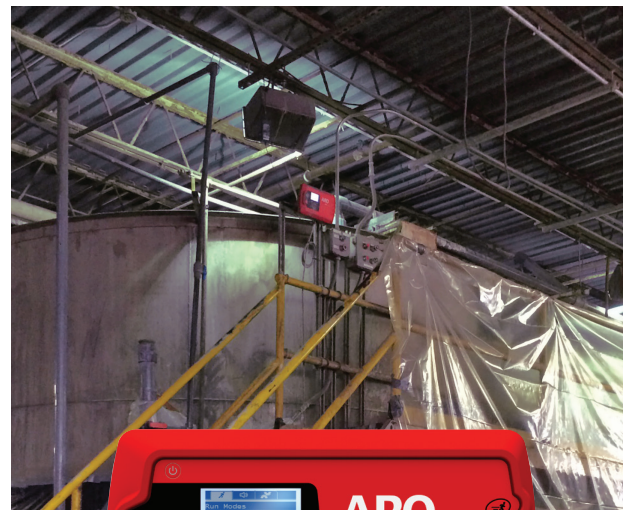


Nation's largest silver-bearing film recycler finds better way to move and manage fluids in the recovery of silver with new ARO Pump and closed-loop Controller

ARO®, a global leader in fluid management and a brand of Ingersoll Rand, has developed the only closed-loop controller with remote operating capabilities offering dispensing repeatability within 1 percent with less operator oversight. Keeping the recycling and refining process moving efficiently requires precise fluid dosing and pump reliability. Replacing its equipment with ARO solutions supported United DMS' focus on safety, and helped meet certain compliance requirements, while streamlining their process, lowering operational costs and achieving a solution designed to customize production lines.

Read on to learn more.



United DMS Improves Process Reliability and Efficiency with ARO

ARO Electronic Interface Diaphragm Pump and Controller combination improves efficiency by 35 percent and significantly cuts material and labor costs.

When you recycle and refine more than twenty-five million pounds of silver-bearing material each year, you rely on the equipment used in the process to deliver the efficiency and reliability needed to keep things moving.

At United DMS, the efficiency of their chemical washing process was affected by the poor reliability of existing equipment. The company replaced their system with a new one-inch ARO Electronic Interface Diaphragm Pump and Controller equipped with a flow meter to automatically meter fluids and prevent overfilling. According to United DMS, reliability issues and related downtime were eliminated and overall pump productivity jumped by more than 75 percent according to T. J. Harris, maintenance manager at DMS.

Headquartered in East Tennessee, United DMS is the nation's largest silver-bearing film recycler. Their 100,000 square-foot, three-facility operation covers more than 25 acres of film warehousing, sorting, grinding, washing and smelting services that help avoid discarding millions of pounds of plastic and precious metals into landfills across America and generate raw materials for use in new products.

Recycling silver-bearing film involves a number of steps ranging from the receipt, shredding and assessment of materials to specialized washing processes, and smelting which restores the silver to a purity of 99.9 percent. Plastic base films are also recycled as raw materials for new commercial plastics.

Stop gaps and workaround impact efficiency and operator safety

To facilitate the removal of silver from various films, base materials are treated and then separated from a silver emulsion mix that is pumped into 12,000 gallon settling tanks for further processing. Chemicals are added to maintain the ideal pH balance followed by the addition of polymers to precipitate the silver. This is a critical step in the process of turning the emulsion water into reusable silver and requires a highly reliable pump and controller system to accurately dispense and track the flow of chemical settling tanks.

While United DMS was processing up to 300,000 gallons of emulsion mix each week, the existing diaphragm pump and batch control system was limiting the company's full production potential. The reliability of the original pump under these demanding conditions resulted in downtime for pump disassembly, repair, reassembly and restart, while issues with the controller's circuit board often resulted in failure to signal the pump to cycle.

Ongoing equipment issues resulted in manual dispensing of the chemical solution taking the operator away from the settling tanks to a remote area where fluid media was added based on a counting formula. This

workaround posed several negative impacts to material use, inventory management and worker safety, while also introducing unanticipated delays and costs in the form of rework to recalibrate the emulsion mix should an operator exceed the pH level.

"Compared to the original industrial pump United DMS was using, it was clear that the ARO Diaphragm Pump and Controller could offer the reliable dosing they needed and also verify how much media was dispensed for material tracking purposes," commented James Herbers, ARO Sales Manager.

“Reliability issues and related downtime were eliminated and overall pump productivity jumped by more than 75 percent”

- T. J. Harris
Maintenance Mgr.
DMS

The right pump for the job

By replacing the existing pump and controller, United DMS was able to minimize downtime, streamline process, save money and reduce their total cost of ownership. “Pump reliability is key for this phase of our operation,” said Blake Brown, production supervisor at United DMS. “The new ARO system installed easily into our current layout, which meant we could address specific performance issues without having to reconfigure any of our existing piping.”

With the addition of the ARO Controller, United DMS has a fully automated, multi-pump system for batching and tank filling with plus or minus one-percent repeatability. The easy-to-use remote operating capabilities free workers from “pump duty,” allowing them to spend more time on the floor ensuring things are running smoothly.



The ARO Controller is the first fully closed-loop controller for air-operated diaphragm pumps allowing operators to customize production lines and remote monitor fluid transfers without manual intervention for greater efficiency and accuracy in fluid delivery and less overall downtime. With touch-and-walk-away automation, users are assured dispensing repeatability within 1 percent.

“Not only has the new ARO Pump and Controller improved our bulk transfer and mixing process, it also supports worker safety by eliminating the need for manual operator dispensing. All around, ARO has proven to be the best pump system we’ve got — which is why we ordered two more systems for our bulk caustic tank and caustic day tank transfer processing areas,” said Gerry Fishbeck, president, United DMS.

A winning combination with bottom-line results

The new ARO Pump and Controller were installed just over eight months ago with exceptional results. United DMS has consistently met their ideal pH balance for emulsion mix processing with no further liquid dispensing or mixing issues. After working through a number of failed alternatives, the company could not be more pleased with the simplicity and reliability of the ARO system. Additionally, United DMS reports an overall efficiency gain through the elimination of manual operator intervention and supports worker safety goals.

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.
- ATEX compliant (including all voltage options) for safety assurance.
- Remote triggers and alerts send timely operating data.
- Five-year pump warranty for peace of mind.
- Convuluted diaphragm lasts up to four times longer than traditional diaphragms.
- Controller remotely monitors and manages leak detection, liquid-level sensing and proportional control.
- Lube-free design with fewer parts for easy maintenance and repair.
- Wide range of sizes and material selection accommodates myriad processes, fluids and viscosity.
- Factory installed components for simple, error-free installation.

NEW ARO Automated Controller



ARO EXP Series
Electronic Interface Pumps

“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

ARO is a leading worldwide manufacturer of fluid handling products expertly engineered to deliver performance and serviceability, enabling customers to achieve the best total cost of ownership. For 85 years ARO has been helping customers solve their most complex fluid handling challenges to keep their business moving. For more information about ARO, visit www.AROzone.com. Follow ARO on Twitter at @AROPumps or on YouTube at ARO Pumps/Ingersoll Rand or regular fluid intelligence updates.