



INSTALLATION, OPERATION AND MAINTENANCE INSTRUCTIONS

MERIDIAN, API 6D, SWING CHECK VALVES

Size Range 2" – 24" (ASME Classes 150 – 900)
Size Range 2" – 8" (ASME Class 1500)
Size Range 2" – 6" (ASME Class 2500)



a WOLSELEY company

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

Table of Contents

SUBJECT	PAGE
1.0 VALVE INSTALLATION	4
2.0 OPERATION	4
3.0 MAINTENANCE	5
4.0 STORAGE PROCEDURE	5
5.0 VALVE REMOVAL FROM LINE	6
6.0 VALVE REPAIR AND OVERHAUL	6
7.0 TROUBLESHOOTING GUIDE	10



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 office for guidance.
2. Use of these valves for any purpose other than its intended purpose may result in property damage, 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 as applicable.
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) as this will void written or implied warranty.
11. These valves are not recommended for dead end service.
12. Never disassemble valves under warranty without consulting the manufacturer first, since doing so without proper authorization can void the warranty.



WARNING



- 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.

1.0 VALVE INSTALLATION

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

Flow through the Check Valve is in the direction specified by the arrow on the valve body. 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 end connections.
- 1.3 Before installation, carefully check the valve markings and pressure rating to ensure the valve is suitable for service. Ensure the flow direction arrow on the body corresponds with your intended media flow direction.
- 1.4 The check valve disc is secured for transportation. Please remove before installation.
- 1.5 Gasket faces should be checked for damage prior to installation. 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.

2.0 OPERATION



WARNING



- Always get specific authorization before operating any valve in the system.
- 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 valve inoperable.
- For your safety and protection, please read the following precautions before operating the valve.

- 2.1 Check valves are uni-directional self-operating valves. The check valve disc automatically opens when the media flows in the intended direction. The disc automatically closes when the fluid flow starts to reverse.

3.0 MAINTENANCE

 **WARNING** 

- Always get specific authorization before operating or removing any valve in the system.
- 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 valve inoperable.
- For your safety and protection, please read the following precautions before conducting maintenance on the valve.

 **WARNING** 

- Ensure you remove ONLY the safety cap from the fitting when cleaning, lubricating or emergency sealing the valve.
- NEVER remove the grease fitting when valve is under pressure.

- 3.1 General maintenance requires periodic operation to ensure that the valve is functioning properly.
- 3.2 If there is loud noise and vibration it is a potential sign that the fluid flow is extremely high and valve may be damaged. The piping system should be looked by qualified individuals and measures may be required to reduce these conditions. The valve may be experiencing cavitation or severe erosion which can lead to failure.
- 3.3 If the valve begins to leak across the seat it may require repair to the seat or replacement of the seat O-ring. Seals are available from Meridian

4.0 STORAGE PROCEDURE

- 4.1 Care should be taken to cover both ends of the valve with covers to prevent foreign materials from entering the valve body which could result in damage to the valve seats.
- 4.2 For long term storage valve machined surfaces should be covered with a light film of oil or grease to prevent these areas from rusting.

- 4.3 The check valve should be stored under cover in a clean dry place with the disc in the closed position.

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 before any disassembly of the valve.

 WARNING 
<ul style="list-style-type: none">- Always get specific authorization before operating or removing any valve in the system.- Do not open any body bleed or drain fitting in the body unless it is safe to do so.- Line media may be lethal. Follow all company approved venting and safety procedures.- For your safety and protection, please read the following precautions before removing valve from line.

- 5.1 Keep hands safely out of the valve at all times during this entire procedure to avoid accidents resulting in serious injury. (i.e.: closure of valve by a 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 any 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) Open bleed plug and leave open to ensure all trapped pressure is removed.

6.0 VALVE REPAIR AND OVERHAUL

This procedure is applicable for API 6D Check Valves. It is considered as a typical overhaul procedure and some valve models may vary slightly from this procedure as written. Drawings shown are typical. Please contact Meridian for the drawing of the specific valve model you will be repairing.

6.1 VALVE DISASSEMBLY FOR SEAL REPLACEMENT ONLY

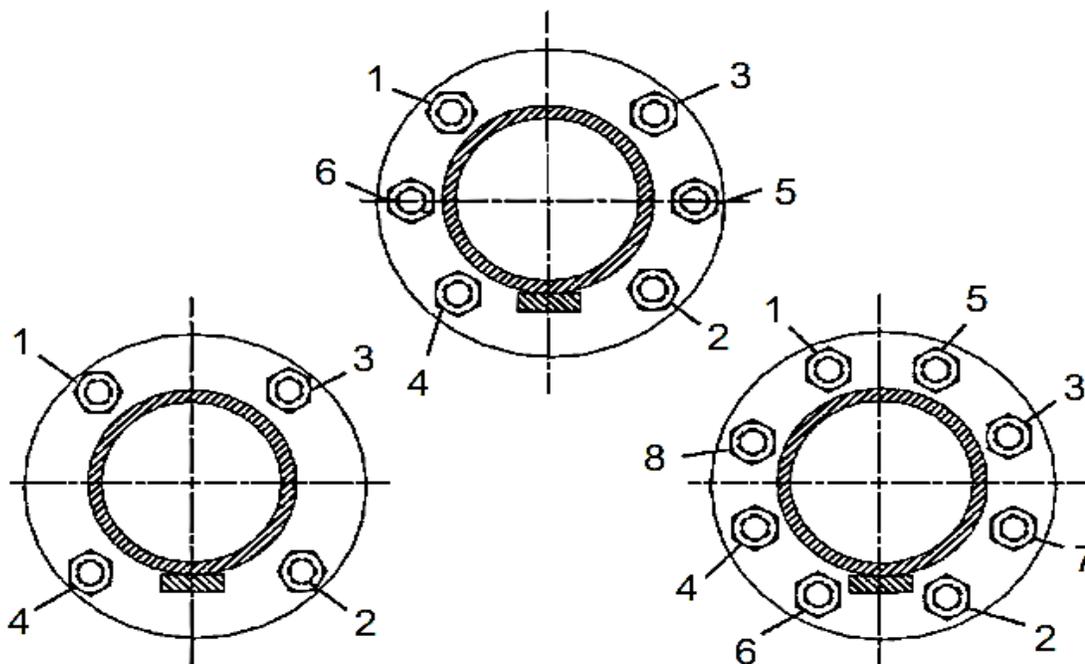
- 6.1.1 Secure the valve horizontally with the cover facing up taking care not to damage the flange sealing surfaces.
- 6.1.2 Unscrew the cover nuts and remove the cover.
- 6.1.3 Unscrew the Rocker Arm bolt and remove the Rocker arm assembly.
- 6.1.4 Reach inside the valve to remove the seat O-ring.
- 6.1.5 Inspect seat assembly for damage.
- 6.1.6 Clean and inspect all parts for damage.

6.2 VALVE ASSEMBLY FOR SEAT/SEAL REPLACEMENT ONLY

- 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 and gaskets may be obtained, with the valve serial number, through Meridian.
- 6.2.2 Secure the valve horizontally with the cover facing up taking care not to damage the flange sealing surfaces..
- 6.2.3 Install the new o-ring in the seat.
- 6.2.4 Install the disc and rocker arm assembly in the valve. Fastening the Rocker arm to the valve body.
- 6.2.5 Generously grease the cover o-ring and install on the cover.
- 6.2.6 Install new cover gasket.
- 6.2.7 Gently and evenly place the cover on the body. Ensure you do not damage the o-ring or gasket during installation.
- 6.2.8 Install and tighten nuts in a criss-cross pattern and torque in accordance with recommended torque table 1 below.
- 6.2.9 Valve should be hydrostatically tested in accordance with API 6D to check for leakage prior to installation.

Table 1, REFERENCE BOLT TIGHTENING TORQUES / PATTERN

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
M30x3	2010 / 1482	748 / 552
M33x3	2726 / 2011	1016 / 749
M36x3	3596 / 2652	1339 / 988
M39x3	4631 / 3416	1726 / 1273
M42x3	5849 / 4314	2179 / 1607
M45x3	7263 / 5357	2706 / 1996
M48x3	8889 / 6556	3312 / 2443
M52x3	11411 / 8416	4252 / 3136
M56x3	14369 / 10598	5355 / 3950



7.0 TROUBLESHOOTING GUIDE

Issue	Potential Causes	Recommended Solution
Disc won't close fully	<ol style="list-style-type: none"> 1. Disc pin is binding due to foreign particles. 2. Disc pin is damaged. 3. Foreign matter blocking the valve bore. 	<ol style="list-style-type: none"> 1. Remove disc pin. Clean or replace as required. 2. Replace disc pin. 3. Remove the foreign matter.
Cover joint leak.	<ol style="list-style-type: none"> 1. Improper O-ring selection or damaged O-ring and cover gasket (or RTJ Ring) is damaged. 2. Cover sealing surface is damaged. 3. Cover bolts are loose. 	<ol style="list-style-type: none"> 1. Replace O-ring and cover gasket (or RTJ Ring). 2. Repair the cover sealing surface. 3. Tighten cover bolts as per Table 1.
Valve is noisy or high vibration.	<ol style="list-style-type: none"> 1. Valve is installed too close to a pump. 2. The line flow rate are too high. 	<ol style="list-style-type: none"> 1. Relocate the check valve to a location farther from the pump. 2. Have the flow conditions investigated by the appropriate person.
Valve is leaking downstream.	<ol style="list-style-type: none"> 1. Foreign particles on the seat O-ring. 2. Seat O-ring is damaged. 3. Disc sealing surface is damaged. 	<ol style="list-style-type: none"> 1. Remove foreign particles by flushing the line. 2. Replace seat O-ring. 3. Repair or replace the disc.

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