



New Jersey Operation

Since our inception in 1950, General Rubber Corporation has provided engineered solutions utilizing mechanical rubber products in a wide range of demanding applications. Rubber is extremely compliant and durable, making it an ideal material for car tires, expansion joints, resilient supports, **Pinch Valves and Duck Bill Check Valves**. We are experienced at incorporating advanced materials and technologies to what some may consider a mature product line, resulting in improved performance and solutions to a wider range of demanding applications.

Flex-Valve® is a brand under General Rubber Corp. representing our various valves and other slurry products. Flex-Valve was founded with the purchase of the pinch valve division of Farris Valve, which held the patent on The Original Pinch Valve. With the technical support of General Rubber, later acquisition of the Ray Wilcox Company and the addition of new and patented pinch and check valves, Flex-Valve has become a worldwide recognized brand and leading manufacturer in the industry.

The Original Pinch Valve is at once simple and ingenious. Developed to handle corrosive and abrasive water in flooded coal mines of Eastern Pennsylvania, the operators could restrict flow by using a pinching mechanism to bear down on a rubber sleeve. That simple idea now serves as the basis for more sophisticated products. We carry a full line of **Non-Plug Valves®** for on/off or modulating service that are non-clogging and resistant to abrasive, corrosive, and scaling fluids. They are ideally suited for difficult slurries and other demanding applications. Many styles have common lengths with Plug, Gate, and Ball Valves for interchangeability. The product can close drop-tight on solids and is available with customized actuators, controls, and port sizes. The sleeve is the only part exposed to the process fluid and can eliminate the need for expensive body alloys.

The flow pattern of Flex-Valve's pinch valves are inherently streamlined making them well suited for modulating service, however sizing then becomes critically important. For an on/off valve, port sizing is a simple case of maximum flow. If it is determined that a smaller valve can be used, the benefit is primarily economic. For a



Formula 1

$$C_v = Q * \sqrt{G_f / \Delta P_{act}}$$

Formula 2

$$\Delta P_{all} = F_L^2 * (P_1 \text{ psig} + 14.7 - .93 * P_v)$$

modulating valve, our **Control Pinch Valve**, port sizing is critically important for performance reasons and both maximum and minimum flows must be considered. The port must be sized to handle the maximum flow; however it is equally important to consider minimum flow so that the valve is not oversized. At minimum flow, an oversized port would need to operate near its fully closed position. This is a problematic position because the once round port is now completely flattened with a very shallow space remaining. This wide but very shallow space becomes



Series 2100 replaces gate, plug, and ball valves and is ideal for manual isolation.



Style 2200EA is ideal for electric control of abrasive, corrosive, viscous, or scaling fluids.



Style 2200PA with positioner is ideal for pneumatic modulation of all slurries.

Style 2300HA – this 16" diameter has a 16 3/4" length making it interchangeable with a Plug Valve of that size.





a wear location as slurries have to pass through it. Another concern associated with this problematic position is that small movements in the actuator will result in large changes in flow. If the shallow space is only 1/4" for example, a 1/8" movement in actuation would have nearly a 50% affect on flow. This sensitivity is too tight resulting in the actuator constantly hunting for its ideal position. This constant hunting will cause terrible wear on both the actuator and the valve internals. Ideally, the valve should be sized to less than 60% closed at minimum flow. In this position, the now oval port has good rangability with improved life of the actuator and valve internals.

Sizing the pinch valves is technically done using the ISA's two formula method. The C_v (formula 1) is first calculated using the actual change in pressure across the system ΔP_{act} . If the allowable change in pressure across the system ΔP_{all} (formula 2) is calculated to be less than ΔP_{act} , it must be substituted in the original C_v formula. Cavitation may occur if ΔP_{act} is greater than ΔP_{all} . Cavitation is a serious condition and while a funnel sleeve may be used to transfer its damaging effects beyond the pinch valve, other system changes may represent a more effective system-wide solution. To maximize sleeve life, the inlet velocity should also be held below 22 ft/sec or ideally below 14 ft/sec. Our engineers enjoy discussing the intricacies of various applications, and are prepared to size and specify an optimal valve for each application.

Flex-Valve's **Duck Bill Check Valves** eliminate backflow and seals around entrapped solids. When used for storm water outfall/overflow systems, they provide quiet, maintenance-free operation with the added benefit of low opening pressure, thereby eliminating standing water – a major health concern. When used for submerged outfall diffuser systems, they eliminate marine fouling and backflow intrusion with the added benefit of higher jet velocities. The higher jet velocities are also achieved at low flow rates ensuring uniform port discharge distribution. The versatile construction and our creative design team can adapt the Duck Bill Check Valve to a wide range of applications including: water mixing systems, overflow vents, anti-siphon devices, coarse bubble diffusers, floor drains, sparging devices, or when needed, a device to increase back pressure in a pipe line.



General Rubber Corporation has extensive experience working in municipal and industrial wastewater treatment plants, as well as nuclear power plants, chemical processing plants and many other mining and industrial operations worldwide. With our modern U.S. ISO 9001:2000 Certified manufacturing facility and top engineering staff, we are confident we can exceed the demands of your application. Thank you for your consideration.

Warm regards,

Lloyd B. Aanonsen, P.E.
President

For a complete line of Expansion Joints, as well as noise and vibration control products, see General Rubber's Maxi Joint® and SoundZorber® Technical Guideline Catalogs.



Style 9500A is a tube and shell design and is economic, lightweight, and ideal for low pressure applications.



Style 5500 Pressure Isolation Ring features a non-clogging gauge and/or pressure switch ideal for slurries.



Style 1015 has a wide flowing arch with exceptional movement capability.



Style 1092 is available in a wide range of materials and allows for needed flexibility in ducting systems.