

Serial No.	H-V014E-3
------------	-----------

# Ball Check And Ball Foot Valves

## Contents

- (1) General operating instructions ..... 1
- (2) General instructions for transportation,  
unpacking and storage ..... 1
- (3) Name of parts ..... 2
- (4) Comparison between working  
temperature and pressure ..... 4
- (5) Installation procedure ..... 5
- (6) Disassembling method for replacing parts ..... 9
- (7) Inspection items ..... 9
- (8) Troubleshooting ..... 10
- (9) Handling of residual and  
waste materials ..... 10
- (10) Inquiries ..... 11

**User's Manual**



## General operating instructions

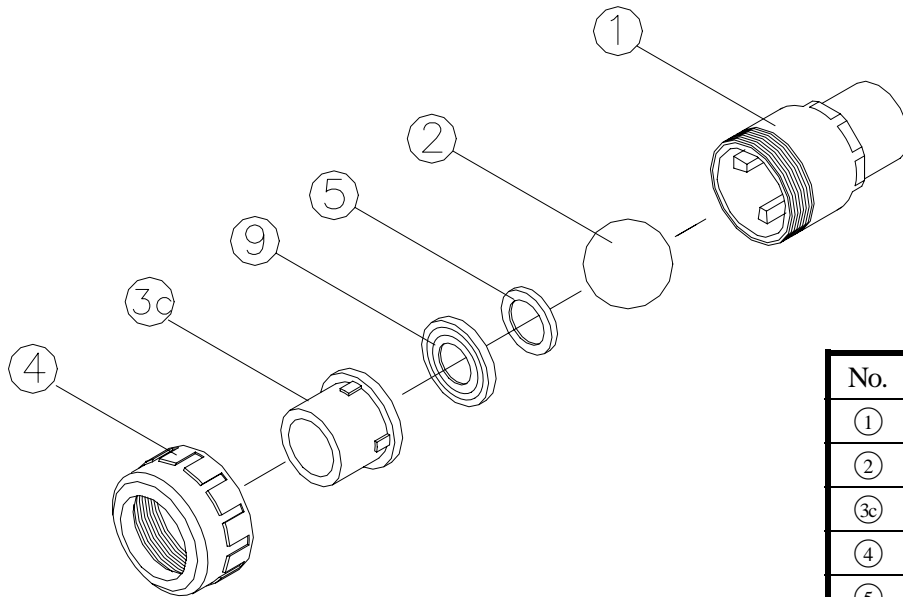
- Operate the valve within the pressure Vs temperature range.  
(The valve can be damaged by operating beyond the allowable range.)
- Select a valve material that is compatible with the media, refer to “CHEMICAL RESISTANCE ON ASAHI AV VALVE”.(Some chemicals may damage incompatible valve materials.)
- Do not use the valve to fluid containing slurry. (The valve will not operate properly.)
- Do not use the valve on condition that fluid has crystallized.  
(The valve will not operate properly.)
- Do not step on the valve or apply excessive weight on valve. (It can be damaged.)
- Make sure to consult a waste treatment dealer to dispose of the valves.  
(Poisonous gas is generated when the valve is burned improperly.)
- Allow sufficient space for maintenance and inspection.
- Keep the valve away from excessive heat or fire. (It can be deformed, or destroyed.)
- The valve is not designed to bear any kind of external load. Never stand on or place anything heavy on the valve at anytime.
- Certain liquid such as H<sub>2</sub>O<sub>2</sub>, NaClO, etc may be prone to vaporization which may cause irregular pressure increases, which may destroy the valve.

## (2) General instructions for transportation, unpacking and storage

- Keep the valve packed in the carton or box as delivered until installation.
- Keep the valve away from any coal tar, creosote (antiseptic for wood), termite insecticide, vermicides, and paint.  
(This could cause swelling damage the valve.)
- Do not impact or drop the valve. (It can be damaged.)
- Avoid scratching the valve with any sharp object.

(3) Name of parts

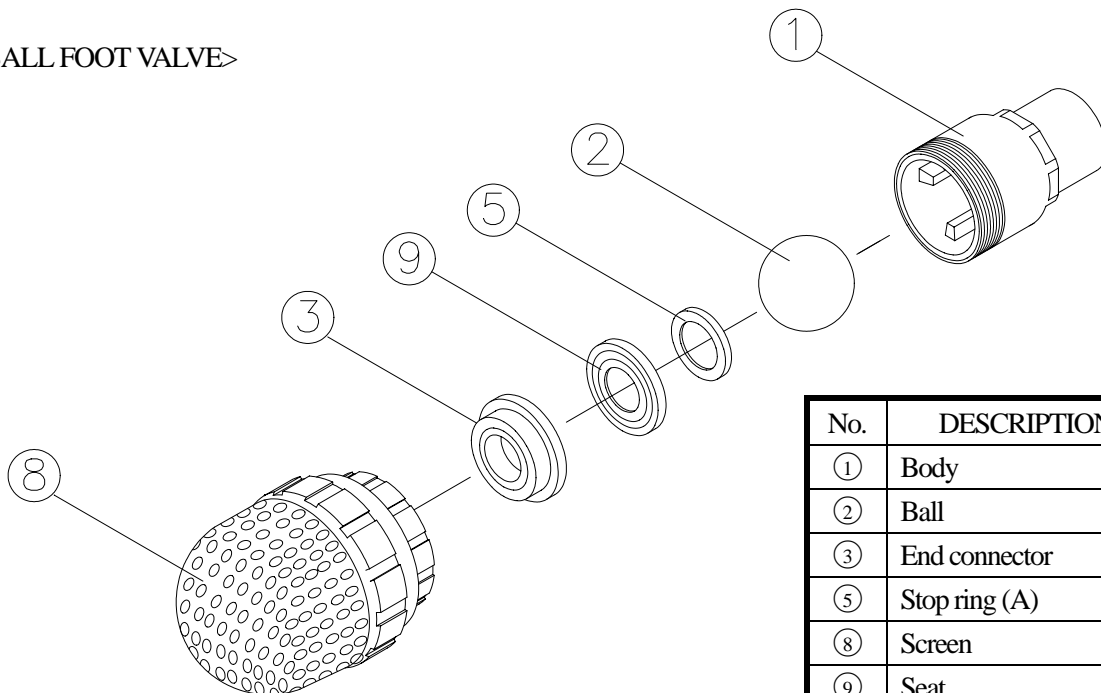
<BALL CHECK VALVE>



No.	DESCRIPTION
①	Body
②	Ball
③c	End connector (Socket end type)
④	Union nut
⑤	Stop ring (A)
⑨	Seat

Exp. Material; U-PVC / EPDM

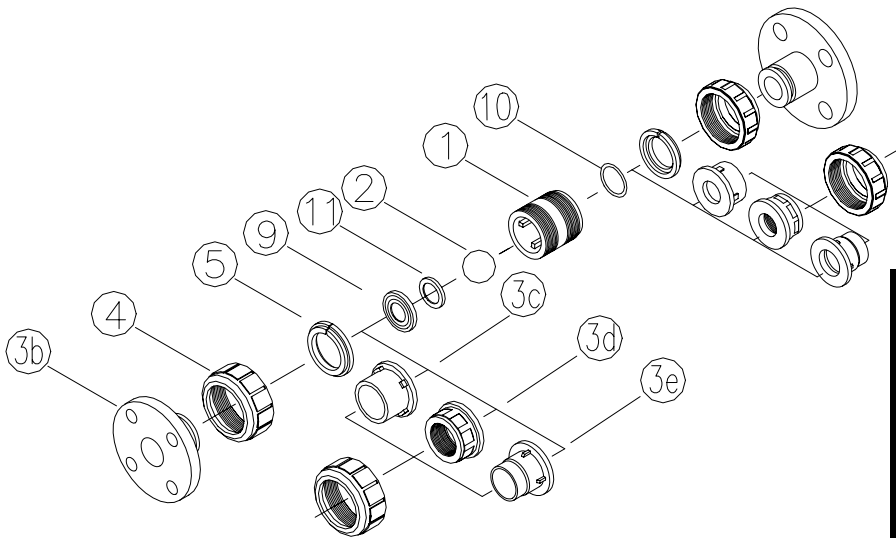
<BALL FOOT VALVE>



No.	DESCRIPTION
①	Body
②	Ball
③	End connector
⑤	Stop ring (A)
⑧	Screen
⑨	Seat

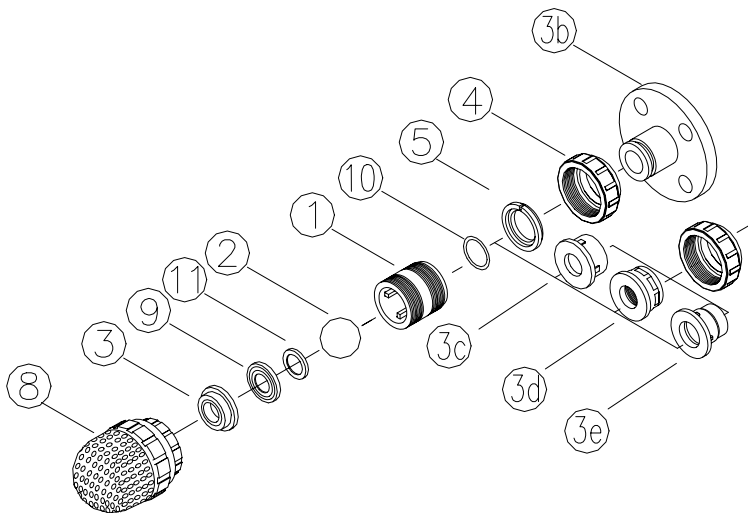
Exp. Material; U-PVC / EPDM  
Threaded end type

<TRUE UNION BALL CHECK VALVE>



No.	DESCRIPTION
①	Body
②	Ball
③b	End connector(Flanged end type)
③c	End connector(Socket end type)
③d	End connector(Threaded end type)
③e	End connector(Spigot end type)
④	Union nut
⑤	Stop ring (A)
⑨	Seat
⑩	O-ring (A)
⑪	Stop ring (B)

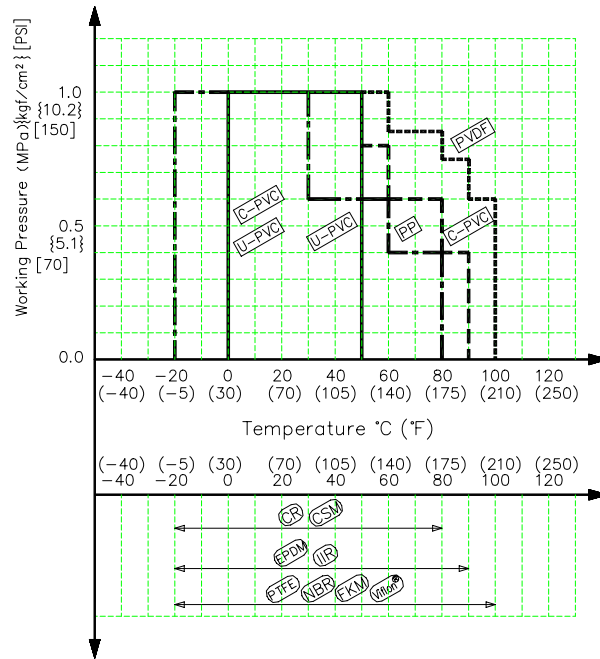
<TRUE UNION BALL FOOT VALVE>



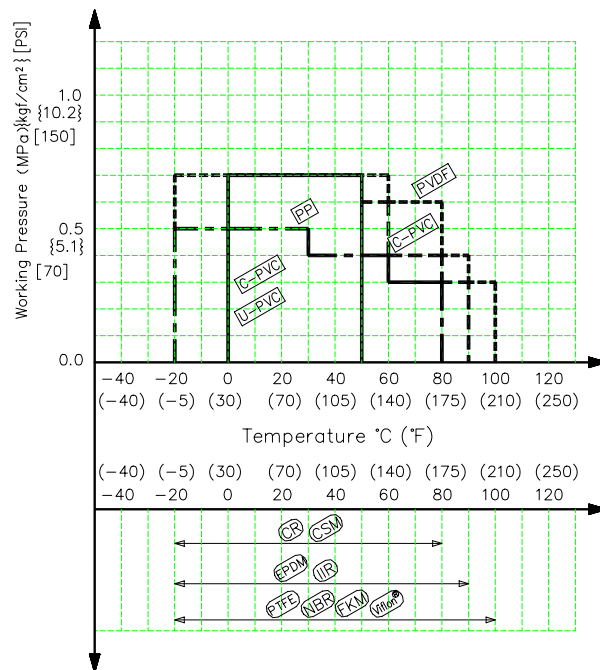
No.	DESCRIPTION
①	Body
②	Ball
③	End connector
③b	End connector(Flanged end type)
③c	End connector(Socket end type)
③d	End connector(Threaded end type)
③e	End connector(Spigot end type)
④	Union nut
⑤	Stop ring (A)
⑧	Screen
⑨	Seat
⑩	O-ring (A)
⑪	Stop ring (B)

(4) Comparison between working temperature and pressure

Nominal size : 15mm-50mm (1/2"-2")



Nominal size : 80mm,100mm (3",4")



Caution

Do not operate the valve beyond the range of working temperature and pressure.  
(The valve can be damaged.)

**(5) Installation procedure**

**Flanged Type**

Necessary items

- Torque wrench
- Spanner wrench
- Bolt, Nut, Washer (For many flanges specification)
- AV gasket (When a non-AV gasket is used, a different tightening torque specification should be followed.)

Procedure

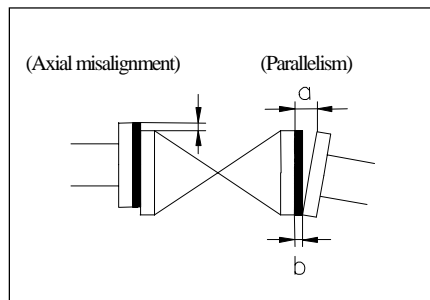
- 1) Set the AV gasket between the flanges.
- 2) Insert washers and bolts from the pipe side, insert washers and nuts from the valve side, then temporarily tighten them by hand.

 **Caution**

The parallelism and axial misalignment of the flange surface should be under the values shown in the following table to prevent damage the valve.  
 (A failure to observe them can cause destruction due to stress application to the pipe)

Unit : mm [inch]

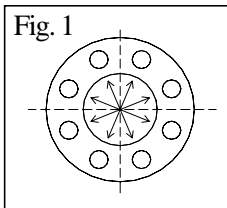
Nom. Size	Axial Misalignment	Parallelism (a-b)
15-32mm (1/2"-1 1/4")	1.0 (0.04)	0.5 (0.02)
40,50mm (1 1/2",2")	1.0 (0.04)	0.8 (0.03)
80,100mm (3",4")	1.0 (0.04)	1.0 (0.04)



- 3) Using a torque wrench, tighten the bolts and nuts gradually to the specified torque in a diagonal manner (Refer to fig.1.)

 **Caution**

Avoid excessive tightening. (The valve can be damaged.)



Recommended torque value

Unit: N-m (kgf-cm) [lb-inch]

Nom. Size	15mm (1/2")	20mm (3/4")	25mm (1")	40mm (1 1/2")	50mm (2")	80mm (3")	100mm (4")
Torque value	17.5 (179) [155]	17.5 (178) [155]	20.0 (204) [177]	20.0 (204) [177]	22.5 (230) [200]	30.0 (306) [266]	30.0 (306) [266]

\*Be sure to set the union nut ④ when it was removed or loosen from body ①.

- 1) Attach seat ⑨, stop ring (A) ⑤ and ball ② in order, and tighten the union nut by hand.

 **Caution**

Check the seat ⑨ and the stop ring (A) ⑤ for their faces and backs.(They can not be sealed.)

- 2) Using a strap wrench, screw it in by turning 90° - 180° carefully without damaging it.

 **Caution**

Avoid excessive tightening. (The valve can be damaged.)

**Threaded type** (Material : PVC,C-PVC,PP,PVDF)

## Necessary items

Sealing tape(A non-sealing tape can cause leakage.)

Strap wrench(Do not use Pipe wrench.)

Spanner wrench



## Caution

Make sure that the threaded connections are plastic x plastic.

(Metallic thread can cause damage.)

Procedure

- 1) Wind a sealing tape around the external thread of joint, leaving the end (about 3mm) free.
- 2) Loosen the union nut (5) with a strap wrench..
- 3) Remove the union nut (5) and the end connector4d.
- 4) Lead the union nut (5) through the pipe.
- 5) Tighten the external thread of the joint and the end connector(4d) hardly with hand.
- 6) Using a spanner wrench, screw in the end connector(4d) by turning 180°-360°carefully without damaging it.



## Caution

Avoid excessive tightening. (The valve can be damaged.)

- 7) Make sure that the O-ring (A`8) is mounted.
- 8) Set the end connector (4d) and union nut (5) directly on the body without allowing the O-ring (A`8) to come off.
- 9) Tighten the union nut (5) hardly with hand.
- 10) Using a strap wrench tighten union nuts uniformly on each side approx 90°–180° turns, 1/4 to 1/2 turns.



## Caution


Avoid excessive tightening. (The valve can be damaged.)

Socket type (Material : PVC,C-PVC)

Necessary items

Adhesive for hard vinyl chloride pipes


Strap wrench (Do not use the pipe wrench)

 **Caution**

Do not install a socket type valve where the atmospheric temperature is 5 °C or lower.  
(The valve can be damaged.)

Procedure

- 1) Loosen the union nut (5) with a strap wrench.
- 2) Remove the union nut (5) and end connector (4c) .
- 3) Lead the union nut through the pipe.
- 4) Clean the hub part of the end connector (4c) by wiping the waste cloth.
- 5) Apply adhesive evenly to the hub part of the end connector (4c) and the pipe spigot.


 **Caution**

Do not apply more adhesives than necessary.  
(The valve can be damaged due to solvent cracking.)

Adhesive quantity (guideline)

Nom. Size	15mm (1/2")	20mm (3/4")	25mm (1")	40 (1 1/2")	50 (2")	80 (3")	100 (4")
Quantity(g)	1.0	1.3	2.0	3.5	4.8	9.0	13.0

- 6) After applying adhesive, insert the pipe quickly to the end connector (4c) and leave it alone for at least 60 seconds.
- 7) Wipe away overflowing adhesive.
- 8) Make sure that O-ring(A) (8) is mounted
- 9) Set the end connector (4c) and union nut (5) directly on the body without allowing the O-ring (A) (8) to come off.
- 10) Tighten the union nut (5) ardly with hand.
- 11) Using a strap wrench tighten union nuts uniformly on each side approx 90 °–180 ° turns, 1/4 to 1/2 turns.

 **Caution**

Avoid excessive tightening. (The valve can be damaged.)



**Socket type** (Material : PP/PVDF)

## Necessary items

Strap wrench (Do not use the pipe wrench.)  
 Sleeve welder or automatic welding machine  
 User's manual for sleeve welder or automatic welding machine

**Procedure**

- 1) Loosen the union nut with a strap wrench.
- 2) Remove the union nut (5) and the end connector.
- 3) Lead the union nut (5) through the pipe.
- 4) For the next step, refer to the user's manual for the sleeve welder or the automatic welding machine.
- 5) After welding, make sure that the O-ring (A) (8) is mounted.
- 6) Set the end connector (4c) and the union nut (5) directly without allowing the O-ring (A) (8) to come off.
- 7) Tighten the union nut (5) hardly with hand.
- 8) Using a strap wrench tighten union nuts uniformly on each side approx 90°–180° turns, 1/4 to 1/2 turns.

**Caution**

Avoid excessive tightening. (The valve can be damaged.)

**Spigot type** (Material : PVDF)

## Necessary items

Strap wrench (Do not use the pipe wrench.)  
 Automatic welding machine  
 User's manual for automatic welding machine

**Procedure**


- 1) Loosen the union nut with a strap wrench.
- 2) Remove the union nut (5) and the end connector.
- 3) Lead the union nut (5) through the pipe.
- 4) For the next step, refer to the user's manual for the sleeve welder or the automatic welding machine.
- 5) After welding, make sure that the O-ring (A) (8) is mounted.
- 6) Set the end connector (4c) and the union nut (5) directly without allowing the O-ring (A) (8) to come off.
- 7) Tighten the union nut (5) hardly with hand.
- 8) Using a strap wrench tighten union nuts uniformly on each side approx 90°–180° turns, 1/4 to 1/2 turns.

**Caution**

Avoid excessive tightening. (The valve can be damaged.)

**(6) Disassembling Method for Replacing Parts**

- Necessary items
- Strap wrench
  - Safety goggles
  - Protective gloves

 **Caution**  
 Wear protective gloves and safety goggles as some fluid remains in the valve.  
 (You may be injured.)

<Disassembly>


Procedure

- 1) Completely discharge fluid from pipes.
- 2) Turn the handle to full shut.
- 3) Loosen the union nut ④, ball ②, seat ⑨ and stop ring (A) ⑤ and removed.
- 4) Check all parts, and replace with a new one if worn.


<Assembly>

Procedure

- 3) Attach seat ⑨, stop ring (A) ⑤ and ball ② in order, and tighten the union nut by hand.

 **Caution**  
 Check the seat ⑨ and the stop ring (A) ⑤ for their faces and backs.  
 (They can not be sealed.)

- 4) Using a strap wrench, screw it in by turning 90° - 180° carefully without damaging it.

 **Caution**  
 Avoid excessive tightening. (The valve can be damaged.)

**(7) Inspection items**

○Inspect the follow items;

(1)	Check for any flaw, crack, or deformation on the outside.
(2)	Check whether fluid leaks to the outside.
(3)	Check whether tightness of bolt nut.

(8) Troubleshooting

Problem	Cause	Treatment
Fluid leaks from the valve even when the valve is closed fully.	Insufficient back pressure	Check back pressure.
	Foreign matter is in the valve.	Clean the valve.
	The seat or ball is scratched or worn.	Replace the seat or ball with a new one.
Fluid leaks from the valve.	The seat is scratched or worn.	Replace seat with a new one.
	The union nut is loosened.	Tighten up the union nut.

(9) Handling of residual and waste materials



Caution

In discarding remaining or waste materials, be sure to ask waste service company.

**(13) Inquiries****ASAHI ORGANIC CHEMICALS INDUSTRY CO., LTD.**

**Nobeoka Head Office** : 2-5955, Nakanose- Cho, Nobeoka –City, Miyazaki- Pref. , Japan.  
Tel : (81) 982-35-0880 Fax : (81) 982-35-9350

**Tokyo Head Office** : (Furukawachiyoda Bldg.) 15-9, Uchikanda 2- Chome, Chiyoda-Ku, Tokyo, Japan.  
Tel : (81) 3-3254-8177 Fax : (81) 3-3254-3474

**Singapore Branch Office** : 16 Raffles Quay, #40-03 Hong Leong Building, Singapore 048581.  
Tel : (65) 220-4022 Fax : (65) 324-6151

**Europe Representative Office** : Kaiser-Friedrich-Promenade 61 D-61348 Bad Homburg v. d. H. Germany.  
Tel : (49) 6172-9175-0 Fax : (49) 6172-9175-25

**Shanghai Branch Office** : Room 1301-P Shanghai Kerry Center, 1515 Nanjing Xi Road, Shanghai China  
Tel : (21) 5298-6900 Fax : (21) 5298-6556

**ASAHI /AMERICA Inc.** :35 Green Street P.O.Box 653 , Malden, Massachusetts 02148 U.S.A.  
Tel : (1) 781-321-5409 Fax : (1) 781-321-4421

**Distributor**

**Ball Check & Ball Foot Valve**



**ASAHI AV VALVES**