

Trends in wastewater treatment and Implications for Valves

Water is an indispensable natural resource as it is directly linked to the preservation of life, the generation of energy, and economic development. With the expansion of the world's population and the increase of droughts or flooding in certain regions, the need for clean water will continue to escalate. This development will not only impact the water production industry, but will also have a major impact on the wastewater treatment infrastructure.

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The treatment of water is one of the topics that will be at the forefront of global discussion in the coming decades. As water is a limited natural resource, the discussions will revolve around the challenges of the reduction of water sources, the contamination of water sources, the re-use and conservation of water, new regulations and standards enacted by governments, and the financing and investment in infrastructure projects. This macro-scenario is beginning to have a direct impact on current methods of water treatment and its associated valving and equipment.

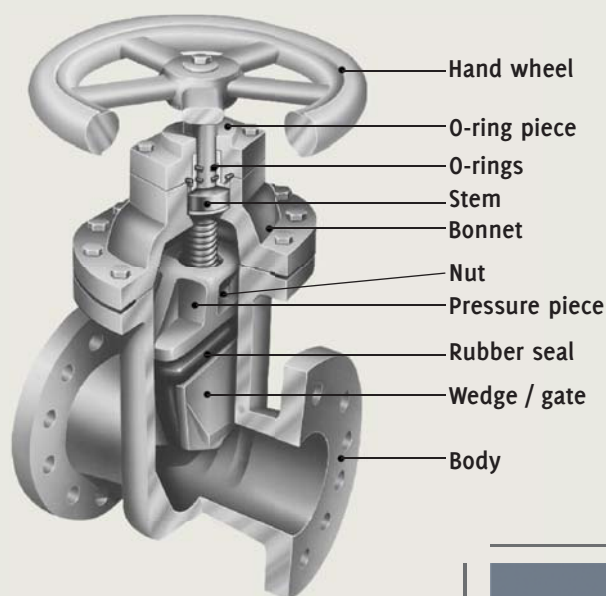
Increase in Demand

Population growth and urbanization is a major concern for the water industry. Due to sustainable population growth, the United Nations estimates a 40% increase in global water demand by the year 2030. By the year 2050, approximately 70% of the world's population will live in urban areas, which will further drive an increase in global water demand. In the coming decades, countries such as China

and India will have greater challenges than others in terms of water management due to their limited water sources, strong population growth, and rapid industrial development. Because water is a limited natural resource, it is imperative that wastewater be treated and recycled; this will make wastewater one of the fastest-growing sectors in the coming decades. Industry estimates calculate that the total size of the water sector will reach USD 1 trillion by 2025.

Modernization of Infrastructure

This global increase in water demand and treatment will drive the modernization and expansion of existing infrastructure and technologies in order to keep up with demand. Processes related to desalination, ultra-filtration, and water microfiltration, including their sub-equipment technologies such as valves, pumps, and piping, will see the largest product growth and development of new solutions to serve the market. As the industry grows, the demand for larger water handling capacity is leading to upsizing of plants, pumping capacities, and valve and pipeline sizes.



Larger plant capacities requires the use of larger valves. Gate valves (which were generally available only up to 64 inch size) are now available to the market in sizes up to 108 inches for specialized applications. As an industry leader, Seguro expanded their gate valve product offering to include larger sizes to accommodate the growing market demand.

Not a Simple Science

Water treatment is not a simple science. The process of converting sewage and industrial wastewater into clean drinking water requires the contaminated water to pass through a series of precisely controlled processes. Different types of valves are used in different parts of the process to control, direct and divert the flow. To handle large volumes of water, a rubber-sealed resilient seated gate valve such as Seguro is commonly used. In other parts of the process such as bar screens, grit chambers, classifiers, disinfection, treatment stations, etc., a variety of valves are used such as gate valves, knife gate valves, sleeved and lined plug valves, lined butterfly valves, ball valves, check valves, control valves (globe and butterfly), etc. In order to service the demand of the water market, the FluoroSeal Group offers a number of products such as the Seguro rubber sealed resilient seated gate valve from the Brdr. Christensen Company and sleeved and lined plug valves, lined ball valves, and lined butterfly valves from FluoroSeal Specialty Valves.

Reliable Solutions

The Seguro rubber-sealed gate valve requires minimal maintenance, which increases the valve cycle life. One common problems with rubber-seated gate valves in industrial water treatment applications is leakage due to sediment build-up and, in certain cases, the peel-off of liner. Seguro gate valves are not equipped with a

separate seat ring; the sealing is achieved by disc liner seating against the body. This leads to a smooth full bore and a self-flushing valve body design, which eliminates the possibility of sediment build up in the body, thus avoiding costly maintenance while providing 100% shut-off. Another common problem with rubber-seated gate valves is that sediments can get trapped under the liner after closing, which can create a leak path. The Seguro body liner eliminates this problem; the

disc liner can compress to contain the sediment ensuring closure. This unique body liner design ensures robust and reliable sealing during operation.

Conclusion

It is apparent that there is a growing demand for larger valves in the water industry with the aim of processing larger volumes of water. In order to meet the demands of this ever changing market, the valve industry must respond to the demand by expanding its portfolio to include larger diameter products, as well as introducing design features that eliminate or minimize water waste through leakage or contamination.

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