A finisher receives customer accolades by expanding its coating repertoire

An established anodizer delves into an array of coatings technologies to redefine itself as an all-purpose finisher by buying a coating plant in a town best known for bib overalls.

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In 1945, Pioneer Metal Finishing began its operations. Over the second half of the twentieth century, this company expanded and refined its services and processes to its customers, including clear and dyed aluminum anodizing, hardcoat anodizing, electroless nickel plating, bright dip anodizing, and chromate and chromate-free conversion coatings. Its quest for continued improvement garnered awards. More importantly, Pioneer's customers bestowed one thing every business cherishes: Repeat business. As the company grew, this operation with headquarters in Green Bay, Wis., expanded its reach across the Midwest and to the Pacific coast with production plants in Minneapolis, Monroe, Mich., and Portland, Ore.

Historians have yet to define the trends of the first decade of this new century, but while bubbles were bursting Pioneer continued its expansive development. Customer demand spurred more growth and diversification. In December 2007, this experienced anodizer and plater transformed itself into an industrial finisher. Pioneer Metal Finishing acquired Corrosion Resistant Technologies (CRT), based in Oshkosh, Wis. As a result, the company now offers powder coating, liquid coating, and electrodeposition coating (e-coating).

"Our customers requested us to offer liquid paint, powder coating, and e-coat," said Kathy Thomson, business development director. "We responded by acquiring CRT to have the capability for our customers to come to Pioneer for most of their metal finishing needs"

A spray operator manually applies powder coating on the plant's combination liquid-powder coating line.

Giving customers what they want

Previously, its customers had to look elsewhere for powder coating. But its fledgling operation in Oshkosh seemed to make sense for numerous reasons. Strategically, the location was great because it lays between Green Bay and Milwaukee. In addition, the plant and a customer offered Pioneer inroads to another core competency the company sought to perfect. Pioneer is aligned with a very large military supplier that specifies specified chemical agent resistant coatings (CARC). "That was the basis for starting this plant," said Steve Goodsett, product manager.

To get the Oshkosh plant up and running, Pioneer took the existing equipment and overhauled and standardized it. Workers cleaned the equipment and all the tracks, upgraded the lighting, and removed the paint from the floor. Afterwards, the company enlisted coating consultant Matt Miller to look at the plant's operation from a big-picture standpoint. Miller assisted Pioneer Metal Finishing in establishing benchmarks and best practices with all the finishing activities. Finally, improved process monitoring systems enable streamlined production flow. "Moving forward, we are on top of our equipment," Goodsett said. "It was the correct application equipment, but the bottom line on it was it hadn't been maintained as well as we would have liked to see for the 2 to 3 years it was in operation."

The Oshkosh core competencies afford customers a plethora of coating solutions, including e-coat primers, CARC for military applications, and batch capabilities for larger-parts finishing. In addition, the plant provides a choice of media blasting for physical surface preparation. "We have the gamut covered as far as functional coating, and everyone has to be able to apply decorative finishes," said the company's product manager.

In conjunction with honing system performance, Steve Salamone, division manager, began to shape the workforce at the Oshkosh plant. As a result, Pioneer retained some employees of CRT and added others from Pioneer's other locations. A production person from Green Bay relocated to run this plant. Currently, 65 production employees operate the plant on two shifts.

Getting bigger and better

Since the Oshkosh coating plant has come online, Pioneer Metal Finishing has expanded its spectrum of available coating services. In addition to offering standard powder coatings, the company builds upon its core competencies of anodizing to offer synergistic coatings that incorporate anodizing as a pretreatment. Anodizing can be used underneath powder, e-coat, or liquid coatings to produce a finish that is much better than a phosphate or chromate conversion, according to Goodsett. Anodizing is a conversion coating in itself, but it also penetrates up to .001 inch into the metal and leaves a .001-inch-thick coating. "If you scratch through the paint, it gives you that second barrier that has a lot of integrity underneath the paint," Goodsett said. "Between having multiple plants and multiple processes here, we can do things our competitors just can't do."

Pioneer Metal Finishing offers synergistic coating solutions that incorporate anodizing and powder coating.

The company uses its multi-pronged and multi-finishing prowess to tackle the strictly functional, the solely decorative, and the infinite combinations between. Pioneer finishes components from large ocean-faring sailboats to functional land-roving parts such as brake shoes. In the large agricultural equipment seg-

The Oshkosh, Wis., plant houses an automated electrodeposition coating system, an automated powder and liquid line, batch booths and ovens, blasting booths, and various chemical pretreatments for metals.

ment, the finisher developed a durable coating that also had heavy aesthetic requirements. A manufacturer was having problems with coatings failure on its manifolds for large engines. Pioneer developed a solution by combining powder coating with processes used at its anodizing and electroless nickel plating plants to develop a viable alternative. "We're looking to develop new processes, things that might not yet be spec'ed out to solve customers' issues where they haven't been able to solve it with standard coatings," Goodsett said. "Our goal is to work directly with the OEMs and develop processes by taking advantage of our strong commitment to R&D."

Pioneer produces unique coatings combinations by honing competencies at each of its plants and coordinating finishing processes between the locations. Each plant has its specialties and core competencies. The Minneapolis plant has Nadcap (National Aerospace Defense Contractors Accreditation Program) approval to do anodizing for aerospace-military applications. The Portland division focuses on commercial industrial applications such as scopes for guns and a variety of decorative work including bicycles, rims, and baseball bats. The Monroe plant is close to Detroit and is heavily automated to handle automotive applications. The Green Bay headquarters is also the largest plant and handles everything from soup to nuts, serving a variety of different industries and standing as the largest anodizer for Chicago.

Becoming a full-service finisher

Building upon this strong operational base, the Oshkosh expansion allows Pioneer to diversify its services to its customers. Only an hour's drive south of Green Bay, Pioneer now can send its customers' product to Oshkosh to receive a topcoat(s) of choice over anodized metal and aluminum that has received a chromate conversion coating. "Now, instead of shipping out to someone else to do the topcoat, we send it to Oshkosh and do all the painting for them," Goodsett said.

Because of its experience in anodizing that typically involves a lot of masking, Pioneer Metal Finishing has added that expertise to this plant also. As a result, the Oshkosh plant now performs more difficult coating jobs. The Oshkosh core competencies afford customers a plethora of coating solutions, including e-coat primers, CARC for military applications, and batch capabilities for larger-parts finishing. In addition, the plant provides a choice of media blasting for physical surface preparation. "We have the gamut covered as far as functional coating, and everyone has to be able to apply decorative finishes," Goodsett said.

If a customer's coating specifications require an e-coat primer for added corrosion protection, such as Mil-P-53084, workers hang the part on the automated e-coat system. Parts first pass through an eight-stage zinc phosphate pretreatment. Next, the line conveys pretreated parts into the e-coat tank that contains a black cationic epoxy. This system has a parts window that is 8 feet long by 4 feet wide by 4 feet tall and a 400-pound weight limit.

If the part requires a topcoat, workers transfer the part to the combination liquid-powder coating line. The parts window for this system is 6 feet long by 2 feet wide by 3 feet tall with a 300-pound weight limit. The chain conveyor line begins with an 11-stage zinc phosphate pretreatment system that includes a multimetal cleaner, two rinsing stages, multimetal pickler, deoxidizer, rinse, conditioner, rinse, zinc phosphate, seal, and a final rinse. The plant uses reverse osmosis water. This pretreatment enables Pioneer to meet CARC specifications Mil-DTL-53702, Mil-P-53022, and Mil-P-53039. "This is a Cadillac system so everyone else gets to ride along with the Cadillac pretreatment," Goodsett said.

In addition to the eight-stage pretreatment on the e-coat line and the 11-stage zinc phosphate pretreatment system, Pioneer offers other surface preparation options. Its Alodine 5200 system provides a nonchrome conversion coating for aluminum that improves coating adhesion and strengthens corrosion resistance. This system processes parts 3 feet long by 3 feet wide by 3 feet tall. Another line offers passivation for micro-cleaning stainless steel. The passivation system can handle stainless steel components 8 feet long by 2 feet wide by 2 feet tall. To complement its chemical pretreatment capabilities, Pioneer also provides shot blasting, including steel shot and aluminum oxide media. Steel shot blasting removes heavy scale and coatings. The steel shot blast booth can handle parts 20 feet long by 8 feet wide by 8 feet tall. Aluminum oxide abrasion provides a smooth surface for improved appearance. This blast booth processes parts 4 feet long by 3 feet wide by 1 foot tall that weigh up to 100 pounds.

Once parts pass through the 11-stage washer, the automated liquid-powder line then diverts parts to a coating specific booth, either powder or liquid. Spray operators manually apply powder coatings by using booths and guns supplied by Wagner Systems. Currently, Pioneer Metal Finishing performs a lot of custom

powder coating jobs involving an array of colors and formulations. As a result, workers spray to waste. However, the company is currently exploring ways to reclaim powder. After coating, parts pass through a convection oven that cures the coating. Finally, the parts arrive at the load-unload area where workers inspect and remove the finished parts from the line.

In addition to the automated capabilities, Pioneer Metal Finishing also has two manual batch booths and ovens to apply liquid and powder coatings to large parts. The manual system also meets the CARC specifications achieved on the automated liquid and powder line. The batch setup can coat parts 18 feet long by 8 feet wide by 7 2/3 feet tall. Having all of these operations under one roof is truly an advantage that can reduce transportation costs and minimize the lead-times.

Retaining and growing the customer base

Pioneer opened its Oshkosh operations to meet its customers' needs. To date, plant performance has exceeded expectations. The finisher has a target turnaround time of 5 days, which it consistently beats. This turnaround time directly results from efforts to improve production efficiencies. For example, production scheduling involves all coating systems running simultaneously. Before Pioneer bought it, the plant did not operate this way. A defined scheduling system, daily production meetings, and customer service serve to expedite production runs to meet its customers' schedules.

In addition to providing more finishing services to its existing customer base, the Oshkosh plant has garnered more business and new customers. Existing customers have reduced their throughput demands by relying on Pioneer to provide all of their finishing requirements. Moreover, customers who turned to Pioneer for liquid, e-coat, or powder are also using this finisher for its anodizing and plating expertise. "We are gaining customers on the anodizing side because of the coating," Goodsett said.

Pioneer applies a lot of different coatings. It also works with the customer to develop a customized finishing solution. For example, a longstanding customer experienced coatings failure with its castings. Pioneer developed a coating solution that lasted three times longer. As a result, the customer increased its throughput and reduced its downtime. "At some point, a black e-coated part is a black e-coated part and a white powder-coated part is a white powder-coated part," Goodsett said. "We are assuming that you have to do top quality. What sets us apart is helping our customers through issues. We ask the customer what they need and then match the process up to the end use."

As the finisher continues to expand its reach and refine its capabilities, Pioneer Metal Finishing anxiously awaits an approved CARC powder. Goodsett expects these powders to be available in the next 12-24 months. In switching from liquid to powder, Pioneer will be able to reduce volatile organic compounds, waste stream issues, and ventilation requirements. In addition, powder doesn't present the coverage issues associated with liquids, such as drips and runs. In addition to military applications, Pioneer sees powder coatings being in demand for a variety of applications including aerospace, electronics, vehicles, and exteriors. "That will be a big boon to us," Goodsett said.

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Editor's note

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