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BUTTERFLY VALVES

INSTALLATION PROCEDURES

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Storage / Installation / Inspection

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Storage & installation planning

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01 Shipment & storage

Coat the seat, disc, stem and bushings with silicone lubricant in general. Keep the disc approximately 10° open.

Protect both valve faces with cardboard, plywood or plastic to prevent damage to the seat face, disc edge and valve interior.

Store indoors with face protectors intact, preferably between 4°C and 45°C. During long-term storage, fully open and close the valve once every three months.

02 Piping & flange compatibility

The catalogue describes compatibility with ANSI, JIS, BSI and DIN flanges, including flat-face, raised-face, slip-on and weld-neck types. Type C stub-end flanges are not recommended for resilient-seated butterfly valves.

Check that the disc at full opening clears the adjacent pipe inside diameter. Compare the minimum pipe I.D. with the published full-open disc chord dimension, particularly for lined or heavy-wall pipe.

03 Valve location

Where practicable, locate the valve at least six pipe diameters from elbows, pumps, other valves and similar line elements. Where this distance is impractical, provide as much separation as possible.

When connecting to a check valve or pump, the catalogue calls for an expansion joint between them to prevent the disc from interfering with adjacent equipment.

04 Valve orientation

For general service, Hanyang recommends a vertical stem with the actuator directly above the valve. Do not install the valve upside down.

For slurries, sludge, mine tailings, pulp stock, dry cement or media containing sediment or particles, install the stem horizontally with the lower disc edge opening downstream.

For locations downstream of pumps, bends, tees and reducers, refer to the manufacturer’s orientation drawings on page 4.

General installation

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01 Clean the pipeline and flange faces. Remove pipe scale, metal chips, welding rods and other foreign material that could obstruct the disc or damage the disc and seat.

02 Check the seat and gasket arrangement. The catalogue states that moulded O-rings on the elastomer seat face act as gaskets; it calls for flange gaskets when the flange rating exceeds 10 kg/cm².

03 Align the piping and spread the flanges sufficiently to insert the valve body without contacting the flange faces.

04 Set the disc partially open: approximately 10° open, with the disc edge about 10 mm from the seat face.

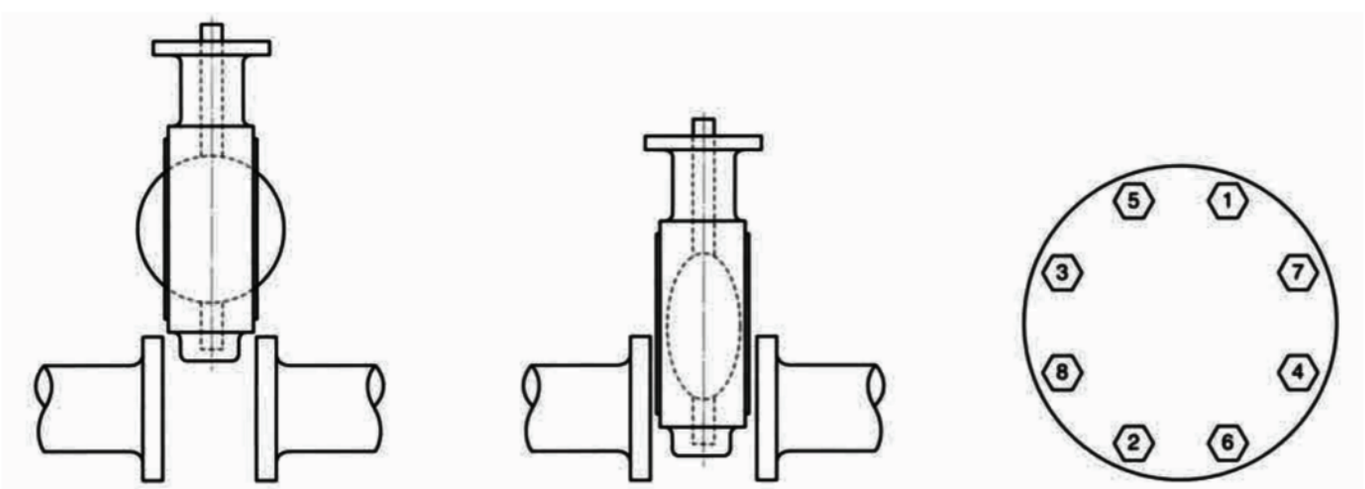
05 Insert the valve carefully to avoid seat-face damage. Lift using the locating holes or a nylon sling around the body neck. Never lift by the actuator or operator.

06 Centre the valve and insert all flange bolts without tightening. Carefully open the disc fully and check clearance with the adjacent pipe I.D.

07 Remove flange spreaders and hand-tighten the bolts. Slowly close the disc to check edge clearance. Fully open the disc and tighten the flange bolts to specification, using the sequence shown below.

08 Repeat a full closing and opening cycle to verify proper clearance.

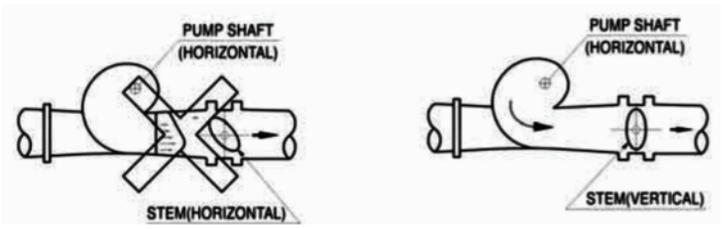
Valve insertion & bolt tightening sequence



Piping orientation diagrams

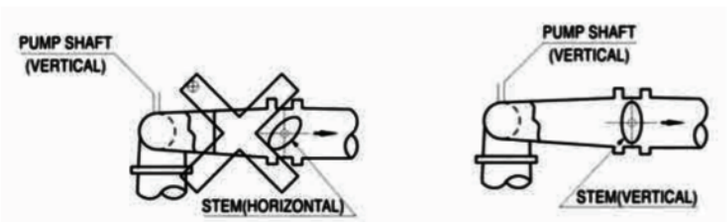
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A Pump discharge



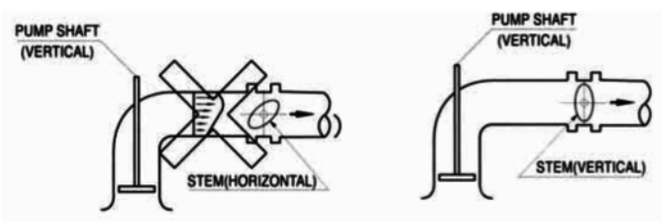
Centrifugal pump

Horizontal pump shaft



Centrifugal pump

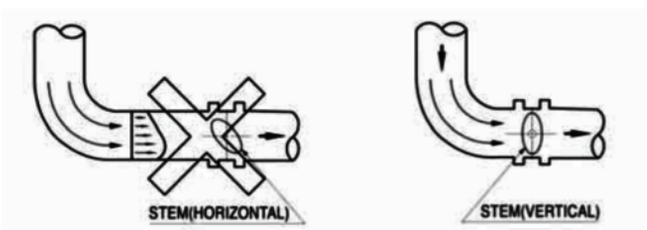
Vertical pump shaft



Axial pump

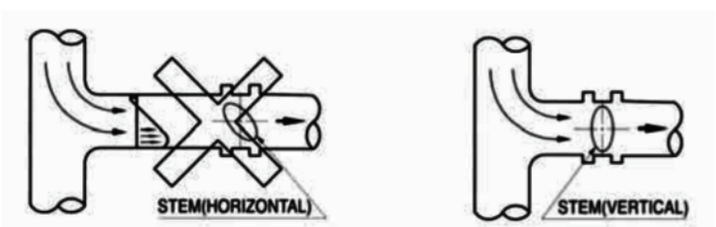
Vertical pump shaft

B Bends, tees & pipe reducers



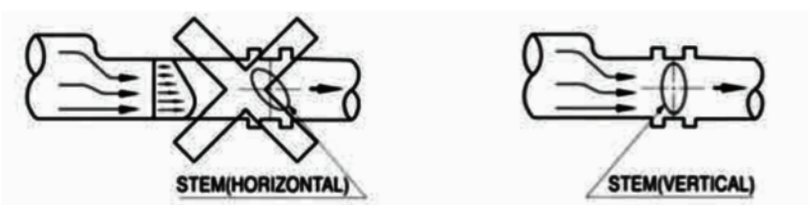
Bend

Downstream installation



Tee

Downstream installation



Pipe reducer

Downstream installation

Source diagrams reproduced with their original labels. The pump-orientation captions and figure labels differ in the catalogue; confirm the required orientation with Hanyang before installation.

Flange welding & final checks

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05 Installation with flange welding

For installation between ANSI welding-type flanges, follow this sequence to prevent damage to the seat:

A. Align the flange bores and valve-body bore. Keep the disc approximately 10° open.

B. Insert bolts through the body and flanges.

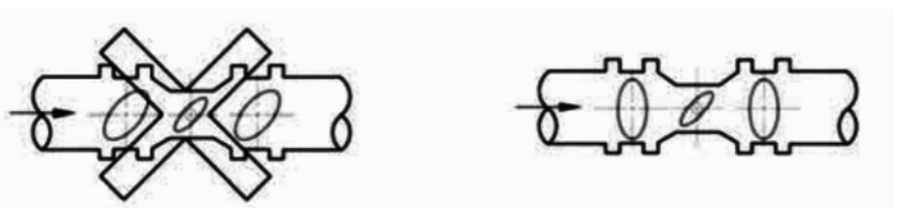
C. Align the flange–body–flange assembly with the pipe.

D. Tack-weld the flanges to the pipe.

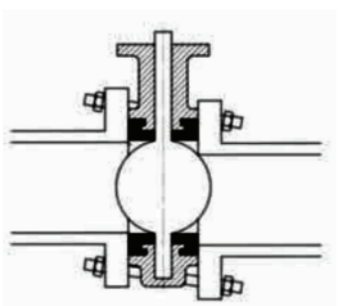
E. Remove the bolts and valve, then complete flange welding. Allow the pipe and flanges to cool before reinstalling the valve.

Never complete welding with the valve between the flanges. Heat transfer can severely damage the seat.

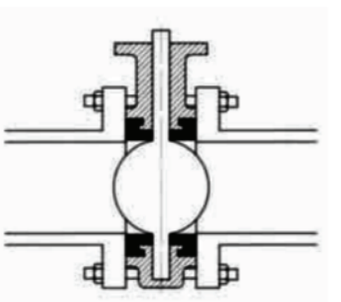
06 Combined control & isolation arrangement



07 Final flange alignment



WRONG
Misaligned pipe can contact the disc, increase torque, damage the disc edge and cause leakage or poor seat engagement.



RIGHT
Align the pipe correctly. Tighten bolts with the disc fully open, ensuring disc clearance and proper seat-face sealing.

Pipeline pressure testing: Do not use the butterfly valve as a substitute for a blind flange. Keep the valve OPEN during pressure testing of the complete pipeline.

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