



Operation Manual

Ball Foot Valves

(Flanged and Threaded Ends)

We appreciate your purchasing our products.

Ensure to read all the contents of this manual before piping and using them.

Also keep this manual to the place accessible to the operator.

This manual applies to manual operation of flanged and threaded ends ball foot valves.

CAUTION AND WARNING

To ensure safe and trouble-free function and performance, please read all the contents of this manual before handling, transportation, mounting and operation of the valves.

Keep this manual to the place accessible to the operator.

The signs “WARNING” and “CAUTION” are defined as follows:



Indicating potentially hazardous conditions which may result in serious injury to personnel, if such warnings shall be ignored.



Indicating potentially hazardous conditions which may result in minor or moderate injury to personnel or property damage, if such conditions shall be ignored.



Indicates prohibition of an action.



Indicates mandatory implementation of an action.

NOTES TO USERS

This manual covers normal usage of our products. Technical data and instructions for operation, maintenance and inspection of the products are prepared in consideration of safety. However, they are good only to cover typical applications as a general guideline to users. If technical assistance beyond this manual is required, contact KITZ Corporation or its distributors.

The illustrations given in this manual do not introduce all details. If more detailed data are needed, refer to our relevant valve assembly drawings.

※ Any information provided in this manual is subject to change at any time without notice, which cancels all previous issues.

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CHAPTER I

Construction and design features

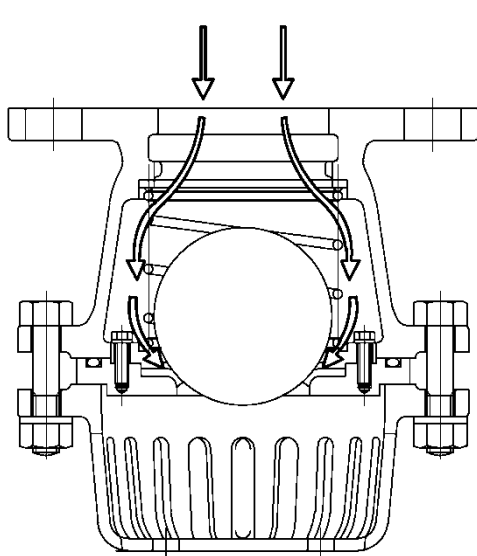
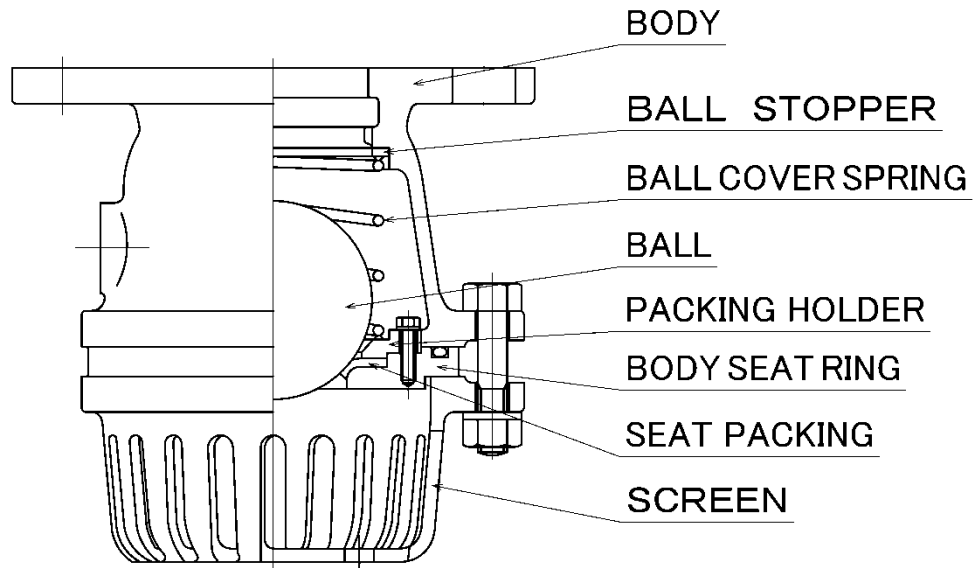
(1) Function and structure

The foot valve is a check valve installed at the end of the suction side piping.

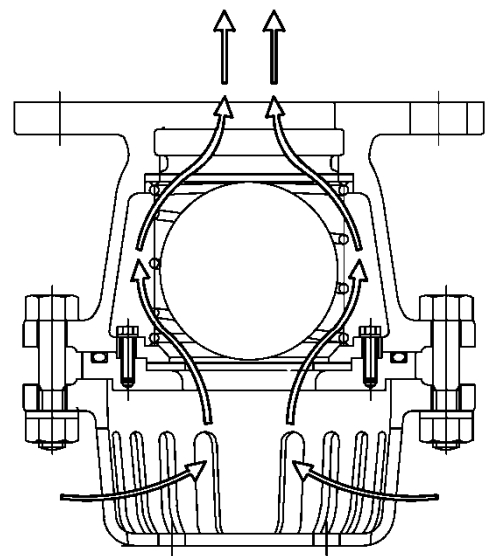
It is used in equipment that pumps water from a low water source.

The foot valve prevents the outflow of water in the pipe when the pump is stopped

The valve operation automatically closes when the pump is stopped and when it is restarted the valve opens.

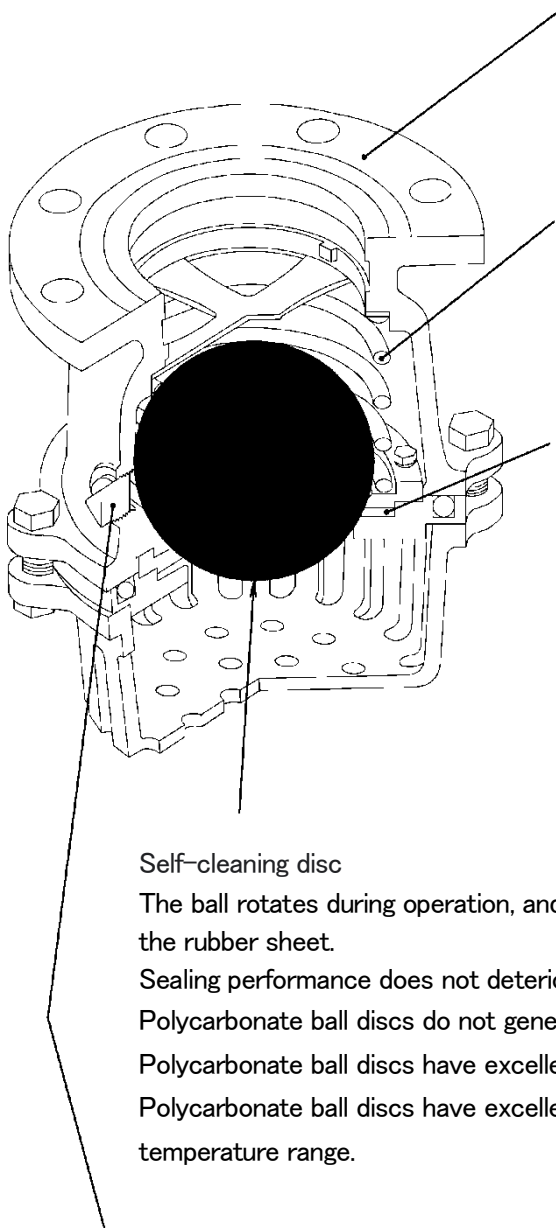


close



open

(2)Feature



Compact
Swing check type is big and heavy.
The Toyo Ball Foot Valve is compact due to the ball check structure.

No Local wear
The ball moves inside the spring
The movement of the ball has no sliding surface
No local wear such as pin wear that may occur with the swing check type.

Excellent sealing performance
The valve seat is a soft seat made of synthetic rubber.
The standard sheet material is ethylene propylene rubber (EPDM)
We also manufacture reinforced silicone rubber sheets.

Self-cleaning disc
The ball rotates during operation, and a different ball surface always hits the rubber sheet.
Sealing performance does not deteriorate over a long period of time.
Polycarbonate ball discs do not generate scale
Polycarbonate ball discs have excellent impact strength and weather resistance
Polycarbonate ball discs have excellent shape stability and a wide usable temperature range.

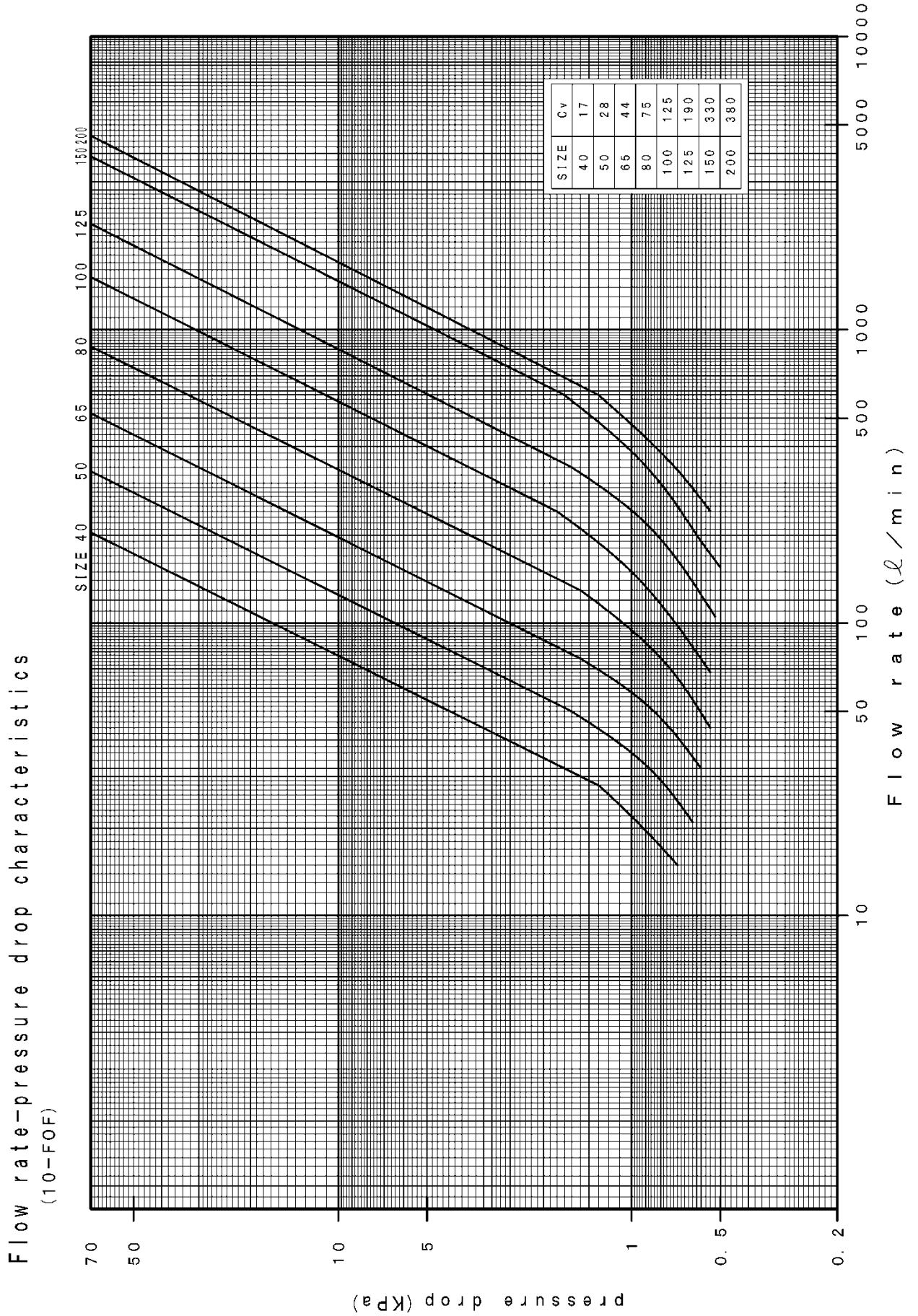
Maintenance / inspection plug can be installed (Custom-made)
Connecting a valve to this drain hole makes drainage in the rising pipe even easier.
Easy to pull up the pipe from the water tank.
The drain hole size is RC1 / 2.

CHAPTER II

Precautions for selection

**CAUTION**



- (1) The range of use of the product is defined based on official standards, specifications and our regulations.
Please select the product after checking each product specification and usage conditions.
- (2) Use for nuclear power equipment, etc.
Use this product for nuclear power, railways, aviation, medical institutions, food-related equipment, etc.
In that case, please contact us separately.
Do not use our products in nuclear facilities.
- (3) Confirmation of usage conditions and product specifications
Check the range of use of the valve.
Select a valve that suits the usage conditions to prevent accidents such as corrosion and galling.
- (4) When a non-stainless steel valve is connected to a stainless steel pipe,
Corrosion of the connection may occur and impair the function of the valve.
- (5) The ball foot valve has a higher resistance than other swing types.
Check the pressure loss table and select the appropriate product.
- (6) Ethylene propylene rubber (EPDM) is used as the seat material for the ball foot valve.
Be careful depending on the conditions of use.
Please check the terms of use and contact us in some cases.





CHAPTER III

Transportation and storage



(1) Transportation

 WARNING	
	<p>(1) When lifting and transporting the valve, pay sufficient attention to safety, such as preventing people from entering under the suspended load. There is a risk of personal injury due to the collapse of luggage.</p>

 CAUTION	
	<p>(1) Be careful not to damage the painted surface when transporting the valve. If the painted surface is damaged, repair it. If not repaired, it may cause corrosion.</p> <p>(2) In the case of cardboard box packaging, the strength of the box may decrease due to humidity, etc, and the packaging may break and damage the product, so be careful.</p>

- (a) When moving or transporting the valve, keep it in the original packaging.
If the dustproof / protective cover, etc. comes off or is lost during transportation, immediately apply dustproof / protective protection.
- (b) Do not throw the valve or subject it to impacts such as dropping, dragging, or tipping over.

(2) Storage

 CAUTION	
	<p>(1) Do not store in a corrosive gas atmosphere. Corrosion is generated from the threaded part, etc, and the function is impaired.</p> <p>(2) Do not remove the dustproof / protective cover on the flange until just before piping work. Dust may enter the inside of the valve and damage the ball seat.</p> <p>(3) Do not drop, tip over, vibrate, or apply heavy loads to the product during storage. It may impair the function of the valve.</p> <p>(4) Do not stack product. There is a risk of personal injury due to the collapse of luggage.</p>

- (a) Store the valve indoors in a well-ventilated place with little dust and humidity.
Keep the temperature and humidity of the storage place in the following conditions to prevent deterioration of the rubber material.

Temperature: -10 to 40°C, Humidity: 70% or less

- (b) Store the valve in a packed state on a wooden frame, etc., and do not place it directly on the ground or concrete.
- (c) If you must store it outdoors, cover it with a tarpaulin to protect it from rain, direct sunlight, dust, etc.

CHAPTER IV

Piping installation

**WARNING**

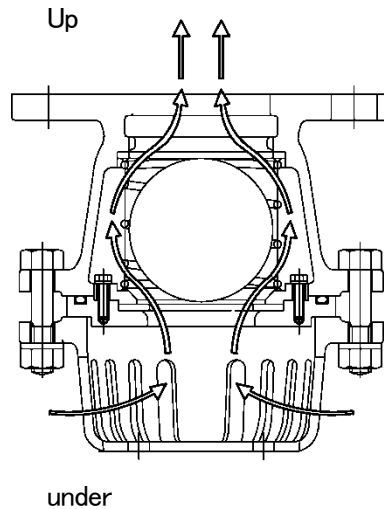
- (1) Be sure to check the valve specifications on the name plate or catalog before installing the valve in the piping.
If the valve is used outside the specifications, it may cause an accident such as internal or external leakage.
- (2) Check the mass of the valve thoroughly in advance before lifting the valve. Please work with sufficient safety, such as not entering under the lifted luggage.
Plumbing work should be done under sufficient lighting to ensure the safety of the scaffolding and avoid acts on unstable pipes.
- (3) When working in a high place, pay sufficient attention to safety, such as no one entering underneath.
- (4) When attaching the valve to the pipe, do not get your hands or fingers caught between the valve and the flange.

**CAUTION**

- (1) Cleaning inside the pipe.
Foreign matter such as sand, mud, scales, cutting oil, chips, and welding spatter inside pipes can damage valve operation and parts.
Thoroughly clean the inside of the pipe with water or air before connecting the valve.
- (2) If necessary, install a support on the pipe so that the pipe will not receive an excessive load due to the weight of the valve.
- (3) If freezing is expected, take protective measures.
- (4) Use a flange surface that is not damaged or distorted.
Remove any foreign matter, rust, or other deposits.
- (5) Front welded part of the pipe flange to prevent external leakage due to damage to the gasket surface, Sufficiently finish the edges of the gasket surface, etc.
- (6) When installing the valve piping, make sure that the center of the piping is aligned.
If you need supports, install a support suitable for the mass of piping and valves.


CAUTION

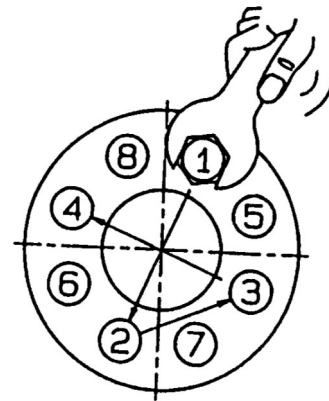
- (7) Install the foot valve vertically.
The direction of fluid flow is limited from earth to heaven.



- (8) When installing the valve on the pipe, be sure to install a new gasket.
- (9) Even if you absolutely must install the valve in a small space, make sure that it can be inspected and maintained.
- (10) Avoid installing in a place where its function may be impaired by vibration or other external force.
- (11) Polycarbonate is used for the ball disc material of the ball foot valve.
Polycarbonate is dissolved by aromatic hydrocarbons
(Benzene, toluene, xylene and them Main components thinners, gasoline, etc.)
When painting the piping, be careful not to adhere it.
- (12) Removal of dust caps, etc.
Polycaps, plastic bags, dustproof seals, etc. are attached to the valve flange and pipe screwing part.
This is to protect the piping connection and prevent foreign matter from entering the valve.
When installing the valve, be sure to remove the dustproof bag, cap, seal, pad, etc.
- (13) The ball foot valve has a sponge inside the valve to hold the ball in order to prevent damage during transportation.
Be sure to remove the sponge holding the ball.
Make sure there are no foreign objects inside.

(1) Flange type piping connection



- (a) Tighten the bolts placed diagonally.
Tighten alternately.
Tighten the bolts with even force
Tighten the bolts evenly and gradually.
Tighten the bolts more than once.



- (b) Bolt tightening torque depends on the gasket material.
Tighten with appropriate torque.
- (c) The gasket of the lining valve is rubber, PTFE, etc.
Use a material that will not damage the lining.

(2) Screwed type piping connection

- (a) Be careful not to damage the screwed part during plumbing work.
- (b) Process the piping screws to the screw standard that matches the valve to be used.
- (c) For thread cutting of pipes, please thread within JIS standards.
Please use the automatic round-up type for the thread cutting machine.
If the pipe is already threaded, be sure to check the thread gauge to make sure it is threaded correctly.
If the pipe is already threaded, be sure to use a thread gauge to make sure it is threaded correctly.

 CAUTION	
	<p>(1) Disassembly of valve body and screen The screen of the part is tightened with the appropriate tightening Torque. If the valve body and screen are disassembled, tightening torque may be insufficient or excessive during reassembly. Do not disassemble as it may cause valve leakage or valve damage. Disassembled products are not covered by the warranty.</p>

CHAPTER V

Maintenance and inspection

In order to prevent unexpected accidents and use the valve safely for a long time, perform daily inspections and regular inspections.

It is important to carry out systematically, detect abnormalities at an early stage, and take appropriate measures.

Even if the valve is used correctly, it has a certain life due to wear and corrosion of parts.

It is also necessary to understand the life of the valve under the conditions of use, and to replace parts and valves.

It is also necessary to establish a maintenance management system, establish standards and standards, and implement education and training.

CHAPTER VI

Waste

(1) Asbestos

Since August 2005, no asbestos has been used in our products.

Prior to that, some products used asbestos-containing sealing materials.

Sealing materials containing asbestos require proper treatment.

(2) Lead

Bronze casting, which is the standard material for bronze valves, contains about 5% lead.

Please separate and dispose of it from lead-free bronze.