



MARWIN VALVE

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I & M 2000F-150 & -300 Series

Installation & Maintenance Instructions for Marwin 2000F Series Three Piece Ball Valves

Warning: Marwin Valve ball valves must only be used, installed and repaired in accordance with these Installation & Maintenance Instructions. Observe all applicable public and company codes and regulations. In the event of leakage or other malfunction, call a qualified service person; continued operation may cause system failure or a general hazard.

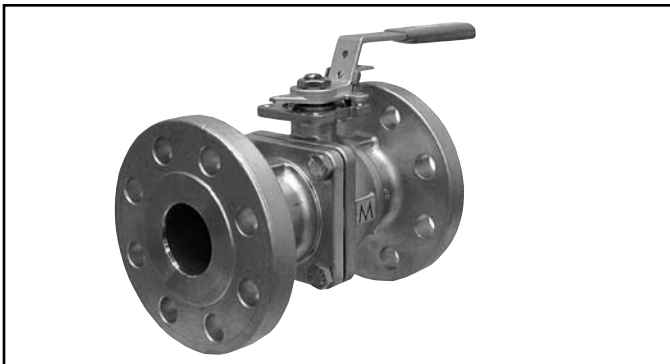
Please read these instructions carefully!

Your Marwin Valve product will provide you with long, trouble-free service if it is correctly installed and maintained. Spending a few minutes now reading these instructions can save hours of trouble and downtime later. When making repairs, use only genuine Marwin Valve parts, available for immediate shipment from the factory.

Scope

This manual is intended as a guide to assist customers in the storage, installation, and maintenance of Marwin 2000F Series ball valves. Subsequent additions or special instructions will be provided for special valves, critical service or customer requirements.

Applicability



This manual is applicable to the 2000F-150 & -300 Series Marwin flanged ball valves.

Caution

To help prevent injury to personnel or damage to equipment, please read this section completely before performing any operations.

1. Valve pressure ratings are based on many variables, including valve series and size, as well as body, seat and bolt material. Verify that application

does not exceed the pressure or temperature rating on the nameplate.

2. **Always** depressurize the line with the valve in the **open** position before disassembly. Cycle valve in depressurized line before removing valve.
3. Wear protective equipment and take appropriate precautions to safeguard against injury caused by the discharge of trapped fluids.
4. Use only Marwin recommended spare parts for maintenance.
5. To ensure safety and maintain warranty, never modify valve in any way without prior approval from Marwin.

Storage

A petroleum-based oil (silicone free) is used as lubrication on all internal surfaces. This may be removed with a solvent if found objectionable. All valves are adequately packed in a strong cardboard case in such a way as to avoid any possible damage during transport and storage.

Caution: if ball valves are not destined for immediate use, the following precautions should be taken:

1. If possible, leave the ball valves in their packing cases during the period of storage.
2. Ball valves must remain in open position during this time.
3. In order to prevent damage, protective plastic covers on valve ends should not be removed until immediately prior to installation.
4. It is advisable to store the valves in waterproof conditions. Ball valves should be protected to safeguard against humidity, moisture, dust, dirt sand, mud, salt spray and seawater.
5. All valves complete with actuators are to be stored in dry conditions.
6. Valves to be stored for a long period of time should be checked by the quality control personnel every six months; every three months when valves are automated.

Maintenance During Storage Period

- Internal surface should be inspected to check for dust or other foreign objects.
- Rust or dust must be removed by cleaning with proper solvent.
- After cleaning, ball valves must be lubricated with an adequate lubricant.
- Ball valves should be operated for at least two complete cycles before installing or returning to storage.

Installation

The ball valves may be installed in any position using standard pipe fitting practices.

Caution: Before installation of the valve:

1. Pipe must be free of tension both during and after installation.
2. Pipe must be flushed to clean dirt, welding residues, etc. which would damage ball or seats.
3. The valve should be kept in OPEN POSITION during installation and protective plastic covers must be removed only at the moment of installation.
4. Before shipment, the ball is lubricated with a pure Vaseline oil. This can be easily removed with an application compatible solvent if required.
5. If the valve was specified to be tested per ANSI 16.34, there may be some trapped water between the ball and the body cavity. This can be removed by partially opening the valve, thereby exposing the cavity to the through port of the ball.
6. Special care should always be taken when installing automated ball valves that the ball is in the proper position.

■ Installation of Flanged Ends

1. Verify valve is in the full open position.
2. Use the appropriate size bolt and heavy hex nut (not included) as recommended for flange size and class.
3. Flange connection requires gasket (not included).
4. Follow gasket manufacturer's recommended practice for tightening flange bolts.

Manual Operation

1. Open and close the valve by turning the handle one-quarter turn (90°).
2. Valve is in open position when handle is in line with the pipe.
3. Valve is in closed position when the handle is perpendicular to the pipe.

Maintenance

Before starting maintenance, please read information contained in the **Caution Section** of the manual.

1. Open and close the ball valve at least once to release the pressure completely from valve body.
2. Ball valves, if correctly used, normally do not need any internal lubrication and maintenance. However, when necessary, ball or seats can be replaced by qualified personnel following the instructions of this manual.
3. For further information, please refer to **SPARE PARTS LIST**.

Valve Disassembly

Note: Parts and disassembly / reassembly instructions are typical for this type of valve. Actual parts and disassembly / reassembly procedures may vary slightly, depending upon size of valve, especially in handle and stem seal areas.

A. To inspect and/or Replace Body Seals, Seats, Packing & Ball

Reference cross section for part identification

Warning: cycle valve at least once in depressurized line before disassembly.

1. Valve must be in the open position.
2. Remove valve from line.
3. Remove bolts (7) securing end cap and separate end cap (2) from body (1).
4. Close the valve and remove ball (3), seats (5), and body seal (6). Be careful not to damage ball.

B. Packing, Stem, Handle

1. Sizes 1/2" through 1":
 - a. Remove handle nut (25), lock washer (24), handle (23), packing nut (20), lock saddle (19), Belleville spring washers (16), and packing follower (15).
2. Sizes 1-1/2" through 6":
 - a. Remove handle / handle adaptor (23) / (22), lock saddle (19), packing nut (20), stop plates (18), Belleville spring washers (16), and packing follower (15).
3. Push the stem (4) into body (1). Remove thrust washer (12) and bearing washer (11) from stem.
4. Remove bearing washer (11) from the top of the packing, and packing set (13).

Note: A spare parts list is available for this valve. Please refer to explosion view below for identification. Please specify specific valve number to ensure proper parts are ordered. Marwin Valve does not take responsibility for incorrectly ordered spare parts.

Re-Assembly

A. Stem

1. Place grey bearing washer (11) then white thrust washer (12) on stem.
2. Insert stem (4) with bearing and thrust washer on it from inside of body (1).
3. Sizes 1/2" and 1":
 - a. Install stem packing (13), grey bearing washer (11), packing follower (15), Belleville spring washers (16) (concave sides facing each other), lock saddle (19), and packing nut (20). Tighten packing nut until snug, then one-half turn. The handle may be used to prevent rotation of the stem while tightening the stem nut.
 - b. Bend tab of lock saddle (19) up against the flat of the packing nut.
 - c. Install handle (12), lock washer (24) and handle nut (25).
4. For sizes 1-1/2" through 6"
 - a. Install stem packing (13), grey bearing washer (11), packing follower (15), Belleville spring washers (16) (concave sides facing each other), stop plate (18), lock saddle (19), and packing nut (20). Tighten packing nut until snug, then one-half turn. The handle may be used to prevent rotation of the stem while tightening the stem nut.
 - b. Bend tab of lock saddle (19) down against the flat of the packing nut.
 - c. Install handle adaptor (24), and handle (25), and tighten handle bolts (26).

B. Ball, Seats and Seals

1. Install a seat (5) in body (1).
2. Place the stem (4) in the closed position and insert the ball (3), aligning groove in ball with bottom of stem.
3. Position the ball in the open position.
4. Install a seat (5) and body seal (6) on end plug (2).
5. Insert end cap (2) in body (1).
6. Install and hand tighten all bolts (7) through end cap flange (2) into body (1).
7. Torque bolts or nuts to recommended values in an alternating / opposing pattern no more than one-quarter turn before alternating.

Testing

1. After completing the reassembly, check that valve operates smoothly by opening and closing valve several times.
2. If entire valve was removed from line and if facilities area available, test the ball valve to appropriate specifications.

Troubleshooting

A. Stem Leakage

1. Leakage in the stem packing area may be eliminated by increasing the torque on the stem nut (14) in one-quarter turn increments. If leakage persists, replace stem packing (9).

B. Body Seal Leakage

1. Check the torque of the body bolts (7) according to Torque Table. Replace body seal (6) if leakage persists.

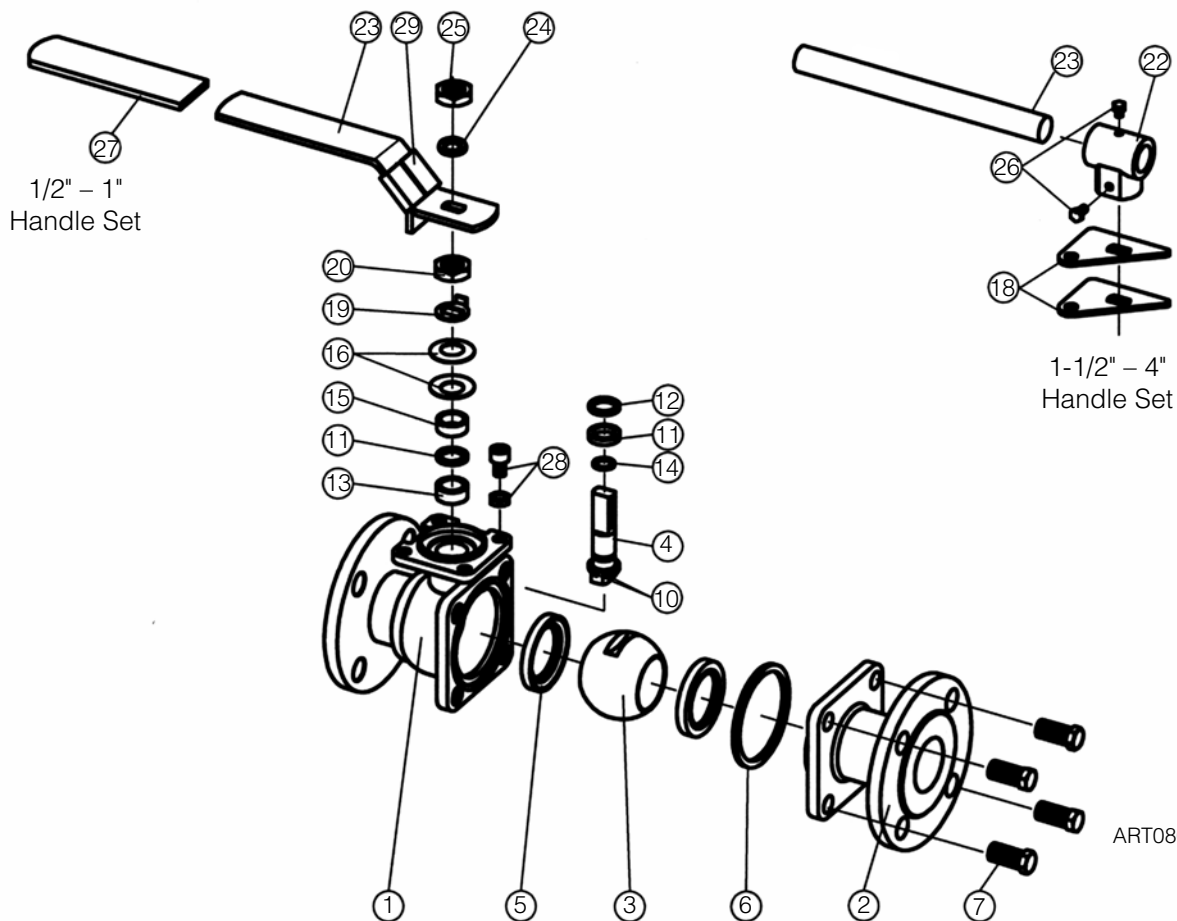
C. In Line or Seats Leakage

1. Check to be sure valve is in fully closed position. If leakage persists, the valve must be disassembled and damaged parts replaced.

Body Bolt Torque Value Table

Valve Size	Body Bolt Torque (in/lbs)	
	Class 150	Class 300
1/2"	150	—
3/4"	150	—
1"	150	—
1-1/2"	150	580
2"	300	580
2-1/2"	300	580
3"	500	580
4"	840	580
6"	1620	—

Exploded View



ART0808

Item #	Part Name	Item #	Part Name
1	Body	18	Stop Plate
2	End Plug	19	Lock Saddle (1/2" - 1")
3	Ball	20	Packing Nut (1/2" - 4")
4	Stem	21	Retainer Ring (6") (Not shown)
5	Seat	22	Handle Adaptor (1-1/2" - 4")
6*	Body Seal		Handle Adaptor (6")
7	Body Bolt	23	Handle (1-1/2" - 4")
10*	Antistatic Pin (1/2" - 4")		Handle (6")
11*	Washer	24	Lock Washer (1/2" - 1")
12*	Thrust Washer	25	Handle Nut (1/2" - 1")
13*	Packing	26	Handle Bolts (1-1/2" - 4")
14*	O-Ring, Stem (1/2" - 4")		Handle Bolts (6")
15	Follower, Packing (1/2" - 4")	27	Handle Cover (1/2" - 4")
	Gland (6") (Not shown)	28	Stop Bolts Nut (1/2" - 4")
16	Belleville Washer (1/2" - 4")	29	Locking Device (1/2" - 1")
17	Gland Bolt (6") (Not shown)		