

**Operation:**

Flomatic 80VFD check valves are designed to prevent backflow, minimizing hydraulic shocks and give years of trouble-free operation without maintenance when installed properly and sized to the pumping application with regards to flow and maximum system pressures. The valve can be installed vertically or horizontally.



**Construction:**

The Flomatic 80VFD check valve body has been constructed to handle the rated system flow and pressures as stated, and in addition support the weight of the submersible pump, pipe and the water in the riser pipe. In addition, the valves have been uniquely designed to absorb some of the hydraulic water shocks associated with well water pumping when the check valve installation instructions are followed below.

**IMPORTANT INSTALLATION INSTRUCTIONS**

It is very important to install a check valve properly to help insure a trouble free water system. **If the installation instructions are not followed or the valve is disassembled, warranty or any warranty claims will be void.** On the back of this page is a diagram of a typical submersible valve installation (Fig. 1).

- A. **Pipe Flow Velocities:** Flomatic 80VFD is designed for both low and high flow conditions. For best service life a normal flow velocity range is 1 to 10 feet per second.
- B. **System pressure:** It is important to take the total system hydraulics into the calculation and not only the pump's well setting when selecting valve type and model. In general, Flomatic 80VFD valve bodies are pressure rated 600 psi or 1,384 feet of static water column pressure. This does not mean that a valve can be set at a well depth of 1,384 feet. To elevate and reduce the hydraulic shocks in the riser pipe it is recommended that a check valve be installed every 200 feet in the riser pipe. See *Recommend Check Valve Installation chart below.*
- C. **Prior to installing check valve:** Make sure that the check valve is free from defects and that the valve's spring-loaded poppet mechanism is operating freely. **Remove any foreign material (IE. PIPE DOPE) from valve seat.**
- D. Install check valve vertically with arrow pointed up in direction of liquid flow.
- E. In submersible pump applications, the first check valve should be installed directly on the discharge head of the pump or maximum one pipe length (20 feet) above pump.
- F. If the pump has a built-in check valve, the second check valve should be installed no more than 25 feet above the lowest pumping level in the well

Submersible pump setting in well	Recommended Check Valve Installation:	Type Check Valve
200 feet or less	One check valve on pump discharge and one on surface of well.	Series 80E, 80SS, 80S6, 80DI , 80VFD, 80MDI, 80DIX,, 100E, 100MP, 100SS
200 feet to 600 feet	One check valve on pump discharge and additional check valves installed at maximum 200ft intervals and one at the surface of well.	Series 80E, 80SS, 80S6, 80DI , 80vfd, 80MDI, 80DIX, 100E, 100MP, 100SS
600 feet to 800 feet <b>For deeper settings contact factory</b>	One check valve on pump discharge and additional check valves installed at maximum 200ft intervals and one at the surface of well.	Series 80SS, 80S6, 80DI , 80VFD, 80MDI, 80DIX, 100E, 100SS

**Water Hammer**

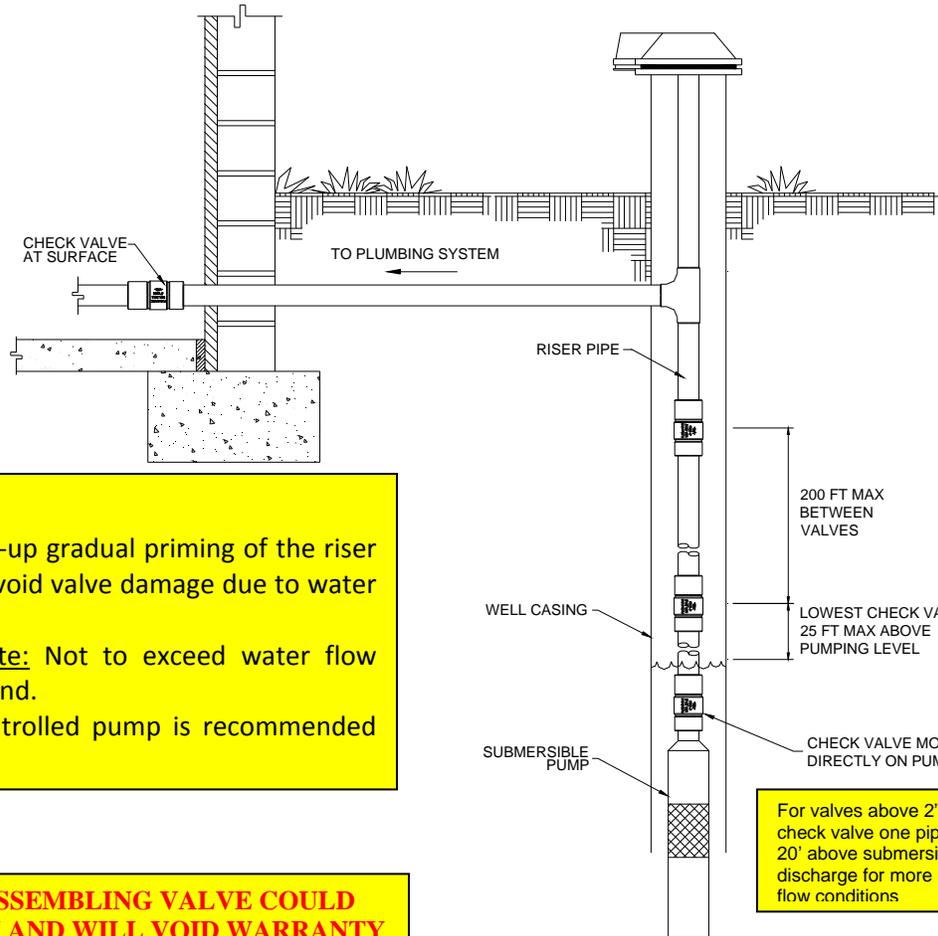
Water pumped and flowing through a piping system has a certain amount of energy (weight x velocity). If the pumping is stopped, the water continues to move and its remaining energy must be absorbed in some way. This absorption of energy can sometimes create undesirable noise and/or damage. This is called water hammer.

Water hammer can destroy piping systems, valves and related equipment. Water hammer varies in intensity depending on the velocity with which the water is traveling when the pump shuts down. It is very important for the installer to realize water hammer potential, and he must take this into consideration when sizing the system and deciding what material the valves should be made from.

It has been proven that for every foot per second of velocity 54 psi of backpressure is created. This means, in a 1" pipe, a flow of only 10 gpm could create a back pressure of 370 psi or more when the pump shuts down and the water column reverses. In a 4" pipe, a flow of 350 gpm could create a backpressure of 860 psi. This does not take in consideration the weight of the water column in the well. Flomatic valves are designed to help lessen the sometimes-damaging effects of water hammer on piping and related equipment.

**IMPORTANT CHECK VALVE INSTALLATION INSTRUCTIONS**

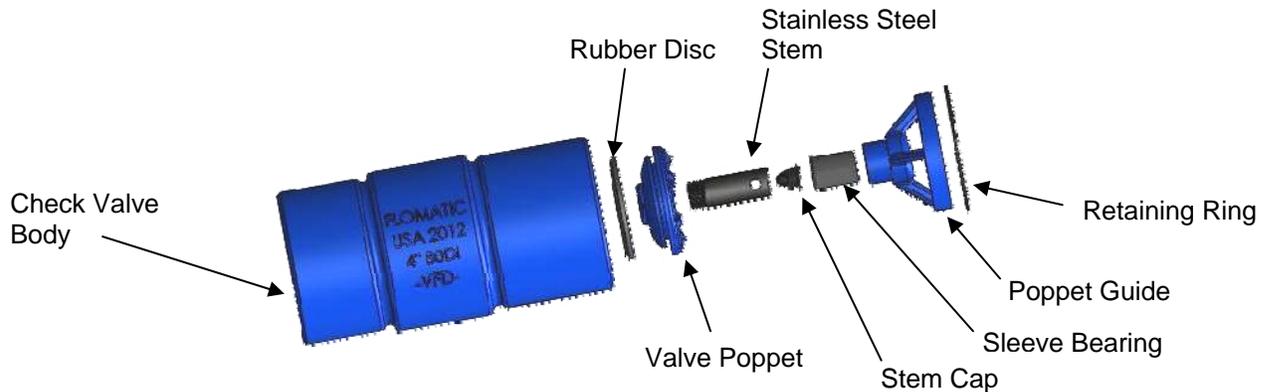
(Fig. 1)



**NOTE:**  
On initial system start-up gradual priming of the riser pipe is important to avoid valve damage due to water shock.  
Water Column fill rate: Not to exceed water flow velocity of 1 foot/second.  
VFD or Soft Start controlled pump is recommended during initial start-up.

**WARNING: DISASSEMBLING VALVE COULD RESULT IN INJURY AND WILL VOID WARRANTY OR ANY WARRANTY CLAIMS**

For valves above 2", install check valve one pipe length or 20' above submersible pump discharge for more laminar flow conditions



*Patent Pending Valve Product*

**PLEASE CONTACT FLOMATIC FOR ANY FURTHER INFORMATION**

**Limited One Year Warranty:** Flomatic valves are guaranteed against defects of material and workmanship when used for the services recommended. If, in any recommended service a defect develops due to material or workmanship, and the device is returned, freight prepaid, to Flomatic Corporation within 12 months from date of purchase, it will be repaired or replaced free of charge. Flomatic Corporations' liability shall be limited to our agreement to repair or replacement of valve only.

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