

CASE HISTORY



FOOD PROCESSING: INFLATABLE SEAT BUTTERFLY VALVE INSTALLATION *Production Increased, Maintenance Costs Cut*



*Inflatable Seat Butterfly Valve
Overcomes Abrasive Material*

INTRODUCTION

This job story focuses on the benefits of inflatable seat-type versus impingement seat-type butterfly valves used to control the flow of abrasive materials. The abrasive material in this case is sugar processed in a food manufacturing plant in the Middle Atlantic States. Butterfly valves are typically used for isolating and regulating flow. The sealing mechanism is a disc which, when the valve is closed, engages with an elastic seat and completely blocks off the passageway. When the valve is opened, the disc turns 90° to allow the material to pass through. Butterfly valves are often favored because they are lower in cost, more compact, and lighter in weight compared to slide gates, pinch valves, or other valve designs.

PROBLEM IN MORE DETAIL

This sugar processed at this food manufacturing plant is received in railcars and then gravity-fed to hoppers. The hoppers then feed various lines in the plant which were controlled by impingement-type butterfly valves. The highly-abrasive sugar was wearing the standard valves' seats prematurely at the point of impingement due to the seats' tendency to absorb moisture, causing the seats to swell and shrink, and eventually crack.

SOLUTION

AIRMATIC Application Specialists reviewed the situation and recommended replacing the existing butterfly valves with POSI-FLATE® Inflatable Seat Butterfly Valves. Unlike the existing valves, which seal with friction, POSI-FLATE® valves use an inflatable seat to seal with air pressure. The reduced friction requires less operating torque to open the valve and therefore a smaller actuator, resulting in lower actuator cost, lower operating cost, less compressed air used, reduced repair frequency, and increased valve life. The inflatable seat eliminated impingement wear (due to making only casual contact with the disc during opening and closing), which provides substantially longer seat life. Also noted was the fact that the flexing of the inflatable seat reduced build-up of residual sugar deposits, and kept a tighter seal. The plant immediately installed two such valves and purchased a dozen more over the following year. An added benefit, noted by the Customer, was that the split body design allowed them to keep the valve in place while performing required maintenance.

CONCLUSION

As this case study shows, in situations where an abrasive material is prematurely wearing a standard butterfly valve, such as seen in food and chemical manufacturing plants as well as other industries, one smart and affordable option is to replace the valve with a POSI-FLATE® Inflatable Seat Butterfly Valve. Not only does the POSI-FLATE® butterfly valve outperform all other valves in field tests, but the inflatable seat automatically compensates for wear, thus providing longer valve life and lowering maintenance costs, saving the Customer both time and money in the years to come.

For more information on Inflatable Seat Butterfly Valves and other products and services provided by AIRMATIC INC, [click here](#).

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284 Three Tun Rd Malvern, PA 19355-3981
Ph: 800.332.9770 Fx: 888.964.3866 www.airmatic.com

