INSTALLATION, OPERATION AND MAINTENANCE INSTRUCTIONS TYPE BV1-LD

1. Storage & Protection

1.1. Storage

The valves stay in the open position during the transportation.

For incoming, QC must check:

a. Packing condition: Is there any damaged during the transportation.

b. The bolts of cap: to make sure the bolt does not loose tightness when it arrived.

The valves must be stored in an indoor warehouse to avoid dusts and other foreign objects. The valves are already packed carefully to avoid any possible damage before the delivery. Before installation, please do not open the package, for once the valves are exposed in the air, sand or other substance might go into the valves. Then, unless the user cleans out the valves, there will be problems of using them. Store the valves, pack them carefully so as to prevent any corrosion gas from going into the valves. Meanwhile, be sure not to press the valves heavily or toss them.

1.2. Protection

The complete valve is packed with the bag

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2. Installation

2.1. Warning Precautions

Make sure the valve pressure can fulfill the requirement of the pipe equipment. The valves have our marking on them with the details for the size and pressure.

Tests and inspections of the open and close valve are necessary to see whether the ball is in the correct position or there is any trouble for the open/close.

Fluid thermal expansion:
Pressure, built-up in the body cavity by heating volatile fluid, can damage the seats or the ball. The hole in the ball beneath the stem slot can equalize pressure between body cavity and the line when valve in the open position. An optional internal pressure equalizing hole drilled in upstream side of ball is suggested for certain applications e.g. ammonia, chlorine, LPG, for pressure equalization when valve in the close position.

Fire safe condition:
If the risk of fire is an issue, we recommend to select a fire-safe valve instead of our standard BV3. Contact our sales department for further details.

Throttling service:
Ball valves are generally not recommended for throttling service, where both the fluid flow and the leading edge of the ball can damage or deform the resilient ball seats causing leakage. High fluid velocity or the presence of solid particles in suspension will further reduce seat life in throttling applications.

Do not open the valve while it is bearing pressure. The valve is not equipped with pressure access device. User should check it by other method through its piping system.

Do not touch the surface of valve on high temperature.

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2.2. Installation Procedures

A) Handling

During the ball valve installation, it must follow the procedure to hold at the both sides of the body.

B) Cleaning

Even the valves were transported under a clean environment, pipefitter must check if there are any foreign particles or dust inside the bore. If yes, clean it before installation. The valves may be cleaned by water or compressed air. For cleaning, first put the valve bore perpendicular to the ground and clean. Ensure all the dusts can be removed from the bore. Then check and clean all the connecting pipe bore and connection area. No flush, rust and foreign bodies are allowed to avoid the blocking and leakage.

C) Valve Installation

Do not concentrate the pressure from the pipeline and stress on the connecting area of body and cap. It will cause the deformations and leakages, the ball, seat, and stem will stick, leaking, and damaged.

1.1. Before installation, clean ball valve and pipe fitting up to remove any dusts or foreign object or any tiny metal chips.

1.2. Check if the threaded type of ball valve is the same as it of pipe.

1.3. Our BSP thread is standard ISO 228 and should be sealed with a flat seal

For threads according to other standards : Wrap tap seal or other sealing material around threads of pipe 2 – 3 circles.

1.4. Hold end cap of valve with wrench and hold pipe end tightly with pipe wrench. Rotate pipe by clockwise until they joint tightly.

1.5. After installation finished. Apply soap bubbles on the joint points to check if the pipeline is sealed properly.

See drawing on next page.

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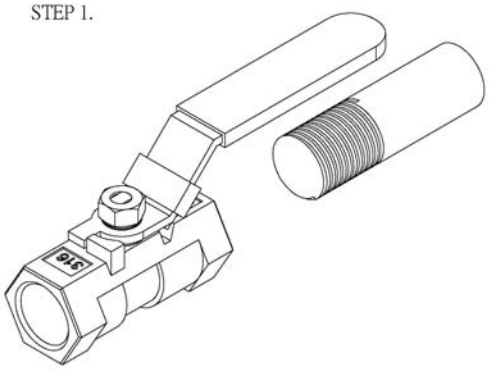
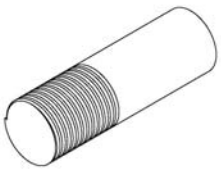
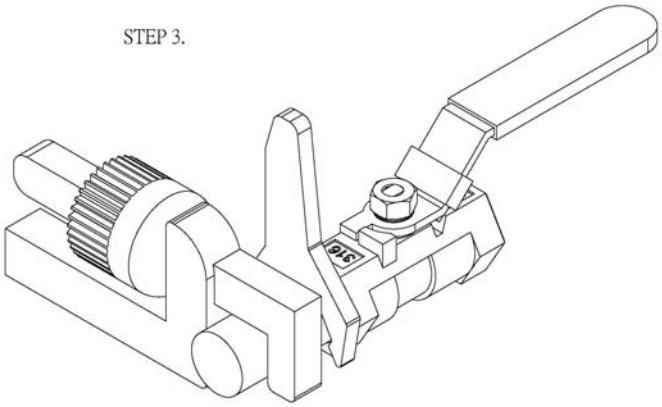
STEP 1.



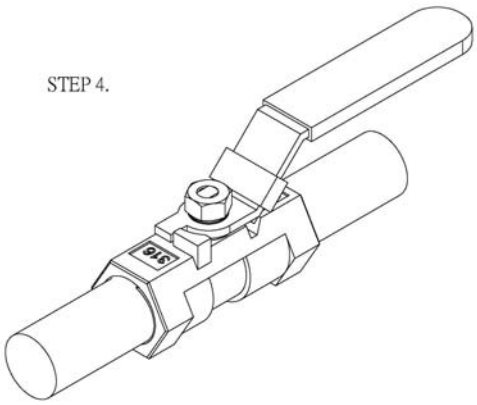
STEP 2.



STEP 3.



STEP 4.



System hydrostatic test

Before delivery the valves are tested 1.5 times the allowable pressure at ambient temperature in open position. After installation the piping system may be subject to system tests, as condition does not exceed the allowable pressure.

3. Operation & Maintenance

3.1. Operation

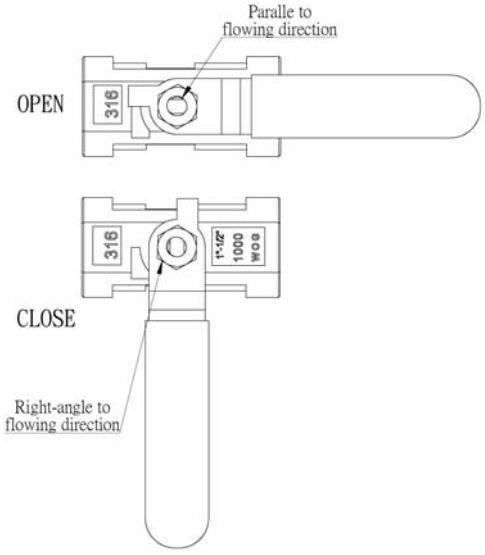
Please make sure that all wetted parts of the valve are suitable for the fluid. The material of all valve parts are indicated on our datasheet and drawing.

Use the valve in completely open or closed position. Avoid half open or half closed position, this will damage the seats and will shorten the life cycle of the valve. Any unsuitable operation action will cause leaking or other problems.

Do not use the extension lever for opening/closing the valve.

Any unsuitable operation will cause the leaking or other problems.

For manual operation, shift the handle in counter clockwise direction for close and clockwise for opening. If the handle is parallel to the flow direction, the valve is open. If the handle is right-angled to the flow direction, the valve is closed. When the valve is operated with removable handle, the user should ensure the position of the valve whether open or close. There is sign at the top of stem for double “D” type stem.



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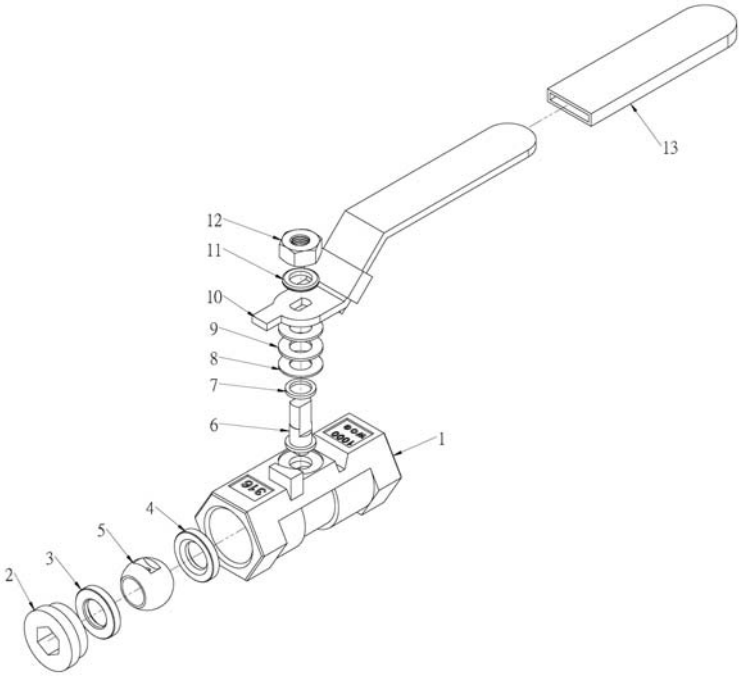
3.2. Maintenance

The valve has to be periodically checked to make sure of its proper operation. A higher checking frequency is recommended when the valve is working under extreme conditions.
For a correct function of the valve it is suggested to open/close it at least twice a year.

Disassembly

Because disassembly and re-assembly costs a lot of time it is commercially more interesting to replace the complete valve. If valve has to be disassembled please follow below instructions :

a. Please check if the spare kits of the valves are available. If not, do not disassemble the valve.
b. To dismantle the valve must follow the procedure and drawings below.
c. Make sure there is no fluid left inside valve before disassembly. The correct position to store the valves is to put the flange end on cardboard or a wooden pallet on a stable platform or ground.
d. To dismantle the valve the seat retainer (item 2) must be dismantled very carefully to prevent the ball (item 5) fall down from the body.
e. To take ball out, it is necessary to turn the ball in the close position.



Parts inspection, maintenance, and replacement:

a. Check if the surface of ball is scraped. Use the PT for inspection if necessary. If there is any damage on the surface, find out the cause such as the dirt fluid…etc. To avoid the damage factors in the best way.

b. If the ball surface is damaged, check if it locates at the contacting area of ball and ball seat? If so, the ball must undergo a fine milling. If it is damaged heavily, and cannot be repaired, then replace with a new ball.

c. If the scraped area is not at the location described in the item b above, it is necessary to re-fine milling the damage area again. Otherwise, the ball will damage the soft seat during the open and close operation or it will dig out the ball seat and cause serious leakage.

d. To inspect the surface of soft seat, if it has any scrape mark, concave, dusts (including weld dregs, iron bit, sands…etc.), abrasion, abnormal press scrape, or a tiny scrape. Usually, the scrape mark and damage by dusts will occur the same time as ball damaged. It is the cause for leakage. If leakage occur before repairing, then suggest changing a new soft seat (PTFE or RPTFE). The mark from press or fine scrape is happen in an abnormal operation pressure. It must reconsider to choose the right valve.

e. The gland packing must be replaced by the new parts after dismantling the valve. The gland packing is of PTFE, Grafoil or PTFE + Glass Fiber. The material of new packing must be the same as the old one. To tight the gland nut, please see below torque data.

Torque data of packing gland

SIZE	N-m
1/4” or 3/8”	2
1/2”	3
3/4”	4
1”	6
1-1/4”	10
1-1/2”	10
2”	10

Assembly

For assembly process, it takes the opposite way of disassembly process. The ball must be at the closed position when assembling the body and seat retainer. The handle must be located at the right place. Otherwise, the open and close operation will be opposite.

To do the final inspection of a valve, it is necessary to operate it 10 times (open/close) to ensure all the parts are assembled correctly. Be sure the torque is in the same value during the open/close operation. If the torque is not the same during operation, it may imply some parts are assembled in an incorrect position or interference. The valve must be disassembled and re-assembled.

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