

# AMS™ Suite: Intelligent Device Manager and DeltaV™ Allows Allied Tube to Experience Savings Through Process Automation



## RESULTS

- Saved \$85,000 per year through reduced nitrogen consumption
- ROI for valves and instruments achieved within three months
- Prevented excessively high or low pH levels in waste stream



## APPLICATION

A patented continuous process of forming and welding steel into tubing before passing through a zinc bath and cutting to specified lengths.

## CUSTOMER

Allied Tube & Conduit, Harvey, Illinois, the largest business unit of Tyco Electrical and Metal Products, is an industry leader in the production of mechanical tubing, fire sprinkler pipe, and electrical conduit.

## CHALLENGE

In 1959, a young engineer invented a process of forming and zinc coating electrical conduit in one continuous fabricating line, producing conduit at the then-unheard-of rate of two feet per second. This process was much less expensive than conventional methods, and the savings in time and reduced handling stimulated rapid growth for the company. Today, Allied Tube & Conduit is an international supplier of metal products with a workforce of more than 900 people.

As Allied Tube's Integrated Process Management/Information Technology Coordinator, Joe Cody was charged with increasing plant efficiency, which he hoped to accomplish by eliminating much of the manual control of the manufacturing lines and supporting wet processes.

## SOLUTION

When Joe Cody joined Allied Tube in 2003, he began replacing key flow and temperature measurement devices with intelligent, microprocessor-based instruments to enable accurate data gathering using devices that could later be part of closed control loops.

*"The integration of AMS Device Manager with DeltaV is great, and we are confident it is saving us time and money. We can quantify the saving of \$85,000 per year in reduced nitrogen consumption."*

Joe Cody,  
Integrated Process Management/  
Information Technology Coordinator,  
Allied Tube & Conduit



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Included in these new intelligent devices were Rosemount 3300 Series and 3095 transmitters using the HART® communications protocol. Initially, five smart devices were installed on each of the eight production lines, but each line will eventually require 80 to 100 such devices, as would the wet processes serving each line.

A small DeltaV™ automation system was installed to track all the smart devices and eventually use their data inputs to control the process. Cody developed a number of screens that replicated the control panels the operators use daily. “We are easing into automation,” he said, “and when that day comes, the familiar looking screens will make it easy for the operators to adapt to the new system.”

AMS™ Suite: Intelligent Device Manager was added to access the diagnostic data available from the smart devices. This predictive maintenance application, which connected seamlessly with DeltaV, was ideal for a gradual scale-up. As new devices were installed and given a DeltaV tag, they were automatically recognized by the AMS Device Manager instrument database.

“The AMS Device Manager is a real good solution for us,” Cody said. “The integration with DeltaV is great, and the database is immediately useful to manage instrument calibrations. The information and alarms provided by AMS Device Manager certainly have eased my burden and are helping to prove the value of the changes we’re making.”

The best proof to date has been a significant reduction of nitrogen consumption, saving the mill about \$85,000 per year. This was accomplished by monitoring Rosemount 3095 flowmeters on lines carrying incoming nitrogen. The control valves on those lines were then manually adjusted to optimize the flows. Costs associated with this Six Sigma project were paid back in less than three months.

In another instance, monitoring of pH probes installed in mill effluent enabled personnel to do a better job of balancing the waste stream, thereby preventing excursions beyond regulatory limits. Potential violations have been avoided due to the increased awareness of the pH and alarms from stations that are not manned 24 hours per day. Cody believes this has resulted in savings as well as a beneficial environmental impact.

Current plans call for adding Audit Trail to AMS Device Manager and establishing a predictive maintenance environment. As the system is expanded and enhanced year-by-year, control will be tighter with less variability. “We’re moving ahead slowly,” Cody said, “but we expect to extract even more savings as we go forward.”

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