

# Installation & Operating Instructions

For

**Dixon Bayco**

## 4" Swing Check Valves for Pneumatic Service

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To properly operate and maintain your Dixon Bayco 4040 / 4041 / 4042 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. Swing check valves are designed to be tough and to provide long service with reasonable care and handling.

1. Ensure arrow is pointing downstream of product flow when installing.
2. Apply appropriate gasket for round-flanged model (4040RD / 4041RD / 4042RD).

### Temperature

Dixon Bayco 4040 series swing check is not recommended for direct blower mounted service. For direct blower mounted service use either the 4041 swing check valve (metal-to-metal seat) or the 4042 swing check valve (silicone-to-metal seat).


### Inspection and Maintenance

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

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 devices 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 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.**

4041RK1 and 4042RK1 flapper replacement kits will normally not be compatible with 4040 style bodies that were manufactured prior to March 2007. Any 4040 style bodies manufactured after March 2007 will be compatible with these 4041RK1 and 4042RK1 flapper replacement kits.

To achieve compatibility a sub kit is included in 4041RK1 and 4042RK1 that includes shorter axial shafts and smaller torsion springs that will enable the 4041 and 4042 style flappers to fit inside 4040 bodies that were manufactured prior to March 2007.



**THE SMALLER TORSION SPRINGS WILL NOT ALLOW THE 4041 AND 4042 STYLE FLAPPERS TO FULLY SEAT IF THE VALVE IS MOUNTED VERTICALLY UPSIDE DOWN. ENSURE THAT THIS MOUNTING ORIENTATION IS AVOIDED IF THE SMALLER TORSION SPRINGS ARE USED.**

### How to Inspect

The complete valve assembly may be removed and replaced without removing the valve body from the system. Please note that the shafts and springs are designed for left and right orientation, ensure that these components are located correctly. The colored spring should be used in conjunction with the right hand threaded shaft.

1. Remove the inspection cap/cover and hand operate valve to ensure springs are in good working order and flapper seats properly without restriction.
2. Whilst pulling the flapper forwards, pull upwards on the valve yoke to withdraw the complete flapper assembly (take care to ensure that springs are secure during valve withdrawal).
3. Inspect valve seat and valve for wear or gaps.
4. Inspect for product stuck in flapper assembly or valve seat causing the flapper to hang open.
5. If springs are replaced, please ensure that, after replacement, the valve assembly is free to swing to the fully open position (90°) without excessive resistance. If excessive resistance is felt:
  - Ensure that the springs are fully pressed onto the shaft.
  - Reduce spring pre-load by moving torsion spring legs to alternative pre-load stop. The correct amount of pre-load allows the valve to be freely opened to 90°.

Your Dixon Bayco 4040 / 4041 / 4042 swing check valve is designed for minimal flow restriction and low pressure drop during operation. The valve return springs are designed to provide sufficient pre-load to return the valve to the closed position with only limited pre-load. Excessive pre-loading of the return springs may lead to premature failure.

Should problems be encountered, replace valve immediately.

### 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.

Do not use anything other than genuine Dixon Bayco parts in your Dixon Bayco swing check valve. Repair kits are available for all replaceable parts (refer to parts breakdown for details). Use of non-approved or modified parts can result in a hazardous condition due to operating difficulties or operation malfunction. Modification or tampering will void the product warranty.

### Dixon Bayco Warranty

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