

ARO[®]**CASE STUDY**

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Texas cleaning chemicals plant cuts tank filling process from hours to minutes with ARO[®] Air-Diaphragm pump and Controller

- When Greg and Jaimie Blanchard took ownership of Pro Chem Cleaning Systems, they immediately began modernizing the plant to improve productivity, efficiency and safety. These upgrades included replacing an outdated manual pumping system with an ARO EXP Series Air-Operated Diaphragm Pump and closed-loop Controller. Among the outcomes, the plant reduced tank filling time from hours to minutes, fully automated pumping and lowered certain safety risks. Now the company is getting ready to expand production and triple its capacity.



Read on to learn more.

**PUMP SUPPLY**
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For nearly three decades Pro Chem has been producing commercial detergents, degreasers and custom cleaning products for car washes and pressure washers used to remove graffiti and scrub bridges, buildings and sports stadiums. However, outdated processing equipment limited the plant's performance and profitability. When the new owners took over in 2014 and decided to install new processing equipment and technology, they turned to Ingersoll Rand and its ARO brand for a pumping solution that could meet the high demands of a plant that produces dozens of hazardous and non-hazardous soaps, detergents and degreasers.

Fluid Intelligence to manage multiple products and hazardous substances

For a company like Pro Chem that produces cleaning chemicals, success depends on safe and efficient fluid management. The company produces nearly 30 product lines – with names like Pro Chem Pink and Grease Away – and each line involves different formulations with varying properties, viscosities and hazard risks. Production involves blending, batching and packaging the products quickly enough to meet customer demand, while maintaining product quality and avoiding risk of leakage, spillage



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- Greg Blanchard
Co-owner
Pro Chem

or worker injury. The facility must also meet strict regulatory compliance and always be prepared for unannounced audits from OSHA or other agencies.

Pro Chem produces up to 15,000 gallons of products per week at its 23,000-square-foot facility in Arlington, Texas. Making the cleaners involves formulating hundreds of combinations of ingredients, such as solvents, surfactants, thickeners, additives and fragrances. Raw materials are combined in underground blending tanks, which hold 3,000 gallons, pumped into bulk tanks, which can hold up to 18,000 gallons, and then transferred to batch tanks ranging from 55 gallons to 320 gallons. From there, the product is pumped into large commercial dispensers or into individual packages, like gallon jugs. Prior to the improvements, the plant was relying on a subpar manual pumping system, which made filling tanks time-consuming, inefficient and required constant operator attention.

Pro Chem replaced the manual pumping system with a new 1-1/2-inch ARO EXP Series Metallic Air-Operated Diaphragm Pump and closed-loop Controller. The company now has a fully automated system for batching and tank filling. The Controller's remote operating capabilities provide a user-friendly touch-and-go system

that allows operators to perform other tasks while the tanks are filling. The owner says this has significantly increased processing productivity.

Tank filling goes from hours to minutes

"The new setup has cut down our pumping and bottling time tremendously," says Co-owner Greg Blanchard. In fact, it has reduced the time to pump product from the blending tank to bulk tanks from several hours to less than an hour, and bulk tank to batch from 45 minutes to 13 minutes. "Previously the operators had to eyeball the tanks to see if they were full -- now they can set

it to 55 gallons, for example, and it dispenses just the right amount into the tank," says Blanchard. The new pumping system also controls the pressure, increasing efficiency and diminishing foaming, which was a problem in the old system.

The plant's operators agree that the Controller's remote feature increases their ability to do more tasks in the



day and reduces the tedium of having to stand and watch the tanks fill to make sure nothing goes wrong. If the Controller senses a problem in pressure or process, it sounds an alarm.

Improvements also include wider piping and a manifold connected to the pumping system, enabling easy flow management between multiple tanks. ARO experts worked closely with Pro Chem to configure and install just the right pump and control system to meet the company's needs. The new setup, with smoother pumping and wider piping, also prevents foaming, which was problematic with the old equipment.

Safety, leak prevention and no-stall operation



Safety is a priority for Pro Chem, as with any chemical manufacturer. "If there were a leak or spill of hazardous materials, that could pose a major risk to the people working here," says Blanchard. "We designed the facility and system to prevent that from happening." In addition to the ARO Controller's alert system, safety features include the ARO pump's leak-free fluid handling. Also, with automated pumping, operators don't have to keep traveling back and forth to check the tanks as they did with the manual pumping system, reducing the risk of tripping or falling.

Other benefits of the ARO pump include that it is available in materials that handle a range of fluids, including some caustic chemicals, and engineered to hold up under the rigor of chemical applications. It also has a patented "unbalanced" air valve for reliable no-stall operation

As Pro Chem embarks on expanding production, with a goal of tripling capacity, Blanchard plans to apply the same new technologies that are working so well in the existing plant now. "We're extremely pleased with the results," he says. "And we're prepared to grow significantly in the coming years."

ARO Electronic Interface pumps - customized control without the cost

The ARO Electronic Interface Diaphragm Pump provides all the benefits of an air-operated pump with the controllability of an electric pump. All ARO EXP Series Electronic Interface Pumps seamlessly integrate with the ARO Automated Controller.

- ▶ Internal cycle counter and end-of-stroke pressure signals track feedback and pump data
- ▶ Leak detection option detects and notifies of diaphragm failure. ARO Controller offers multi-pump control for accurate two-part batching
- ▶ Remote triggers and alerts send timely operating data
- ▶ Convoluted diaphragm lasts up to four times longer than traditional diaphragms
- ▶ Wide range of sizes and material selection accommodates myriad processes, fluids and viscosity



ARO EXP Series
Electronic Interface Pumps

NEW ARO Automated Controller

“For ARO, it’s not a trade-off between power and simplicity – it’s about producing reliable, flexible equipment that is intuitive and accessible to our customers.”

– Carlos Becerra
New Product Development Engineer, ARO

A Simple Solution to a Complex Challenge

Challenges

- Existing pump and controller failure
- Process efficiency
- Downtime and rework
- Worker safety
- Material use — inventory and tracking

Smart Touch, Walk-Away Solution

- Upgraded pumping capacity with exact dosing and remote control capability
- Close loop system for dispensing repeatability within 1 percent
- Compact design easily installed in existing production line

Results

- 75 percent improved pump reliability
- 35 percent improvement in process efficiency
- 15% fewer operator errors
- \$600 monthly in material savings

ARO Makes Success Flow

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