Duck Billed Check Valves (DBCV)

INSTALLATION, OPERATION & MAINTENANCE

Duck Billed Check Valves Style 4100 / 4200 / 4300

It should be noted that each check valve installation can be considered as a major pipe installation and the same safety issues used in pipe contracting installation should be implemented when installing check valves.

POsiFlex will not accept responsibility for an improperly installed check valve or the improper use of our products. Incorrect installation may result in injury to personnel, reduced valve life or damage to other products within the piping system.

Please review the following safe installation practices before attempting to install PosiFlex Duck Billed Check Valves. If you have any questions or need more information, please call +44 (0)1462 443322.

Warning

Duck Billed Check Valves (DBCV) may operate in pipelines and ductwork, or incorporated with equipment carrying fluids at elevated temperatures and pressures, and may transport hazardous materials. Precautions should be taken to protect personnel in the event of leakage or spray. Duck Billed Check Valves should only be installed where inspections are possible. Duck Billed Check Valves installations should be conducted by authorized and qualified personnel.

Product Inspection

Posiflex Duck Billed Check Valves (DBCV) are fully inspected at the factory and are carefully packaged to arrive at the job site in good condition. Upon receipt at the job site, inspect for damages that may have occurred during transportation and immediately contact your transportation company to report any damages. Check the item(s) against the packing slip to ensure that all items are accounted for.

Storage

Ideal storage is a cool and dry warehouse location. Store flange face down on a smooth pallet or wooden platform. Do not store other heavy equipment on top of the DBCV. If storage must be outdoors, the DBCV should be placed on smooth, wooden platforms and should not be in contact with the ground and/or exposed to vermin. Cover with a tarpaulin or store in original container.

Handling

Do not lift with ropes or bars through the bolt holes.

To ensure proper performance and service life it is important to prevent damage by careful handling and by supporting the DBCV during installation.

Anchoring

Verify that the system anchors, supports and guides, are in accordance with the piping/ducting system drawings. Any field variance from planned installation may affect the DBCV parameters, reduce life expectancy and heighten the stated warning.

Note: Contact Posiflex with any questions or concerns prior to installation.

Mating Flanges

The mating flanges or DBCV attachment area of the pipe, ductwork and equipment must be smooth, clean, flat, and parallel. All welded areas must be ground smooth at the attachment points. The area around the DBCV must be cleared of any sharp objects and protrusions. It is recommended to install bolt heads against the Retaining Ring/Bars and use SAE-sized washers at the retaining ring split. Care must be taken to ensure the retaining ring ends butt up to each other without over-lapping or allowing a large gap between ends. DBCV installation can be facilitated by choosing the difficult flange to bolt up to first. The DBCV flange can be pushed into position from the inside body out. Insert a bolt through the first hole and install the subsequent bolts in a cross-star pattern and tighten by hand (see figure 1).

Note: Contact Posiflex for further clarification if the illustration does not match what is being installed.

Operation

Posiflex 4000 Series of check valves require little operational requirements, each unit is an elastomer back flow device of which relies solely on inlet flow pressure and back flow pressure to provide operation.

Maintenance

Posiflex Duck Billed Check Valves require little maintenance. Periodic inspections can ensure that this check valve will provide years of maintenance free service. Check for cuts or gouges which can easily be repaired with self curing rubber compound. Ensure that the bill section is free from any debris that may have been lodged in the bill. This will be the only areas of concern that you may periodically inspect.

Note: Contact Posiflex if you have any questions or need further information, please contact +44(0)1462 443322.

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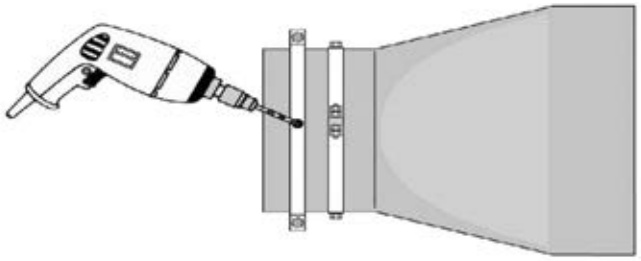
Duck Billed Check Valves (DBCV)

INSTALLATION, OPERATION & MAINTENANCE

Installation Instructions

1. Always check your work area for safety hazards which may cause injury or damage to personnel or product. Develop and discuss a safety and exit plan for you and your fellow employees in the event of an emergency.
2. Mating pipe must be free of sharp edges, which may damage the inside diameter of the rubber check valve, add soapy water to the outside of the pipe prior to attempting the valve installation.
3. If this is a slip on unit, Style 4100, always align the check valve so the bill is vertical to the ground unless there is a clearance issue, if this is evident you may rotate the valve to a maximum of 30-35 deg to allow clearance from the ground area. Align the clamp sections in a fashion that will allow you ease while tightening the bolts. If the check valve that you are installing has more than (1) fabricated stainless clamp then rotate the additional clamps which will place the clamping section at opposite angels from the first clamp. This will ensure even pressure is applied to the check valve.
4. Adjustable hose clamps (T-Bolt style) will be supplied on check valves up to 10" dia, 12" through 24" will be supplied with a single fabricated stainless clamp, 26" though 54" will have two fabricated stainless clamps and 60" through 72" and larger will have three fabricated stainless clamps.
5. After the check valve has been installed drill a hole or holes depending on valve size, through the rubber cuff and into the mating pipe using the centre hold on the clamp as a guide. Insert a bolt which will be sufficient in length to completely travel through the clamp, check valve and mating pipe. Completely weld or use some other means of ensuring that this bolt will not fall out of be removed. (The bolt only needs to be welded on the head of the bolt). This will create a pinning effect which is all that is required to ensure zero slippage.



6. Stainless bolts are highly recommended as steel bolts can corrode and eventually fall off.
7. If this is a flanged unit, Style 4200, always align the check valve so the bill is vertical to the ground unless there is a clearance issue, if this is evident you may rotate the valve to a maximum of 30-35 deg to allow clearance to the ground area. If the stainless backing ring has been supplied as a split ring use a stainless steel flat washer to properly cover the split area of each backing ring while installing the flange bolts.
8. Tighten the flange bolts in a criss-cross pattern until the rubber flange bulges slightly which will ensure proper crush on the flange sealing face.
9. Check both installations for clamp tightness (Style 4100) as well as flange crush (Style 4200) periodically, if the application so allows.
10. Contact PosiFlex if bottom clearance is an issue, we will provide you with a proper rotational drawing to ensure proper installation.

Inline Series

11. If this is an Inline Style 4300, simply insert the check valve inside the existing pipe (between existing pipe flanges) and for horizontal applications, ensure the bill is vertical to the ground. Reattach the 2 mating pipe flanges. Since this is a rubber flange there is no requirement for any gasketing. Torque the flange bolts as shown in the tightening patterns below.
12. If this is an Inline Style 4320, simply align and insert the check valve assembly into the breach opening noting the flow position and orientation of the valve. Ensure the bill of the check valve is vertical to the ground when installed. Use a gasket (supplied by others) where required. Secure the check valve assembly to the mating flanges with the appropriate fasteners (supplied by others). Torque the flange bolts as shown in the tightening patterns below.
13. If this is an Inline Style 4350, simply insert the check valve inside the existing pipe. For optimal performance, the rubber check valve should be installed with the bill as close to vertical as possible.
14. Tighten the expandable clamp using the appropriate wrench until the stainless-steel part of the clamp is embedded into the rubber of the check valve. Tighten lock nut on the clamp. If the valve that you are installing has more than (1) fabricated stainless clamp, rotate the additional clamps which will place the clamping section at opposite angels from the first clamp. This will ensure even pressure is applied to the valve.
15. The 4350 check valve relies on external pressure to ensure that the valve does not move. Extra care should be taken to ensure proper seating.
16. After the check valve has been installed and secured, pin the valve in place. Using the guide hole in the clamp, drill a blind hole into the pipe wall and install a pin to further secure the check valve in place. The pin must be welded to the clamp to secure it permanently.

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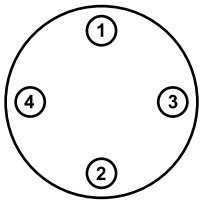
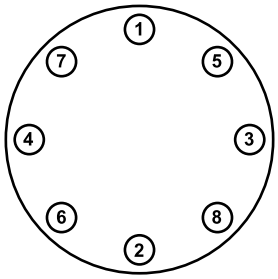
Typical Tightening Patterns

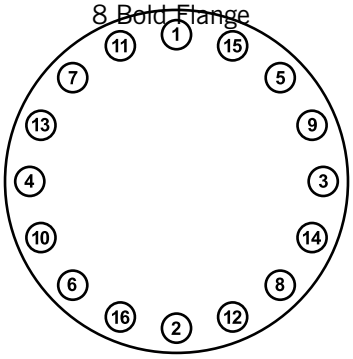
FIGURE 1



4 Bold Flange



8 Bold Flange



16 Bold Flange

Torque Data

Size (in.)	Approximate Torque Values (ftlbs)
1 - 2.5	20 - 40
3-8	30 - 90
10 - 14	40 - 95
16 -24	60 - 140
28 - 40	80 - 210

Contact Posiflex for larger sizes.

Recommended bolt torque values are for reference only and may require more or less torque due to different flange facings and other variables. Check bolt tightness after installation and re-tighten as needed.

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