

DOUBLE DISC SWING CHECK VALVE

AWWA C518, SIZES 2" - 24"

INSTALLATION & OPERATION MANUAL



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DOUBLE DISC SWING CHECK VALVE

INSTALLATION, OPERATION AND MAINTENANCE MANUAL

INTRODUCTION

Swing check valves are used for the prevention of backflow in water systems where there is the possibility of a pollutant in the user's system back flowing into the potable water system. They are self-contained, double-disc style conforming to AWWA C518 standards.

For check valves to function properly there must be a flow velocity of at least 8 fps. Double disc check valves are not intended for service other than clean water.

RECEIVING & STORAGE

Inspect valves upon receipt to ensure correct material, quantity, and any optional equipment has been received. Also inspect all received equipment for any damage which may have occurred during shipment. Contact the McWane Plant & Industrial sales team to report any issues with materials received.

Unload all valves safely to protect both the materials and workers. Do not allow lifting lugs, slings, or chains to come into contact with the valve disc seating surface areas. Use eyebolts or rods through the flange holes on larger valves. Valves size 10" and larger are provided with a lifting eye bolt as standard.

Whenever possible, check valves should be stored inside. However, when this is not possible or feasible, some outdoor protection must be provided. The valves must be stored in such a manner to protect them from weather, blowing dirt and debris. A tarp covering will minimize exterior coating damage from these elements and reduce fading or chalking due to exposure to the sun. The valves should also be placed in a location where they will not be damaged by collision from vehicles, lift trucks or falling items.

Valves should be stored so that water does not stand in the body. In cold climates, if water is allowed to freeze in the valve, severe damage to the components could result. The valves are shipped in the closed position and should remain in the closed position during long term storage. Any packaging removed for inspection of the valves should be replaced prior to placing the valves into long term storage.

INSTALLATION

WARNING: Installation of valves should be performed by experienced installers. Valves should never be used as structural supports and must be appropriately rigged for lifting and movement into place. Valves are heavy and may

include accessories or bolt-on pieces which should be handled with caution.

NOTE: It is recommended that valves be installed into piping system in accordance with AWWA M-11 to prevent any undue piping stress, deflection or bending that may affect the performance of the valve.

It is recommended to install the valve with at least 5 pipe diameters of straight pipe upstream of the valve.

The double disc swing check valve may be installed in a horizontal or vertical position (with the flow upward). The valve will be installed between two flanges in accordance with ANSI B16.1 Class 125, ANSI B16.5 Class 150 or AWWA C207, Class D/E.

When mating the double disc check valve with isolation valves, the downstream isolation valve must be at least one pipe diameter away from the check valve to avoid hitting the discs. The disc edge will extend past the flange face, so it may interfere with the operation of the adjacent valve.

NOTE: Valve supports are not needed. The valve must be installed with the hinge pin in the vertical position for horizontal flow applications.

1. Before installation, remove foreign material such as weld spatter, oil, grease, and dirt from the pipeline.
2. Prepare pipe ends and install valves in accordance with the pipe manufacturer's instructions for the joint used.

CAUTION:

Do not deflect the pipe-valve joint. Minimize bending stresses in the valve end connection with pipe loading.

If excessive seat leakage occurs during start-up, recheck the installation and eliminate any distortion to the valve body.

3. Ensure the valve and pipeline flanges are concentric to ensure proper flange sealing and seat leakage control.
4. Tighten the flange bolts or studs in a crisscross pattern and minimum of four stages.

OPERATION

Once installed in the pipeline, swing check valves operate as flow conditions dictate. The valve disc will move to the open position as pressure on the upstream side of the valve is greater than pressure on the downstream side. The valve disc will move to the closed position as flow pressure reduces or reverses and pressure equalizes.

The double disc check valve is designed to prevent flow reversal in applications where this situation can occur. The double disc check valve is held closed by the legs of a

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torsion spring. Flow from the pump causes the double disc check valve to open. When the pump is stopped, the force from the legs of the torsion spring instantly closes the double disc check valve for non-slam shut-off.

The only moving parts in the double disc check valve are the twin discs and spring. The discs and spring are guided in the body with a hinge pin and a full open disc stop pin. The pins are captured within the valve body and a dampening material is used to eliminate vibration. The resilient body seat provides a drip-tight seal for any applicable flow media.

MAINTENANCE

No maintenance or lubrication is required. Periodic inspection of the valves (minimum annually) is recommended to identify potential obstructions or damage to the seating surfaces.

DISASSEMBLY PROCEDURE

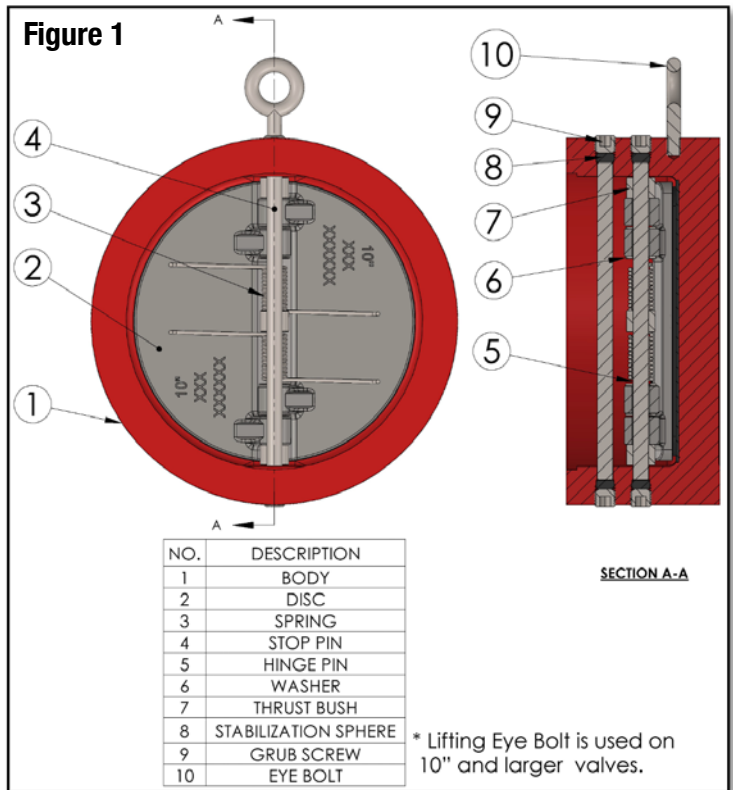
See Figure 1 for part identification.

1. Relieve the pressure in the pipeline.
2. Remove valve from line.
3. Remove grub screw (9).
4. Remove stabilization sphere (8).
5. Remove stop pin (4) from body (1).
6. Depress spring or springs (3) to free hinge pin (5) and push hinge pin out of the body (1) while holding the spring firmly, since it is preloaded and may snap out.
7. Remove spring or springs (3), discs (2), washer (6), and thrust bushing (7).

ASSEMBLY PROCEDURE

See Figure 1 for part identification.

1. Clean all ports with a suitable solvent. Trichloroethylene is recommended, particularly for resilient seated valves.
2. Position discs (2) in body (1), aligning pin holes in the discs with holes in the body.
3. Partially install hinge pin (5).
4. Wind up spring or springs (4) one-half turn to obtain initial torsion and install spring with the spring arms flat on the discs (2). Do not unwind spring as this will change spring torque and limit the opening of the discs. Position thrust bushing (7) and washer (6) per figure 1. Complete insertion of hinge pin (5).
5. Install stop pin (4) into body (1).
6. Install stabilization sphere (8) into body (1).
7. Install grub screw (9) to ensure a positive seal.



TROUBLESHOOTING

PROBLEM	CAUSE	SOLUTION
End joint leakage	Loose bolts	Tighten bolts in a star pattern
Vibration/ Chatter	Low or turbulent flow	Ensure at least 8 fps through the valve and 5 pipe diameters of straight pip upstream of the valve
Valve slams when closing	Spring damaged	Replace spring
Seat leakage	Debris caught in valve	Remove debris
	Seat is worn or damaged	Replace valve

PARTS & SERVICE

Parts and service are available from your local representative or the factory. For availability and pricing of spare parts, please contact the MPI sales team:

McWane Plant & Industrial

www.mcwanepi.com

Phone: 866-924-8674

Email: sales@mcwanepi.com



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