



## Case Study

JW Aluminum

Computers as rugged  
as the industry they serve



noax Industrial PCs at JW Aluminum production plant:

## Computers as rugged as the industry they serve

Red molten metal twists and turns through the 350,000 square foot production facility in Mt. Holly, South Carolina on its journey from the furnaces to the casters that will press it into 20,000 pound coils of flat-rolled aluminum. The most widely utilized metal in the world, aluminum is used in thousands of products in many different industries every day,

and JW Aluminum, the world leader in rolled aluminum products, is a big part of that. Capable of producing rolled alu-

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minum down to a gauge of .00025" and widths as little as 1/2 inch, the diversity of JW Aluminum's product mix extends far, allowing them to continually and accurately meet their customers' unique demands. From construction-related products like residential siding, gutters, downspouts, and roofing, to bare and coated fin stock used to make cooling and heating elements in the HVAC industry, and specialty products like lithographic printing rolls, automotive heat shields, and telecommunications cable wrap, the diversity of products the company offers is impressive. Accurate and real-time data collection, streamlined operations, and heavy-duty ruggedized industrial computers from noax Technologies, make it all possible.

### From scrap to finish

When walking onto the production floor at JW Aluminum, you are immediately taken back by masses of huge, metallic, flat-rolled aluminum coils. These coils are awaiting transportation, by fork trucks and crane, to packaging and shipping locations within the plant. JW Aluminum operates 4 facilities around the United States, production

is done in 5 steps: melting, casting, rolling, finishing and shipping. The first step, the melting phase, takes place in a 1286° degree furnace used for turning scrap and prime metals into molten metal. JW Aluminum takes great pride in their commitment in practicing environmental sustainability by implementing scrap-based production, melting down scrap aluminum to reuse in the manufacturing of new products. The red-orange flow of the molten metal is then poured into one of JW Aluminum's 17 gravity-fed casters, one of the largest caster quantities in the industry. Each of the casters is working to produce specific aluminum widths for individual customer specifications. Each coil is moved to the rolling department, and then to the finishing department to be trimmed, split, annealed, and finished based on precise customer requirements. As each order is placed and put into production, floor operators must attentively track exact customer specifications to ensure only products of the highest quality and precision are produced and delivered. Seeking a way to improve efficiency, managers at JW Aluminum decided it would be far more economical to replace paper on the plant floor with an automated system,

allowing the entire company to communicate and manage production in real-time. This automation came in the form of implementing an ERP Business system and the deployment of stainless steel S19 industrial computers from noax Technologies to capture manufacturing process transactions.

### Replacing paperwork with PCs

Before implementing noax industrial PCs as the standard, company-wide automation tool, mill operators were required to maintain a lot ticket for each individual order. "It was a nightmare and many times a change was written on the ticket and you couldn't see it" says Randy Gibson, JW Aluminum's Mt. Holly Casting Area Leader. The decision to automate the process with industrial computers, eliminating the use of pencils and clipboards, came in 2010. With a larger product offering and hundreds of customer specifications to keep track of, a reliable industrial computer solution that could handle the plant floor environment and efficiently document every step of processing was needed. IT Services and Infrastructure Project Manager, Ron Karschner, was given the task



Cast aluminum coils waiting for rolling and finishing operations.



*Aluminum is the most prevalently used metal in today's society with extensive function in the transportation, home construction and food packaging industries. At the JW Aluminum plant, customer requirements are as diverse as the products they manufacture. With the help of noax industrial computers at all areas of production, JW Aluminum can keep track of precise specifications and ensure quality every step of the way.*

*Automated systems allow the company to communicate and manage production in real-time*



of researching and testing several industrial computer options. He considered the construction of cabinets to house other PC brands, as well as standard monitors without touch screens. Temperatures posed a threat to industrial computers that could not handle the intense heat during the testing phase. An internet search guided Ron to the noax Technologies' website and after reading about their industrial PCs, he requested a demo to test in his facility. Four weeks after the demo computer was evaluated, JW Aluminum received their first order of over 20 noax units at their Mt. Holly location. Ron clarifies, "Particular features about noax that really caught our eye are the fact it was a completely sealed unit and offered a wireless solution. Also, the general ruggedness of the box itself and having the ability to be cleaned with a solvent, if needed. The noax allowed us to completely customize our user interface by using the function buttons, which are used often by our operators!" Referred by brand throughout the company, "the noax" is a universal name on the production floor when referring to their industrial computer. With three of the four facilities fully deployed, and the forth to be completed in Q1 of 2013 there will be approximately 65 noax touch panel PCs available to operators at every level of production across all four manufacturing locations. The company can ensure quality and traceability of its products by total documentation at every stage, which has become standard across the enterprise. Ron adds "It has greatly increased visibility – just by our operators being able to transact gives us the business visibility we were looking for."

## noax: rugged for a reason

The process of melting metals in furnaces the size of a two car garage produces extreme temperatures inside the facility, requiring devices built to

withstand limits that exceed typical expectation. In the summer months the temperature reaches upwards of 130° F, which does not pose a threat to the rugged noax computers, with reliable operations 24 hours a day 7 days a week, in harsh conditions. JW Aluminum devised their own mounting solution by drilling holes into their workstation tables and using pop rivets to secure the industrial computers and their table stands, allowing operators to touch the screen without any movement. Completely sealed, according to protection class IP69k (NEMA 6), the computer is protected from dust and soot that accompany the production of aluminum. The resistive touch panel is easy to operate while wearing heavy gloves and the industrial TFT display ensures readability in poor lightning conditions. The rugged design of a noax IPC allows

the computer to be mounted and placed right beside machinery in the harshest environments within the facility. noax PCs have become a vital tool for the daily operators, placed at all areas of production, from the scrap yard and furnaces to the shipping warehouse.

While in the finishing department, machine operators have several customer specifications to analyze before the aluminum coils are packaged and shipped. All of the customer details are pulled up with the touch of a button and tracked through each stage of processing in real-time. Printers and barcode scanners are connected to the industrial computers in the finishing department to print labels for final products, while complete packaging instructions are found on the screen of the last noax PC in the warehouse, the packing department.

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*Precise customer requirements are tracked at every level of production*

## Streamlining processes for real-time data

JW Aluminum has experienced significant operational improvements through employing a new ERP system to stream line communication throughout the entire company, which is supported by noax stainless steel industrial computers. "It's given management a detailed overview of real-time production" Ron explains, "and provided a standardized platform across the enterprise." Plants across the country are now connected in real-time, allowing information to be shared in the most efficient way possible. Inventory, production, and shipping schedules can be analyzed and managed, thus resulting in fewer wasted man hours and materials while maximizing efficiency.



## JW Aluminium

### Company Profile

Founded in Mount Holly, South Carolina in 1979, JW Aluminum, originally Jim Walter Metals, began as a single-facility operation specializing in the production of cast aluminum coil. In the following years, JW Aluminum sought to grow into the leading aluminum rolled products company in the world. JW Aluminum operates four production facilities: Mt. Holly, SC, St. Louis, MO, Russellville, AR, and Williamsport, PA. Specialty rolled aluminum products manufactured by JW Aluminum including: bare and coated fin stock, building and distributor sheet, lubed and coated container sheet, cable wrap, foil and sheet for automotive heat shields, honeycomb foil, window blind stock and flexible packaging products. The ISO 9001-2008 certified company emphasizes project management by the management of production activities with real time communication. JW Aluminum's dedication to quality, maximum efficiency and customer satisfaction ensure their placement as an industry leader for years to come.

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## Specifications and Application

### Objectives:

- ✓ Real-time communications and data collection at various areas of production
- ✓ Efficient order-based product specifications
- ✓ Manage production process from beginning to end
- ✓ Precision quality control information to ensure traceability and product quality

### IPC requirements:

- ✓ Wireless connection
- ✓ Protection of components against dust and severe temperatures
- ✓ High-contrast display, readable under poor lighting conditions
- ✓ Integrated, resistive touch panels to ensure simple and reliable operations even with thick gloves

## Overview of components

### Hardware:

- IPC: Stainless Steel S19
- Motherboard: noax N8C
- Display: 19" TFT SVGA (1280x1024 pixels)
- Input: Touch screen, barcode scanner
- Protection standard: IP69k (NEMA 6), fully enclosed, no external fan

### Software:

- Computer operating system: Microsoft Windows 7 Professional
- JW Aluminum application software: Oracle E-Business

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