Gateway Extrusions in Union, Missouri, invested in a new vertical powder coating line that enables it to process longer profiles more efficiently and faster than its previous horizontal paint line, and enables it to serve a broader array of markets.

“Many customers need the longer profile lengths, and with this state-of-the-art powder coating line, we can deliver, faster and with greater quality, the finished extrusion products our customers want and need,” says Tom Ziegler, president of operations for the aluminum extruder. “The new vertical paint line allows Gateway to handle lineals up to 25 feet, compared with 18 feet with our old equipment.”

The new vertical offers many advantages, Ziegler says, including more efficient application of powder with more consistent overall coverage and minimal waste. He says Gateway has increased throughput two to three times over that of its previous horizontal line, running one shift with 10 employees instead of two shifts with 16 employees on the old line.

It follows then, that this has significantly improved productivity and enabled Gateway to reassign employees to other areas where they are needed, he says. The system also allows rapid color changes to minimize downtime and overspray. Following a coating application, extrusions pass through a two-stage drying process in which the metal pieces are warmed in an infrared oven before entering the bake oven. He says this results in a harder finish than a single-stage bake oven.

Supplier Collaboration
Gateway acquired its new equipment after extensive research, and the entire system it settled on represents a collaboration among several notable suppliers.

“We were very impressed with the innovation, engineering and customization our suppliers brought to this project,” Ziegler says. “They worked together very effectively to bring our new equipment online, on budget and ahead of schedule.”

The profile-handling equipment, which includes the conveyors, pretreatment booth, dry-off oven, and infrared prewarming and powder-paint bake ovens, was supplied by ABD Equipment Co., which is based in China. Bulk Chemicals of Reading, Pennsylvania, designed the chrome-free pretreatment wash system to minimize chemical usage, as well as maximize the effectiveness of cleaning and preparing the surface of the aluminum profiles to accept powder paint. The supplier customized its pretreatment solutions to work effectively with...
ABD’s waterfall application system. Finally, Gema supplied the powder application equipment, including the vertical-track spray gun array and automation software to control paint application. The Gema guns use an electro-magnetic field to sense the aluminum profiles in order to charge the powder in real time, ensuring a highly effective and optional finishing application, Gateway says.

Even the powder paint, supplied by both Sherwin Williams and PPG, is formulated specifically for the new equipment. Ziegler says all Gateway extrusions are finished to meet the American Architectural Manufacturers Association (AAMA) 2604 durability performance criteria, and the higher-performance standard AAMA 2605 is also attainable with the new paint line.

**Efficiency and Expansion**

The line is designed for efficiency as well as environmental sensitivity. Gateway says it includes a powder reclamation system engineered for high efficiency, and coating booths equipped with rolling curtains and engineered vacuum chambers that ensure maximum powder re-utilization with minimal waste. The paint line also features a real-time water management system to regulate pH levels, outflow rate and temperature to ensure that local environmental requirements are continuously met.

Installation of the new equipment required the construction of a new, 50-foot-high building addition to Gateway’s existing facility that could accommodate the vertical components of the system. Ziegler says removal of the old coating line equipment and creation of a new shipping area in the front of the factory also allows for a more efficient flow of materials and products through the building. He says the company’s overall investment in the new plant and equipment was several million dollars.

The new vertical line is part of a multi-phase expansion plan for Gateway. In 2015, it purchased the 129,000-square foot production plant it had been leasing in the Union Industrial Park as well as adjacent properties. The company also purchased a new 7-inch extrusion press as an upgrade to existing equipment. Last year, Gateway expanded capabilities with the purchase and installation of a second press to accommodate 9-inch extrusions. Future plans include construction of new office space, additional exterior driveways, paved parking areas and new landscaping.

*For information: Gateway Extrusions, gwextrusions.com; Bulk Chemicals, bulkchemicals.us; Gema, gemapowdercoating.com; Sherwin Williams, oem.sherwin-williams.com; PPG, ppgtruefinish.com.*