



MARWIN VALVE

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I & M 10000 Series

Installation & Maintenance Instructions for Marwin 10000 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 10000 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 10000 Series Marwin three piece 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 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 storage.
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. Valves with actuators shall 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 suitable lubricant. This can be easily removed with an application compatible solvent if required.
5. If the valve was specified to be tested per ASME 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 Threaded-Ends

1. Unless otherwise specified, pipe threads are American National Standard Taper Pipe Threads (NPT) per ANSI B1.20.1, and require that a pipe sealant be used.
2. Use an anti-seize thread sealant to seal and prevent galling.
 - a. Marwin recommends PTFE-based liquid sealant or Grafoil tape as thread sealants.
 - b. Notes: Use all pipe sealant products in accordance with the manufacturer's instructions and good piping practices.
3. Correct lubrication of stainless steel pipe threads is especially important to prevent galling.
4. To prevent distortion or damage to the valve, do not apply torque through the valve. When tightening valve, use wrench on the end nearest the pipe

being tightened.

5. Always leak test the system before using.

Installation of Welded-End Ball Valves

1. Tack weld in four points on both end caps.
2. Lift out the valve body and seat per disassembly section in this procedure and complete the welding.
3. Allow welds to cool.
4. Reassemble valve per Assembly Section in this procedure and inspect for easy operation.
5. Extended end valves may be welded into place without disassembly using the following guidelines:
 - a. Valve must be in the full open position
 - b. Limit continuous weld time to one minute.
 - c. Direct moving air across finned area or wrap extended end with wet cloth.
 - d. Check body bolts for proper torque after welds have completely cooled per Assembly Section of this procedure.

Note: Guide for extended valve installation does not apply to UHMW-PE or Delrin seats or standard EPDM or Nitrile body seals due to the low tolerance to high temperatures of these materials.

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

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

Reference cross section for part identification

1. Valve must be in the open position.
2. Remove valve from line.
3. Remove bolts (8) securing end caps (2) and separate end caps (2) from body (1).
4. Close the valve and remove ball (3), seats (4) inner body seals (6) and outer body seals (7). Be careful not to damage the ball.
5. Remove the stem nut (15), locking washer (16), handle (17), handle nut (18), spring washers (14), and gland (13).
6. Push the stem (5) into the body (1). Remove O-ring (10), and thrust washer (9) from stem.
7. Remove thrust washer (12) if used, from top of packing (11), and remove packing (11) from body (1).

B. Inspection and Replacement

With the valve completely disassembled, clean and examine all components.

1. Ball. The surface of the ball should be free from any defect. If any are found, the ball should be replaced. Using a defective ball will be extremely detrimental to valve performance.
2. Seats. Replacement of seats is recommended.
3. Stem seals and body seals. Should be discarded and replaced.
4. Remaining components of the valve. After cleaning, carefully examine for wear, corrosion and mechanical damage. Replace all defective parts.
5. Clean inside of body and stem housing. Oil or light grease, compatible with line fluid, can be used on ball, seals and stem surface.

Note: A spare parts list is available for this valve. Refer to the section view and parts table on page 4 for recommended spare parts.

Provide complete valve information, including size / series / seal materials, or project valve number, and order or serial number or date of purchase, to ensure proper parts are ordered. Marwin Valve does not take responsibility for incorrectly ordered spare parts.

Re-Assembly

A. Stem

1. Replace thrust washer (9) and O-Ring (10) on stem, then insert the stem from inside of body (1).
2. Install stem packing (11), thrust washer (12) if used, gland (13), spring washers (14), and stem nut (15), and tighten until snug, then one-half turn. To avoid rotation of stem, place stem in closed position, install ball in body, and insert handle through the ball port.
3. Install lock washer (16), handle (17) and handle nut (18) then tighten.

B. Ball, Seats, and Seals

1. Rotate the stem (5) to closed position and insert the ball (3), aligning groove in ball with bottom of stem. Rotate the stem (5) to the open position to hold the ball in place.
2. Install the inner body seal (6) and the outer body seal (7) in the grooves on one side of the body.
3. Insert the seat (4) in one end cap (2), and carefully install that end cap to the side of the body with the seals installed.
4. Fasten the end cap (2) to the body (1) with bolts (8). Hand tighten the bolts.
5. Repeat steps 2 through 4 for the other side of the body.
6. Tighten nuts to recommended torque values using an alternating / opposing pattern with no more than 1/4 turn on each nut 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

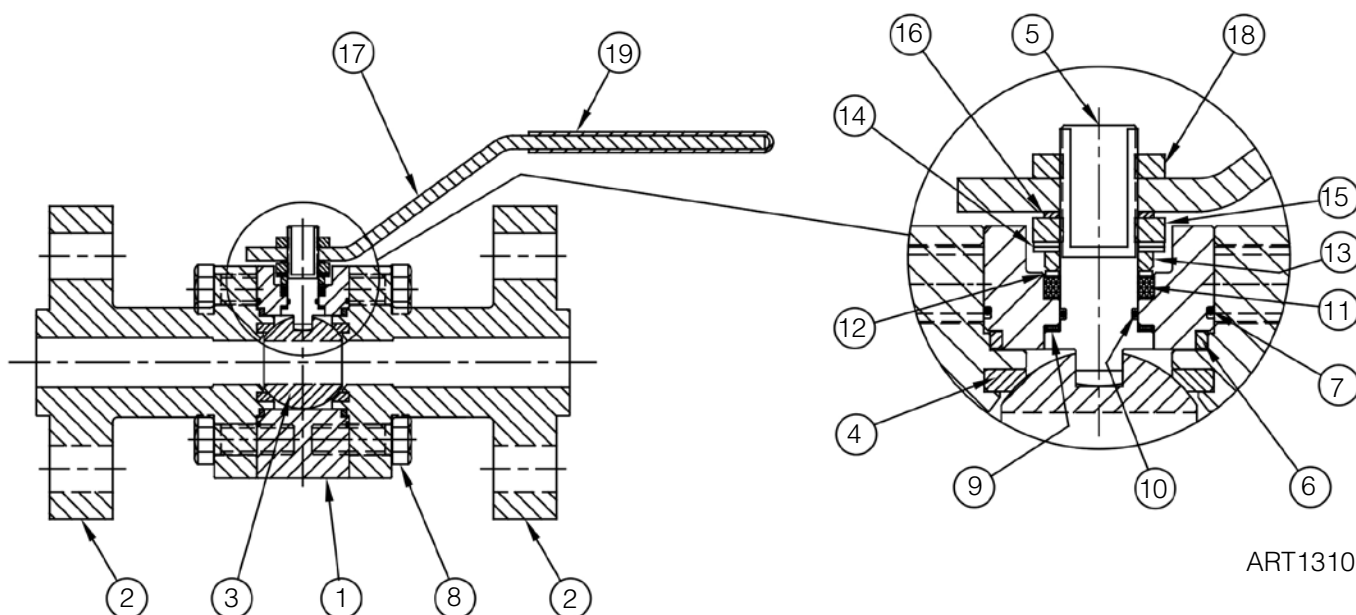
A. Stem Leakage

1. Leakage in the stem packing area may be eliminated by increasing the torque on the stem nut (15) in one-quarter turn increments. If leakage persists, replace stem packing (11).

B. Body Seal Leakage

1. Check the torque of the body bolts (8) according to Torque Table.

Section View



ART1310

Item	Qty	Part Name	Material	Item	Qty	Part Name	Material
1	1	Body	CS: ASTM A105	10	1-2	*O-Ring, Stem	Viton
2	2	End Cap	SS: A479-316/316L	11	1 Set	*Packing Ring	Graphite or PTFE
3	1	Ball	ASTM-A479-316	12	1 ⁽¹⁾	*Thrust Wash., Pack	CRPTFE
4	2	*Seat	Delrin, PEEK, etc.	13	1	Gland	316 SST
5	1	Stem	316SS, 17-4PH SS	14	2	Spring Washer	17-7PH SST
6	2	*Seal, Body (Inner)	Viton or Graphite	15	1	Nut, Stem	304 SST
7	2	*Seal, Body (Outer)	Viton or Graphite	16	1	Lock Washer, Saddle	304 SST
8	12-20	Bolts, Body	CS: ASTM A193, B7	17	1	Handle	Carbon Steel
			SS: ASTM A193, B8	18	1	Nut, Handle	304 SST
9	1	*Thrust Wash., Stem	CRPTFE, PEEK, etc.	19	1	Cover, Handle	Vinyl

⁽¹⁾ Used with graphite packing only

* Recommended spare parts: #4 (2); #6 (2); #7 (2); #9 (1); #10 (1) 1/2" - 1", (2) 1-1/4" - 2"; #11 (1 set); #12 (1)

Body Bolt Torque Valve Table (ft/lbs)

Series/Size	Bolt Information		Bolting Material		
	Bolt Size	Bolt Qty/Side	BD Steel	B7M NACE	B8 Stainless Steel
10,000					
1/4" - 1/2"F	0.375	6	25	21	14
3/4"F	0.500	6	54	42	35
1"F	0.562	6	67	58	54
1-1/4" - 1-1/2"F	0.562	8	67	58	54
2"F	0.562	10	67	58	54