



INSTALLATION, OPERATION AND MAINTENANCE INSTRUCTIONS

for

MERIDIAN TWO PIECE FLOATING BALL VALVES

**SIZES 1/2" – 10" (DN 15-DN250)
CLASSES 150 TO 1500**

It is recommended that the valve installer is familiar with the MSS-SP-92 Valve User Guide.

3780- 98 Street, Edmonton, Alberta, Canada, T6E 6B4

Table of Contents

SUBJECT	PAGE
1.0 VALVE INSTALLATION	4
2.0 OPERATION	5
3.0 MAINTENANCE	5
4.0 STORAGE PROCEDURE	6
5.0 VALVE REMOVAL FROM LINE	6
6.0 VALVE REPAIR AND OVERHAUL	8
7.0 TROUBLESHOOTING GUIDE	12



WARNING



These instructions need to be fully read and understood before installation, removal or maintenance

1. If in any doubt regarding any aspect of the following instructions, contact Meridian's Edmonton office for guidance.
2. Use of these valves for any purpose other than its intended purpose may result in property damage or serious personal injury or death!
3. The user is responsible for ensuring compliance with local guidelines, regulations, safety standards and laws applicable to the use of these valves.
4. Only use qualified personnel for installation, removal and maintenance.
5. Use appropriate protective equipment/clothing such as eye protection, safety shoes, industrial gloves and hearing protection.
6. The specified service pressure, temperatures and media must not be exceeded; read the name tag and check the rating. Do not exceed these ratings.
7. Know what media is in the line. If there is any doubt, check with the proper authority.
8. When used on line fluids with a temperature of 80°C or higher, the valve body can become very hot and should not be handled without appropriate protection.
9. Heavy impacts, such as blows with a steel headed hammer, to the valve should be avoided.
10. Do not modify the valve's design and its components (e.g. such as drilling of mounting holes) which will void written or implied warranty.
11. These valves are not recommended for dead end service.
12. Always follow the respective manufacturer's instructions when attaching items such as actuators and limit switches to the valves.
13. Never disassemble valves under warranty without consulting the manufacturer first, since doing so without proper authorization can void the warranty.

1.0 INSTALLATION

 WARNING 
<ul style="list-style-type: none">- Valves must be inspected for damage before installation.- Do not install damaged valves.- For your safety and protection, please read the following precautions before installing the valve.

The practical and safe use of this product is determined by both the seat and body ratings. Read the name tag and check body ratings. This product is available with a variety of seat materials. Some of the seat materials have pressure ratings that are less than the body ratings. All of the body and seat ratings are dependent on valve type and size, seat material, bolting material, and temperature. Do not exceed these ratings.

Flow through the floating ball valve can be in either direction. For proper installation of valves these steps should be followed:

- 1.1 Remove all left over particles of rust, slag, and debris from inside the pipeline.
- 1.2 Proper support of valve and/or pipeline should be provided to eliminate strain and fatigue of valve end connections.
- 1.3 Before installation, carefully check the valve markings and pressure rating to ensure the valve is suitable for service.
- 1.4 Make sure valve opens and closes correctly. Install valve in open position to protect the surface of the ball during installation.
- 1.5 The valve should be tightened between flanges using appropriate gaskets and fasteners for the service. Tighten the bolts in compliance with the requirements of the gasket manufacturer.
- 1.6 If there is seepage past the packing upon installation, the valve may have been subjected to wide temperature variations in shipment. "Leak-tight" performance will be restored by a packing adjustment described in the maintenance section.

CAUTION: Ball valves should be lifted so that the body supports the load. They should never be lifted by the lever or the gear operator.

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2.0 OPERATION



WARNING



- Always get specific authorization before operating any valve in the system.
- Line media may be lethal. Follow all company approved venting and safety procedures.
- Never use excessive force to turn a seized valve as you may bend or break the stem making the valve inoperable.
- For your safety and protection, please read the following precautions before operating the valve.

To operate ball valves properly, the following should be taken into account:

- 2.1 The valve must be operated either fully open or fully closed. Leaving the ball in some intermediate position can rapidly cause severe damage to the seats.
- 2.2 In lever operated valves, when the lever is aligned with the valve axis (bore) it indicates open position. Viewed from the top, the valve stem rotates 90 degrees clockwise to go from open to closed position.
- 2.3 All gear boxes or actuators have a device which indicates open and closed positions. The hand wheel on all gear operators rotates clockwise to close the valve.

3.0 MAINTENANCE



WARNING



- Always get specific authorization before operating or removing any valve in the system.
- Line media may be lethal. Follow all company approved venting and safety procedures.
- Never use excessive force to turn a seized valve as you may bend or break the stem making the valve inoperable.
- For your safety and protection, please read the following precautions before conducting maintenance on the valve.

- 3.1 General maintenance requires periodic operation to ensure that the valve is functioning properly.

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- 3.2 Routine maintenance may consist of tightening the gland bolts periodically to compensate for stem seal wear.
- 3.3 Overhaul maintenance consists of replacing seats and seals making the valve virtually new again. A standard service kit consisting of these parts may be obtained, with the valve serial number, through Meridian.
- 3.4 Ball valves should not be immobilized for long periods of time. If possible, they should be cycled at periodic intervals to ensure continued and proper operation as part of your maintenance program.

4.0 STORAGE PROCEDURE

- 4.1 Care should be taken to cover both ends of the valve with covers, such as protective caps, to prevent foreign materials from entering the valve body which could result in damage to the valve seat.
- 4.2 Store valves in the fully open position.
- 4.3 For long term storage machined surfaces should be covered with a light film of grease to prevent these areas from rusting.

5.0 VALVE REMOVAL FROM LINE

For your safety and protection it is important that the following precautions are taken prior to removing the valve from service or any disassembly of valve.

 **WARNING** 

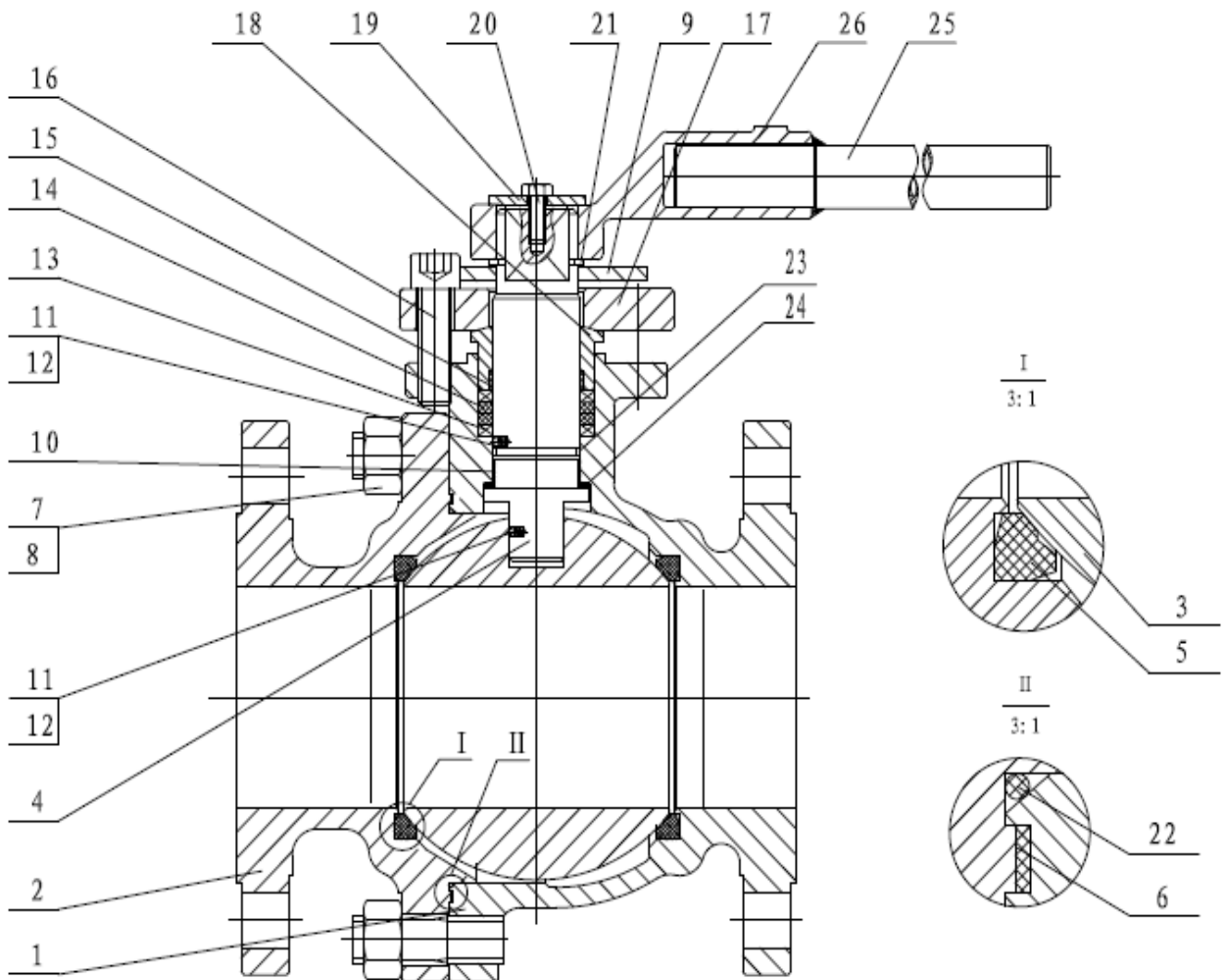
- Always get specific authorization before operating or removing any valve in the system.
- If equipped, do not open the body bleed or drain fitting in the body cavity unless it is safe to do so.
- Line media may be lethal. Follow all company approved venting and safety procedures.
- Never use excessive force to turn a seized valve as you may bend or break the stem making the valve inoperable.
- For your safety and protection, please read the following precautions before removing valve from the line.

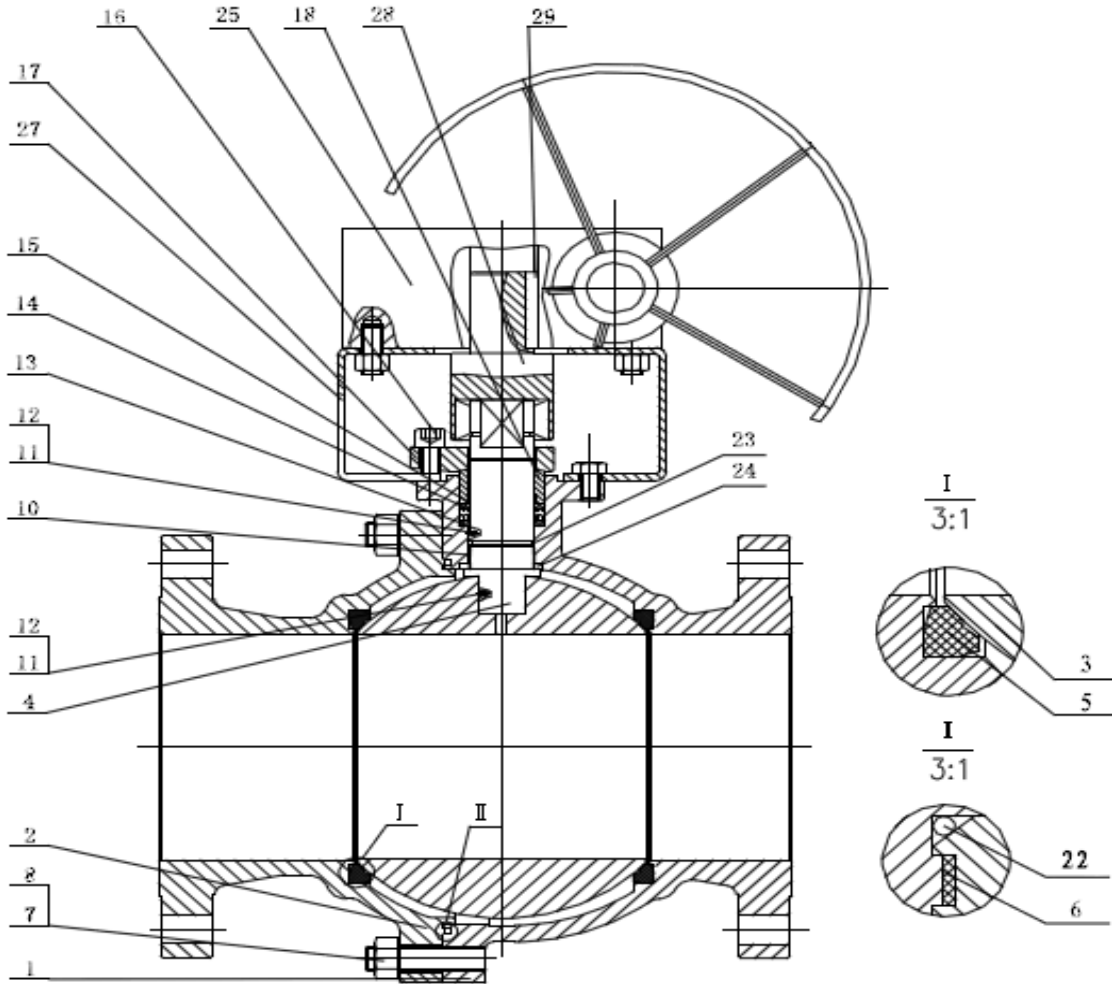
- 5.1 Keep hands safely out of the valves at all times during the entire procedure to avoid accidents resulting in serious injury (i.e. closure of valve by remote controlled actuator).
- 5.2 Know what media is in the line. If there is any doubt, check with the proper authority.
- 5.3 Wear protective clothing or equipment normally required when working with the media involved.
- 5.4 Depressurize the line and valve as follows:
 - A) Open the valve and drain the pipe line.
 - B) Close and open the valve to relieve any residual pressure that may be in the valve prior to removing the valve from service and leave the valve in open position.
 - C) After removal and prior to any disassembly, drain the remaining media by placing the valve in the vertical position and carefully open and close the valve several times.

6.0 VALVE OVERHAUL

Typical valve parts identification

Valve drawings and parts listings are for typical designs for the exact drawing and parts listing please contact Meridian and provide the full Model Number and Serial Number.





Item #	Name	Item #	Name	Item #	Name
1	BODY	11	STEEL BALL	21	C-CLIP
2	END CAP	12	SPRING	22	O RING
3	BALL	13	F.S. GASKET	23	O RING
4	STEM	14	F.S. GASKET	24	THRUST WASHER
5	SEAT	15	BEARING	25	LEVER OR GEAR OPERATOR
6	F.S. GASKET	16	ALLAN HEAD BOLT	26	JOINT
7	BOLT	17	GLAND FLANGE	27	BRACKET
8	HEX NUT	18	GLAND RING	28	COUPLING
9	STOP PLATE	19	WRENCH WASHER	29	KEY
10	BEARING	20	RETAINING BOLT		

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- 6.1 Disassembly (typical procedure and may vary slightly depending on valve size and design):
 - 6.1.1 Place the valve on a bench with the body flange side down protecting the raised face from damage and turn the stem to close the valve.
 - 6.1.2 Unscrew the flange nuts and remove the adapter/cap.
 - 6.1.3 Remove body seal and gaskets.
 - 6.1.4 Remove the ball from the body.
 - 6.1.5 Remove seats from Body and adapter/cap.
 - 6.1.6 Remove packing gland bolts, lock washers, stop plate and packing ring.
 - 6.1.7 Push the stem through the body and remove.
 - 6.1.8 Remove stem seal and thrust washer.
 - 6.1.9 Remove packing from body.
 - 6.1.10 Check all parts for wear and damage.

- 6.2 Assembly (typical procedure and may vary slightly depending on valve size and design):
 - 6.2.1 Clean and inspect all parts prior to use. Replace any damaged parts with new parts as required. A standard service kit consisting of soft parts may be obtained, with the valve serial number, through Meridian or your local Meridian distributor.
 - 6.2.2 Place the valve on a bench with the body and adapter/end cap flange side down protecting the raised face from damage.
 - 6.2.3 Install thrust washer and stem seal on the stem.
 - 6.2.4 Grease stem area push stem through body.
 - 6.2.5 Install new seats into the body and adapter/end cap. A slight amount of grease on the back or side of seat may be helpful during installation to ensure seats stay in place during assembly process.
 - 6.2.6 Place stem into closed position and install ball into body.
 - 6.2.7 Turn over adapter/end cap and place over studs on the body. Ensure you check the flange holes of adapter/end cap straddle centre line of body during assembly process.
 - 6.2.8 Tighten hex nuts in a criss-cross pattern and torque in accordance with recommended torque table below.
 - 6.2.9 Install new packing over stem into body.
 - 6.2.10 Install the packing gland ring, packing gland bolts, lock washers, stop plate in reverse order of disassembly see attached diagram. Initial assembly torque on packing bolts should be 25 Nm.

6.2.11 Install lever or gear to operate valve opening to the left and closing to the right ensuring the stop plate stops the valve in fully open and closed position. Operation should be smooth.

6.2.12 Valve should be tested in accordance with API 598/ API 6D to check for leakage and prior to installation.

REFERENCE TABLE FOR BOLT TIGHTENING TORQUE

Bolt size (mm)	B7M / L7M (NM / ft-lbs)	B8M (NM / ft-lbs)
M10	66 / 49	24 / 18
M12	116 / 86	43 / 32
M14	185 / 136	69 / 51
M16	288 / 212	160 / 118
M20	564 /416	210 / 155
M24	976 / 720	363 / 268
M27	1432 / 1056	535 / 395

7.0 TROUBLE SHOOTING

	POTENTIAL CAUSES	RECOMMENDED SOLUTIONS
Valve operation is difficult.	1. The packing is too tight.	Re-adjust the packing tightness or symmetry.
	2. There is foreign matter or damage between the stem and stem nut's thread.	Disassemble the stem nut to clean or replace.
	3. There may be foreign matter in the pipeline preventing operation	Flush line.
	4. Bent stem.	Alignment or change the stem.
Leakage from packing.	1. The packing is too loose.	Adjust the packing tightness or symmetry.
	2. Packing damaged or aged.	Change the packing.
Leakage from flange gasket.	1. The bolting is not tightened enough.	Tighten the bolts.
	2. The gasket is damaged.	Change the gasket.
Seat leakage bypassing ball sealing face	1. Foreign matter between the wedge and sealing faces.	Clean the sealing faces.
	2. Sealing face is damaged.	Replace the seats.
Valve can not totally close or open.	1. Foreign matter deposited in valve body.	Clean the cavity.

When properly selected, this Meridian product is designed to perform its intended function safely during its useful life. However, the purchaser or user of Meridian products should be aware that Meridian products might be used in numerous applications under a wide variety of industrial service conditions. Although Meridian can (and often does) provide general guidelines, it cannot provide specific data and warnings for all possible applications. The purchaser/user must therefore assume the ultimate responsibility for the proper sizing and selection, installation, operation, and maintenance of Meridian products. The purchaser/user should read and understand the Installation & Operation Maintenance (IOM) instructions, and train its employees and contractors in the safe use of Meridian products in connection with the specific application.

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