replace gland packing.

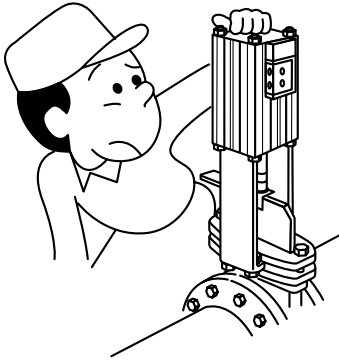
Actuator malfunction and trouble shooting

● In case of actuator malfunction, refer to the procedure below.

● Actuator size differs according to valve size.

Trouble	Possible cause	Countermeasure
<p>Manual not functioning</p> 	<ul style="list-style-type: none"> ● Unusual at actuator ● Not use specified actuator ● Foreign matters stocked in the pipe. ● Foreign matters fixation. ● Predetermined supply source is not supplied to the actuator. ● Damage of Valve (Seat ring, Plate, etc) 	<ul style="list-style-type: none"> ● Check actuator. ● Recheck specification. ● Make the valve open fully and wash out foreign matters. Or remove the valve and get rid of foreign matter directly. ● Make sure supply source by pressure gauge or tester. ● Remove the valve and check out the failure parts and exchange the parts.
<p>Electric not functioning</p> 	<ul style="list-style-type: none"> ● No power supply ● Wrong power voltage ● Wrong wiring 	<ul style="list-style-type: none"> ● Turn On power supply. ● Check supply voltage. ● Check actuator, redo wiring.



Trouble	Possible cause	Countermeasure
<p data-bbox="177 786 432 880">Cylinder not functioning</p> 	<ul style="list-style-type: none"><li data-bbox="632 797 916 902">● Air supply not enough. Working pressure below specified supply.<li data-bbox="632 981 922 1048">● Air leakage, blocked. (Depend on accessories)<li data-bbox="632 1126 954 1193">● Manual operation device on solenoid valve is on.<li data-bbox="632 1305 959 1339">● Speed controller adjustment	<ul style="list-style-type: none"><li data-bbox="1038 797 1390 864">● Maintain cylinder operation pressure to 0.4Mpa to 0.7Mpa.<li data-bbox="1038 981 1225 1014">● Clean the pipe.<li data-bbox="1038 1126 1390 1227">● Bring manual operation device to original position before operating.<li data-bbox="1038 1305 1382 1339">● Readjust the speed controller.

OKM offers a excellent quality of valve for all fluidhandling industries. Please contact us or refer to OKM installation operation & maintenance instructions, asfor the details.

- For more details, contact your OKM sales representative.
- Specifications and designs are subject to change without notice.



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