

Process Automation

Revolutionizing production of L-lactic acid

Customer reference: Tianjin OMZ, China

Increased efficiency and reduced wastewater discharge in l-lactic acid production thanks to cutting-edge ion exchange systems

Over 5,000 valves across 7 parallel ion exchange systems



Qinggang County is often referred to as the “Land of Chinese Corn”. It is also the place where Tianjin OMZ and GF Piping Systems realized a super project improving the production of L-lactic acid. This powerful compound serves as a key raw material for biodegradable products like polylactic acid (PLA), which is used in the production of biodegradable plastic bags, straws and other eco-friendly products. The 5,000 m² facility primarily engages in the production of L-lactic acid through corn starch fermentation, with an annual output of 50,000 tons.

Project background

The continuous ion exchange technology based on valve arrays is used in starch sugar production and other food processes as well as in biopharmaceutical industries. GF has been working closely with its partner Tianjin OMZ for more than ten years to develop highly automated ion exchange systems, which underwent several configuration adjustments and process optimizations. Over the past decade, GF has supplied over 100,000 valves for such projects. This fifth-generation ion exchange system implemented by OMZ boasts a superior resin distribution effect. For this latest project, GF has delivered 5,000 pneumatic diaphragm and ball valves, as well as a significant number of manual valves. The implemented Process Automation solutions by GF ensure the flawless operation of the system.

Selected technical solution

Thanks to the innovative flow channel design of GF solutions, it was possible to use smaller valve sizes for equivalent flow capacity. The unique design of these valves allows the transition from the outdated weir style structure to the current saddle type configuration. In addition, the full plastic design ensures leakage-free performance even during temperature fluctuations thanks to a uniform expansion and contraction. There are no concerns about screws loosening over time, which reduces maintenance requirements. The deployment of 5,000 valves across 7 parallel ion exchange systems has elevated our customer's production to a smarter, more dependable, and highly efficient level.

Achieved improvement

GF pneumatic diaphragm valves, with the notable feature of ample flow capacity and minimal pressure loss, constitute the core components of the entire valve array continuous ion exchange system. The innovative ion exchange system has elevated resin utilization efficiency by over 30% for the customers. Furthermore, it has substantially curtailed acid and alkali consumption, resulting in a reduction of wastewater discharge by over 40%. This not only aligns with the national energy-saving and emission reduction policies but also substantially reduces operational costs for our clients.



High-performance diaphragm valves help to increase utilization efficiency by over 30% while reducing wastewater discharge by 40%.



Over the past decade, GF has supplied over 100,000 valves for similar projects.

Customer benefits

- **Easy installation and space savings** in the compact valve-array design thanks to the lightweight plastic valves with exceptional flow capacity and minimal pressure loss.
- **Maximum safety and optimal durability** thanks to the PVC-C material which provides outstanding chemical resistance to high acidic and alkaline liquids.
- **Increased production efficiency** thanks to the leak-free performance of GF plastic valves leading to minimal maintenance efforts.
- **One solution provider and global expertise** with exceptional service during all project phases optimizing efficiency while providing peace of mind.

Where next?



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Watch the full customer success story



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