

# SWING CHECK VALVE

## Installation Information

SK-3A-0516



Read all applicable instructions and procedures thoroughly before starting. Suitability of the intended service application must be determined prior to installation. Please review "Valves Product Guide & Engineering Specifications", in the Publication SSB-1, for important additional considerations related to valve installations. Plastic piping systems must be engineered, installed, operated and maintained in accordance with accepted standards and procedures for plastic piping systems. It is absolutely necessary that all design, installation, operation

and maintenance personnel be trained in proper handling, installation requirements and precautions for installation and use of plastic piping systems before starting.

Swing Check Valves are designed for horizontal installations, but may be installed in up-flow only vertical applications. Flanged ends are designed for connection to flanges having an ANSI Class 150 bolt pattern.

Caution: Valve must be installed with proper direction of flow. Do not install valve in upside down position.

Required materials: 1/8" thick, full-faced gasket suitable for the intended application, having a Shore-A durometer of approximately 60. Lubricated bolts, flat washers, and nuts as required for each end connection (see Bolt Specification Table).

**Step 1:** Position and support valve with flow arrows in desired direction. Flanges must be installed parallel face-to-face.

**Step 2:** With gaskets in place, install washers and lubricated bolts through mating flange and gasket into flange of Swing Check Valve. Install washers and nuts from valve-flange side of connection. Check alignment and make sure that the faces of mating surfaces are flush against the gasket prior to bolting down. Tighten nuts by hand until snug to hold assembly in place.

**Step 3:** Establish uniform pressure by tightening bolts to specifications in 5 ft-lb increments using a 180° opposing sequence (see Bolt Specification Table). Do not use bolts to bring together improperly mated flanges.

**Step 4:** Flush system and pressure test. Flanged connections may require additional tightening to specifications after initial pressure test.

### Bolt Specification Table

Valve Size	Flat Washers	Bolts & Nuts	Bolt Size	Min. Length*	Torque
3/4"	8	4	1/2	2	12 ft-lbs
1"	8	4	1/2	2-1/4	12 ft-lbs
1-1/2"	8	4	1/2	2-1/2	12 ft-lbs
2"	8	4	5/8	3	25 ft-lbs
2-1/2" - 3"	8	4	5/8	3-1/4	25 ft-lbs
4"	16	8	5/8	3-1/2	25 ft-lbs
6"	16	8	3/4	4	40 ft-lbs
8"	16	8	3/4	4-1/2	40 ft-lbs

\* Length may vary with use of other flanges.

## Precautions And Warnings For All Valve Installations

**CAUTION:** The system must be designed and installed so as not to pull the valve in any direction. Pipe must be cut and installed in such a manner as to avoid all stress loads associated with bending, pulling, or shifting. Valve must be supported.

**CAUTION:** BEFORE THE VALVE IS CYCLED, all dirt, sand, grit or other material must be flushed from the system. This is to prevent scarring of internal components.

**LUBRICATION WARNING:** Some Lubricants, including vegetable oils, are known to cause stress cracking in thermoplastic materials. Formulation changes by lubricant manufacturers may alter compatibility of previously acceptable materials and are beyond our control. Lubricants are not required for installation of valves.

**WARNING:** Systems must not be operated or flushed out at flow velocities greater than 5 feet per second.

**WARNING:** NOT FOR DISTRIBUTION OF COMPRESSED AIR OR GAS

All air must be bled from the system during initial fluid fill. Pressure testing of the system must not be made until all solvent cement joints have properly cured. Initial pressure testing must be made at approximately 10% of the system hydrostatic pressure rating to identify potential problems, prior to testing at higher pressures.



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# Swing Check Valve Counter Balance Installation Instructions

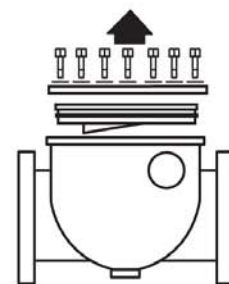
CBK-3-0501

Swing Check Valve Counter Balance Kit is designed for field installation of counter balance mechanism in Swing Check Valves. This kit can be installed through the bonnet assembly and removal of valve from line is not required. Kit includes Extended Shaft (1), Shaft Cup Seals (2), Shaft Nut (1), and Counter Balance (1) with Retaining Bolt (1), Flat Washer (1), extra Weight Plates (1-small & 1-large) and Plate Mounting Bolts (2-long & 2 short).

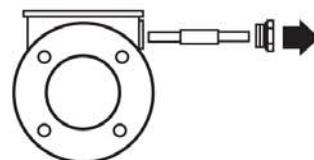
Swing Check Valves operate in response to a fluid stream flow opening a swinging disc. As the fluid stream slows and reverses, the disc responds by swinging to the closed position. Sudden reversal of flow direction can result in “slamming” condition as the disc closes. The function of the Counter Balance mechanism is to start the disc closing earlier as the fluid stream begins to slow so that it is almost closed when flow reversal takes place, thereby eliminating slamming of the disc.

**CAUTION: SYSTEM MUST BE DEPRESSURIZED AND DRAINED PRIOR TO INSTALLATION**

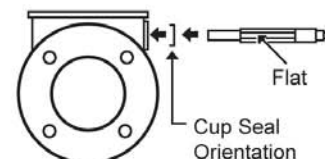
**Step 1:** Remove valve bonnet bolts, nuts and washers and lift bonnet from valve. Using a screwdriver, gently lift seal carrier from body. Angled slots on inside lip of body are provided for this. Note: smaller sizes have one-piece Bonnet and Seal carriers that thread on.



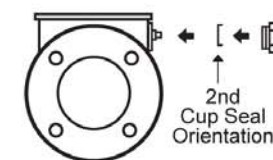
**Step 2:** Remove Stem Cap Nut from shaft end on side of valve and pull shaft from disc and valve.



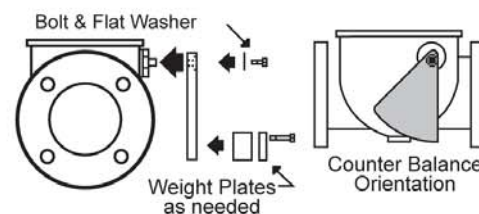
**Step 3:** Insert one (1) Shaft Cup Seal with flat side OUT into recess of valve body until seated. Insert Extended Shaft through Cup Seal into valve and disc with stem flat aligned with flat on disc.



**Step 4:** Install one (1) Shaft Cup Seal with flat side IN over shaft end until seated. Note: both Cup Seals must be oriented with flat side facing each other. Install new Stem Nut. Tighten Stem Nut snug, but do not over tighten. Note: O-ring is NOT TO BE USED on new Shaft Nut.



**Step 5:** With valve in closed position, install Counter Balance onto Shaft end. Properly installed Counter Balance should approximately align with disc on the downstream side, holding the disc closed. Install retaining Bolt and Flat Washer onto shaft end. Fasten extra Weight Plates onto Counter Balance as needed (note: long bolts are for use with double weight blocks, short for single weight blocks).



**Step 6:** Check for free movement operation, align and reinstall Seal Carrier. Install Bonnet and bolts with nuts and washers. Secure all bolts and nuts.



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