

Instruction manual

2.30.10



WEY® Knife Gate Valves

WEY® KNIFE GATE VALVES: INSTRUCTION MANUAL

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1. GENERAL

Prior to any work or start-up and in order to ensure a proper functioning of our products, the instruction manual must be observed.

Alterations on the products need our written approval. For consequential damages due to neglect of this direction, we have to reject any liability.

2. TRANSPORTATION, STORAGE

2.1 Transportation

Transportation of the valves to their final destination (building site) shall take place in solid crates adapted to the valves' size. The valves shall be protected against exterior damage and atmospheric exposure.

Depending on the duration of transportation or storage and in view of the conditions, preservation shall take place by welding valves into PE-film or adding sufficient drying agent or equal.

2.2 Storage

Until final installation the valves shall be stored in a dry, vented area. All function relevant parts shall be suitably covered against humidity, dust or other contamination.

For longer storage periods or in case of unfavourable storage conditions which might affect later functioning, all blank surfaces, e.g. stem, piston rod, sealing surfaces shall be suitably protected by longterm preservatives against corrosion.

Factory applied preservatives shall be checked for possible transport damages and appropriately repaired, if necessary.

For accessories mounted to the valves, such as electric actuators, limit switches, solenoids, etc., the respective storage instructions of the manufacturer shall be observed with priority.

3. INSTALLATION

3.1 Preparation before installation

Not correctly aligned pipelines must, by all means, be corrected before installation in order to avoid tensions or even cracking of the valve body.

Before final installation of the valves, any possibly applied corrosion protection shall be thoroughly removed. All parts, and in particular the gate, stem and piston rod shall be free of dust and dirt.

3.2 Installation site

The Installation site shall be chosen so that the valves are well accessible for functional checks or maintenance work.

For repacking purpose the small side of the valve body shall be freely accessible (Fig. 1).

For outdoor installations, the valves shall be protected at site with shields or covers against severe weather conditions like snow and ice.

3.3 Installation position

Up-side-down installations of the valves shall be avoided; all other installation positions possible (Fig. 1).

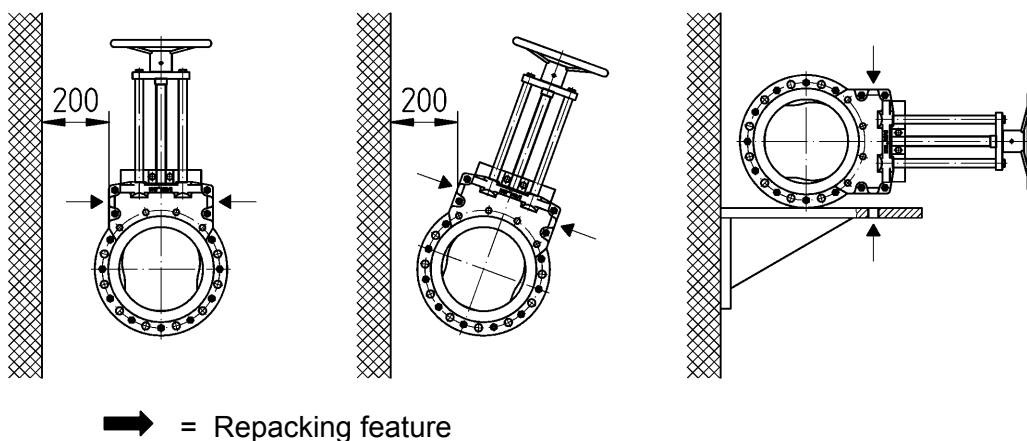


Fig. 1

3.4 Pressure direction

The preferred valve installation position as such is with the pressure direction against the bevelled valve gate side A (Fig. 2)

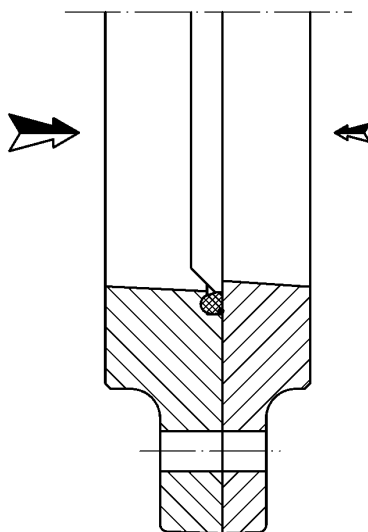


Fig. 2

For difficult service conditions or for custom-made valves, please contact the manufacturer regarding the installation position.

3.5 Mounting

Before mounting, check valves for possible transportation or storage damages.

The valves shall be protected against construction work at site.

For additional painting of the valves, the stem, piston rod, electric accessories and the valve gate protruding the body shall not be painted. Before any sand blasting, the valves shall be protected with covers.

For valves with a stem extension, the pipeline flange must be exactly in line with the extension. The exact position of the flange holes in relation to the extension shall also be observed.

ATTENTION: Tighten bolts with caution, so that tensions in the body do not cause any cracking or breaking. No tilting, steady tightening.

Apply flange bolts according Fig. 3 into tapped blind holes.

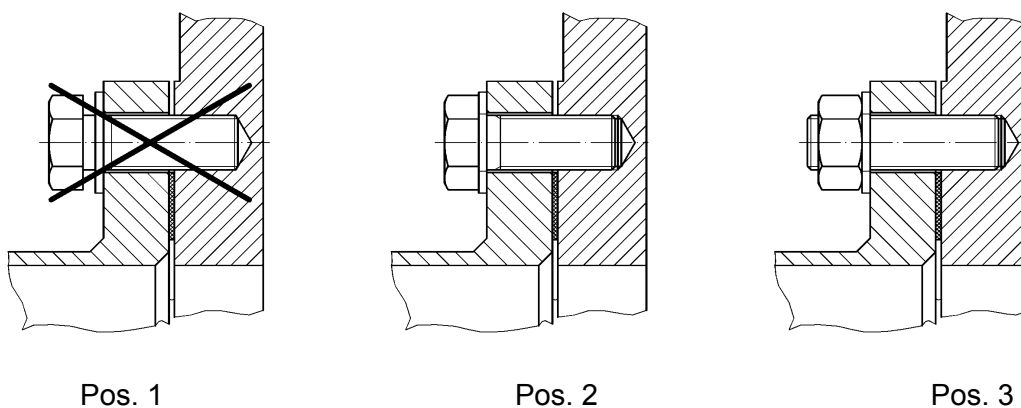
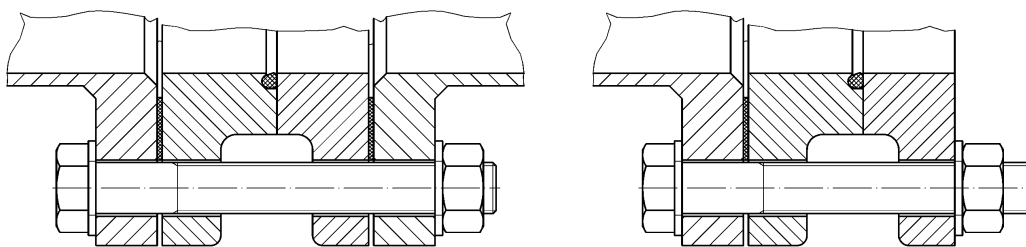


Fig. 3

- Pos. 1 : Wrong assembly
Tightened bolts shall not touch the bottom of the tapped blind holes.
- Pos. 2 : **Correct assembly**
- Pos. 3 : Also correct assembly.
Insert stud, then tighten nut.

Remaining flange holes to be applied with through bolts
acc. Fig. 4

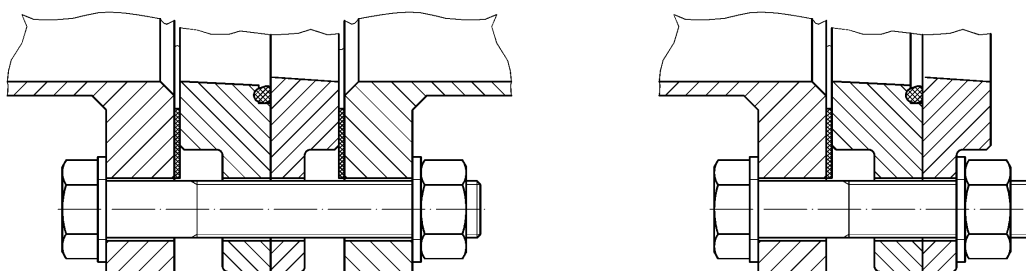


Mounting between flanges

Mounting as head valve

Fig. 4

Valves of the middle flange design have flanges with through holes.
Mounting acc. Fig. 5.



Mounting between flanges

Mounting as head valve

Fig. 5

The sizes and quantities of the tapped and through holes are found in the dimensional sheets.

Valves of the series AO and MF can be mounted between flanges or as end of line valves. The valves of the series SL and VN provide fixing lugs (except VN, DN 50 & DN 65, which must be mounted with counter flange). For their use as an end of line valve, a counter flange is required if the differential pressure is above 1 bar. Mounting requires special caution.

Should there be a longer time period between mounting and power connection of electrically operated valves, it shall be ensured that the integral heater of the actuator is already connected during mounting of the valves in order to avoid the formation of condensate water (or protect actuator with suitable drying agent).

4. COMMISSIONING

4.1 General measures

Before taking the valves into service, all function relevant parts (gate, stem, piston rod, etc.) shall be thoroughly cleaned. Damages, in particular to the seal caused by remains of grit, welding beads, foreign rust or similar on the gate, are not covered by the warranty.

For powder or granular service, it should be observed that wetted or humid media which has tendency to cake to the gate is thoroughly removed before start-up.

The valves are factory preserved and lubricated for transportation and storage, but they require depending on the service conditions, another lubrication before start-up. Recommended are water-repellent, temperature resistant and long lasting lubricants. (Get your nearest supplier's recommendation).

4.2 Safety measures

For automated valves installed in an area where valve movement could be dangerous for people (or animals/objects), it must be ensured by the user on-site that all moving parts are fenced with a suitable cover or protection shield.

Such covers are optionally available from manufacturer.

4.3 Pneumatically operated valves

Solenoid valves shall be mounted as close as possible to the actuating cylinder.

The size of the air supply pipes has to be in relation to the air volume.

Before start-up, all on-site mounted supply pipes and solenoid valves shall be thoroughly flushed and cleaned, if necessary.

For the actuation of the cylinder we recommend the use of slightly oiled supply air.

Factory mounted solenoid valves are normally provided without accessories like throttle or muffler. On-site regulations must therefore be observed.

Pneumatically operated valves shall not be closed instantly in order to avoid the risk of pressure shocks.

4.4 Hydraulically operated valves

Before start-up, all on-site mounted supply pipes shall be thoroughly cleaned. Hydraulically actuated valves shall not be closed instantly in order to avoid the risk of pressure shocks.

4.5 Electrically actuated valves

For trouble-free commissioning of electric actuators, we recommend to call on our specially trained customer service specialist.

On-site electric installations shall be in accordance with respective connecting diagram of the supplier. In addition, the specific operating instructions of the actuator supplier shall be observed.

Before the first electrical operation, the valve gate shall be set to an intermediate position with the manual override, and then started.

When connecting to the power supply, the phase sequence has to be observed.

ATTENTION: With wrong phase sequence, limit and torque switches are ineffective.

The switch off shall be in accordance to our instructions/diagrams, i.e.:

- Switch-off in closing direction: usually by limit switches, exceptionally by torque switches (for abrasive service applications).
- Switch-off in opening direction: by limit switches only, as the torque switch serves as overload protection.

5. MAINTENANCE

5.1 Operating cycles

During one service year, at least four (4) operating cycles shall take place, whereby all components shall be checked. Under severe service conditions, such functional checks shall take place more frequently.

5.2 Repacking

During a longer storage period of the valves or in case of great temperature fluctuations, the packing material in the transverse seal may shrink. This could lead to slight leakage through the transverse seal in the body chest area.

Should a leakage be detected at the transverse seal which remains even after repeated actuation of the gate, the valve can be repacked easily and quickly while installed. During this work however, the valve should possibly not be under full service pressure.

Mostly, it is only necessary to firmly tighten the four (4) packing screws on the side by 1-2 turns.

Did the leakage not stop (after packing screws are fully tightened), then remove the screws from the valve body (Fig. 6)

Insert packing pellet into holes and compress firmly with packing tool. Repeat until valve is absolutely tight.

Please observe that the valve gate is not pressed against the valve body due to the repacking. One-sided and too powerful repacking can cause the valve gate to jam.

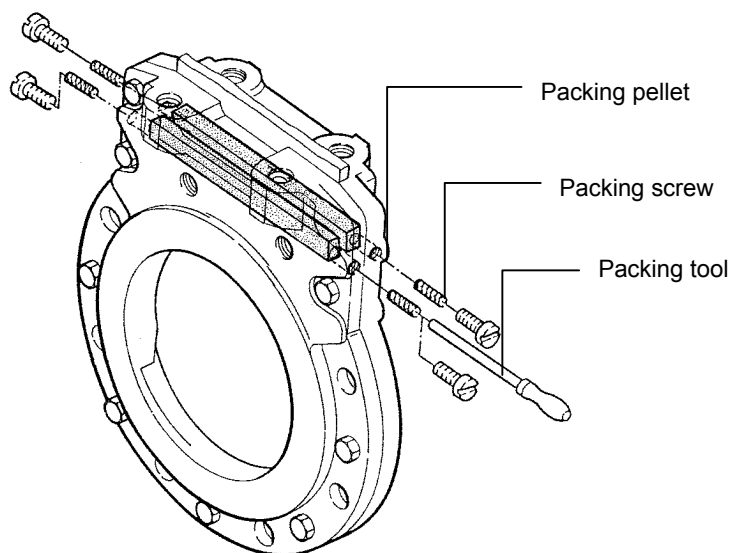


Fig. 6

5.3 Seal replacement

Should a leakage through the bore passage occur, the cause is mostly damage or wear of the body seal.

The valve body seal can only be replaced when the valve is removed from the pipeline.

Seal replacement can be performed by trained personnel according instructions or at any time in our works.

5.4 Cleaning / Lubrication

Stem rods, pull and piston rods shall be free of dirt and contamination and shall always be well lubricated.

Lubrication points on handwheel bearings shall be regularly lubricated, based on the operating conditions, but at least every 3 months.

Pneumatic cylinders with closing cushion are fitted with a self-lubricating rod seal.

Any leakages on the cylinders require the exchange of all sealing components.

For valves with electric actuators, the lubrication point on the drive should be especially observed.

The respective operating instructions of the actuator supplier are binding.

Depending on the service conditions of the valves, the gate is to clean and needs possibly slight lubrication.

6. TROUBLE SHOOTING

Trouble	Possible Cause	Elimination
Leakage at gate in body chest area.	Transverse seal untight	Repacking of transverse seal according to instructions
	Transverse seal damaged	Replacement of transverse seal according to instructions, cleaning of valve gate, if necessary replacement of gate
Leakage in bore passage of valve	Valve gate not completely closed; jammed particles between gate and body internals	Manual valves: <ul style="list-style-type: none"> - Open valve slightly and repeat closing action - Remove jammed particles
	Jammed particles between stem nut, resp. clevis and body chest	Pneumatically and hydraulically operated valves: <ul style="list-style-type: none"> - Open valve slightly and repeat closing action - Check, if necessary new setting of clevis, resp. stroke - Remove jammed particles
Leakage in bore passage of valve (Cont'd)		Electrically actuated valves: <ul style="list-style-type: none"> - Open valve slightly and repeat closing action, check, possibly reset switches (upon supplier's recommendation) - Remove jammed particles
	Body seal damaged	Remove valve, replace seals according to instructions
Leakage through valve body halves	Valve distorted during mounting	Untighten flange bolts and re-tighten according to instructions
	Sealant between body halves damaged	Remove valve and replace sealant according to instructions

6. TROUBLE SHOOTING (Cont'd)

Trouble	Possible Cause	Elimination
Valve gate is not movable	Actuating components damaged	Manual valves: <ul style="list-style-type: none"> - Check, clean stem or stem nut, replace if necessary, lubricate
		Pneumatically and hydraulically operated valves: <ul style="list-style-type: none"> - Check supply pressure Check if current onto solenoid existant. Check solenoid for damages Check hydraulic cylinder for damages (seal) - Clean and lubricate; if necessary replace damaged components acc. to supplier's instructions
		Electrically actuated valves: <ul style="list-style-type: none"> - Check if current existant - Check if motor defect - Check if limit switches defect or malset - Check if gear, stem or stem nut damaged - Clean and lubricate; if necessary replace damaged components acc. to supplier's instructions
	Valve clogged; Valve gate contaminated	Remove valve, clean, possibly disassemble completely
Closing or opening stroke ceasing or stagnating	Insufficient supply pressure	Pneumatically and hydraulically operated valves: Check supply pressure, possibly increase supply pressure
	Solenoid valve dirty	Remove and clean solenoid valve, possibly install filter
	Piston rod seal damaged	Remove and clean piston rod seal, exchange and lubricate cylinder seals
	Valve clogged	Clean valve and lubricate
Pressure loss on supply net	Control pipe connection damaged	Check pipe connections, tighten, replace if necessary
	Cylinder seals damaged	<ul style="list-style-type: none"> - Check and replace cylinder seals, lubricate - Check piston rod seal, clean, lubricate

7. FINAL REMARKS

All details given above are to our current up-to-date knowledge and shall provide, together with our technical documentation, information about our products and their range of applications.

They are not thought to assure particular features of the products nor their suitability for a specific application.

Faultless quality is assured within our General Sales Conditions.

For any further information, please call any time on our Customer Service Department.

ALTERATIONS AND ADDITIONS RESERVED