



## Bosworth Check Valves—Choosing the Right Valve and Avoiding Problems with Leaks

### “Weeping” Check Valves

Under even modest pressure, check valves that use fabric-reinforced flapper valves will tend to leak water radially out of the exposed edges of the flapper valve. This is because water penetrates the rubber surface of the flapper valve and then follows the lines of the fabric to exit out the side. As a result, this “weeping” makes the check valve unsuitable for use in an environment that is meant to remain dry. However, many check valves are installed at the end of a submerged inlet hose or tube, and this weeping poses no problem for their use in those “wet” environments. Bosworth’s Buna-N flapper valve is fabric-reinforced.

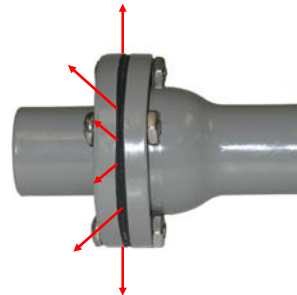
If a check valve is to be used in a dry environment, it should be equipped with a “fabric-free” elastomer. Currently, Bosworth offers fabric-free flapper valves for the CV-0400D model in White Buna, EPDM, Neoprene, Viton and Silicone.

### Check Valves—Leaking through the Valve

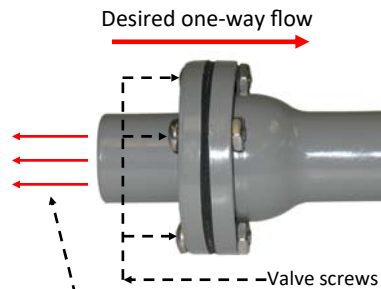
The fastener screws holding a check valve assembly are tightened at the factory to specified settings. Overtightening of these screws will distort the shape of the elastomer in the check valve, causing it to fail to seat and seal properly against the internal valve port ledge surface. This will cause the valve to leak water past the elastomer and through the valve.

Note that *no amount of overtightening of the valve fastener screws will prevent the “weeping” of a check valve using a fabric-reinforced flapper.* Instead, it will compound the problem, introducing leaking through the valve as well. Additionally, even if a check valve uses a fabric-free flapper valve, overtightening of the valve screws will cause the valve to leak.

The table at the right shows the specified torques to which the check valve fastener screws should be tightened, based on the check valve model and the kind of valve elastomer used in the check valve.



“Weeping” - Radial leaking around edges of fabric-reinforced Buna-N flapper valve



Leaking through the valve due to overtightening of valve screws

#### Question

“How tightly should a check valve’s fasteners be tightened?”

#### Answer

The torque used for tightening check valve screws depends on the check valve model and the kind of elastomer valve used in the check valve.

The table below provides the desired tightening specifications.

| CHECK VALVE MODEL | VALVE TYPE | TORQUE (in-lbs) |
|-------------------|------------|-----------------|
| CV-0400D          | Flapper    | 5.0             |
| CV-0400D          | Duckbill   | 2.0             |
| CV-0400N          | Flapper    | 5.0             |
| CV-0500D          | Flapper    | 12.0            |
| CV-0500D          | Duckbill   | 5.0             |