Maintenance & Operating Instructions

For

Dixon Bayco

3" Swing Check Valves

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To properly operate and maintain your Dixon Bayco swing check valve the following instructions are provided. Please read with care as improper handling or maintenance may cause a hazardous condition.

Do not modify your Dixon Bayco swing check valve for any reason. It can result in a hazardous condition due to operating difficulties or operation malfunction. Disassembly or tampering will void the product warranty.

Immediately remove from service any swing check valve that is not performing satisfactorily.

Installation

Dixon Bayco swing check valves are properly adjusted and ready to use upon leaving the factory. All Dixon Bayco swing check valves are of similar design but with different mounting ends (threaded, round or square flanged.)

1. Make sure valves are mounted so that the flapper opens in the direction of normal airflow.

2. Check that the flapper swings free without hang up or restriction.

3. Threaded models require anti-seize compound to prevent galling.

4. For flange mounting, incorporate an appropriate gasket, made of material that will not contaminate product carried, and which provides a proper seal.

5. Assure tightness by applying working air pressure to the system. If leaking is noticed then disassemble and correct.

6. Check valve models without springs should not be used in vertical orientations; the valve may fail to close.

Care and Handling

Dixon Bayco swing check valves are tested at the factory and are in proper working condition when shipped. Swing check valves are designed to be tough and to provide long service with reasonable care and handling.

Maintenance

Swing check valves can fail to operate if not properly maintained. Frequently check for damaged, loose or missing parts.

⚠ Do not open inspection cap when valve is under pressure.

Swing check valves require routine inspection.

Swing check valves assure one-way airflow during the off loading or unloading of product. Swing check valves prevent back flow of product into the blower or piping system. These safety devises consist of a simple flapper valve that swings clear of the air stream during the normal off-loading operation, but will immediately close when there is an air stoppage or airline pressure reversal. Once installed, the valves are often ignored. However, they are a crucial element in the proper operation of the dry bulk air transfer systems and in the protection of expensive blower equipment.

Swing check valve simplicity and historical durability are probably the reason for inspection complacency. But, swing checks are subject to temperature extremes and vibration fatigue that can affect wear and longevity. Wear in particular can result as flapper and hinge mechanisms vibrate constantly during road travel. Also remember that blowers raise intake air temperatures by as much as 200°F. That means if the outside is 100°F, then airline plumbing (including swing checks) can reach 300°F. High temperatures combined with pulsation stress from the blower and road travel vibration creates a hostile working environment that warrants performance inspections on a regular basis.

There are two basic ways to inspect swing checks: (a) visual/manual, on the tanker and (b) removed from tanker, on a test stand.

⚠ Do not attempt to inspect the valve while in use; this may result in severe damage or injury.

How to Inspect

1. Removal of the inspection cap/cover and inspect flapper for free movement and spring tension. Valves manufactured with no springs should have free movement of the flapper assembly.

2. Inspect springs and shaft for wear or broken springs. Use a flashlight to aid visual inspection.

3. Inspect valve seat for wear or gaps. Newer models have pinned flappers and O-ring cap seals for easier removal. If the valve seat is not visible, the valve will need to be removed for inspection.

4. Inspect for product stuck in flapper assembly or valve seat causing the flapper to hang open. Check for wear and hang up of flapper mechanism. If flapper drags against body or is restricted in movement, immediately remove from service and repair.

5. During re-assembly add a small amount of anti-seize lubricant to the inspection cap threads. This will aid removal of the cap at a later date.

Rebuild part kits are available from your Dixon Bayco distributor.

Absolute flapper sealing is not a necessity, as these valves are designed to prevent back filling by product. Metal-to-metal seals will always have minor air leakage around the flapper. In a backfill situation the product would quickly plug these minor voids and prevent any further passage of product.

Spring and Rubber Seal Options

1. The vast majority of swing checks are purchased with a free swing, all metal flapper (metal-to-metal seal) and for mounting in the horizontal position. Some fleets specify spring-loaded flappers and others with a rubber-to-metal seal and yet others with both options.

2. Springs keep the flapper closed when the blower is not operating and prevent flappers from vibrating and clanging against the body when traveling. Spring-loaded flappers may also allow for vertical or angular installation (check with factory) not possible with spring-less valves. However, some fleets are not comfortable with a flapper spring and complain that there is some loss (although considered minor) of line pressure to overcome spring tension when unloading.

3. The rubber seal (on the flapper) option is sometimes requested because it is thought that a tighter seal is provided with a rubber-to-metal design. Free swinging, rubber-seal flappers will also be quiet (no clanging) on the road. However it is mostly the rubber seal customers that request the spring-loaded flapper believing that a better seal is provided when both options are incorporated. Seal materials offered can include; Buna, Silicon, and white food grade elastomers.

Inspection Frequency

Swing check valves should be routinely inspected as part of a preventative maintenance schedule for dry bulk tankers. The units should be given at a minimum, a visual/manual inspection, every 2-3 months. The cleanout cap should be removed and inspected. The cap threads should be coated with a thread anti-seize compound before reassembly. This will prevent the caps from becoming stuck due to corrosion and prevent the body from cracking.

Dixon Bayco Warranty

For complete warranty information, please refer to the latest Dixon catalog.