



Understanding Plumbing with PVC Valves

Polyvinyl chloride, commonly known as PVC is the most widely used materials for plumbing and piping systems. Over 22.8 million tons of the PVC is produced annually with the consumption projected to increase over 5% every year. PVC piping is the better environmental choice for many piping applications. PVC piping requires fewer resources and generates less pollution than equivalent steel piping. PVC pipe also requires less maintenance and fails less than steel piping in long term applications. For these reasons PVC piping can save a lot of money, energy, water, and costly repairs. Despite the common usage of PVC, many still do not understand the differences between various valve choices. Through this article, we will shed light on what the different kinds of PVC valves.

- **Ball Valve.** Ball valves are the most simple flow control device used in PVC piping systems. A handle attached to a ball rotates inside the valve housing to turn flow on and off. Ball valves can be smaller and low profile as with the **Compact Ball Valve**. Alternatively unions can be integrated into the valve housing with **True Union Ball Valve** to make removal and repair easier. Last, automatic actuators can be added to ball valves to automate valve operation.
- **Butterfly Valve.** Butterfly valves are similar to ball valves in that a wafer inside the valve housing rotates to turn flow on and off. Butterfly valves are simple in construction and are the preferred valve for large diameter pipe lines. Butterfly valves are also more suitable for reducing flow than ball valves due to the design of the valve body that does not expose the internal cavities of the valve to the liquid unlike a ball valve.
- **Diaphragm valve.** Diaphragm valves operate by engaging a flexible diaphragm to throttle the flow of fluid through the valve. Diaphragm valves are best suited for fine flow control and not on /off applications due to their high cost relative to a ball or butterfly valve and increased pressure drop across the valve. Diaphragm valve can be actuated but require a different type of actuator due to the multiple turns the actuator requires. Most manual diaphragm valves include a visual indicator showing the position of the valve.
- **Pneumatic Actuated Valve.** These are valves that are coupled to a pneumatic actuator for remote operation using compressed air. Actuated valves have several advantages over manually operated valves: the valve can be operated remotely for labor savings, improved operator safety and to allow for piping systems to be automatically controlled by a computer. There are 2 kinds of pneumatic actuators: single acting and double acting. Single acting valves open one way with air pressure and return with spring force.

Double acting valves open and close with compressed air applied to different ports on the actuator body. Single acting valves are typically more expensive than single acting but require one less compressed air tube per valve. In most applications single acting valves are preferred but where a strong closing force is required, double acting valves are desired.

- **Electric Actuated Valve.** Electric actuated valves are valves that feature an electric actuator for remote operation. Electric valves open or close when power is applied directly to the actuator. Actuators can be configured to receive a variety of power types including 24 VDC, 1200VAC and 240VAC. Electric actuators can deliver higher torque than pneumatic actuators and can include position feedback and alarm signals for control systems. Electric actuators require less infrastructure than pneumatic actuators, only a signal wire is required.
- **Check Valve.** Check valves are a kind of automatic valve that restricts flow in one direction. When flow is reversed the valve closes. Check valves come in many varieties including swing, ball, sprint, and poppet style check valves. Check valves are used for many applications including keeping a pump primed and preventing a pipeline from draining due to gravity.

In conclusion, valves are a vital component in any piping system that controls the flow of liquids. Each application and situation requires careful selection of valves, each with their advantages and disadvantages. Manual operating valves are simpler and easier to control but actuated valves allow a piping system to be automated by a control system. For a huge selection of PVC manual and actuated valves visit www.petrapvc.ca

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