



Pumping Sulfuric Acid Using Circulation Pumps

TECHNAFLO SOLUTION



Project Overview

Working with hazardous chemicals demands durable and reliable machinery that can move contents safely and accurately while providing a seamless function to operations. Sulfuric acid is a chemical used in many different industries including chemical blending, petroleum production, paper, and wastewater treatment that requires a robust handling process in order to ensure safe and efficient transport.

Customer Overview

ARO partnered with an industrial chemical manufacturer using a blending process that requires dosing 97% sulfuric acid through a recirculation line. The tall, double-wall storage tanks and long suction lines limited pump suction lift, causing frequent loss of prime. This required time-consuming manual priming and occasionally forced plant shutdowns.

Solution

Prior to the addition of ARO's TechnaFlo T Series pump, maintenance technicians were regularly having to troubleshoot suction piping leaks, manually re-prime their dosing pumps, and evacuate copious amounts of air from their system, often resulting in their plant fully shutting down.

ARO's TechnaFlo T Series pump was selected for this project due to its suction lift capability in priming and re-priming scenarios, adjustable flow rates, sealless design, and available materials which helped provide a fully contained system for the hazardous and highly corrosive liquid being used.

ARO's distributor worked to develop a continuous recirculation piping loop system that ran from the main bulk storage tank through a small, elevated vessel mounted directly above the dosing pumps. The addition of this elevated vessel provided circulation for the dosing pumps with a flooded suction, helping rid them of the burden of a suction lift on sulfuric acid, which has a high specific gravity.

This new system will allow for longer plant uptime, higher reliability, and increased production. Additionally, this system is much safer for maintenance staff who no longer have to troubleshoot and handle hazardous systems on a regular basis, and will result in fewer damaged components from constant disassembly and reassembly. Capital cost of new bottom outlet storage tanks can also be eliminated. ARO's TechnaFlo T Series pump was chosen due to the fast factory response, excellent availability of the pump in the required materials, and the design characteristics which are well suited for the application.

