

Coating the Competition

Custom powder coater guarantees 24-hour turnaround with new equipment

While some powder coaters might guarantee fast turnaround, powder coater SK Finishing in Lorain, Ohio goes a step further by guaranteeing 100 percent completed orders within 24 hours. SK Finishing had always differentiated itself by providing fast turnaround, but was able raise the bar with the installation of new powder coating systems.

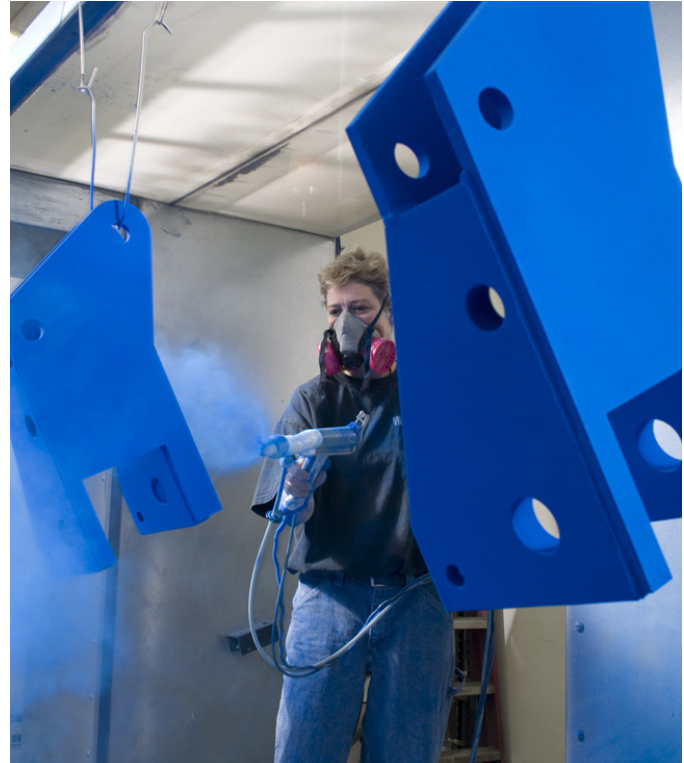
SK Finishing is a custom powder coater with 40 employees and has been in business since 1982. SK Finishing caters to companies with special processing requirements or difficult parts. Every job it does is unique, coating a total of 15,000 part numbers in 650 colors for more than 60 customers. Using the latest methods and technologies, its goal is to consistently maintain the shortest lead times in the industry while achieving the highest quality. SK also owns its own trucking company so it can offer pickup and delivery services.

In an environment of rising costs, increasingly stiff competition and a shrinking customer base, Roger Mahoney, owner and president of SK Finishing, knew the company needed to make some investments in equipment and people to protect and grow its business. Its existing powder coating line had served the company well, but it was more than 20 years old.

“Small jobs were costing us money. We lost money on 20 percent of jobs because we were doing them to keep customers happy,” said Mahoney. “To stay in business and be more competitive than the 23 other coaters in a 100 mile radius, we had to invest in new equipment.”

With its promise of extremely fast turnarounds, it's no surprise color change times would be a priority for SK. The challenge with its existing equipment was the job shop could only spray and reclaim two colors using modules. Color changes took two hours with its reclaim equipment, which meant non-recycling was the best way to ensure reasonably quick color changes. That also meant SK was throwing money away on unused powder. Mahoney wanted to invest in new equipment that would keep expenses down and line utilization up.

SK considered coating systems from several suppliers. Its due diligence work included speaking to customers of those suppliers and touring some of those customer facilities. In the end, SK chose powder coating systems from Nordson over its existing equipment supplier.



For small, quick runs, the Prodigy manual system with its color-on-demand feature allows SK to instantly select a color with the gun capable of purging out and changing colors in 20 seconds.

Because it coats such a wide range of products in all sizes with both large and very small runs, the job shop wanted to install a reclaim system for larger runs and a non-recycling system for small runs and parts that would be difficult to coat.

SK started by completely gutting its coating room and installing a new air conditioning system. With Nordson's help, SK Finishing installed one powder coating line capable of switching colors in less than a minute and another line with greatly enhanced reclaim capabilities. The two systems that matched SK's needs were the Nordson ColorMax® powder coating system and the Nordson Prodigy® manual powder coating system. The ColorMax system is an in-line coating system with reclaim capabilities that can accommodate parts up to 30"x60"x72". It features two stacks of six Nordson Sure Coat® guns per stack with an open-face canopy design and external manual touch-up stations, which are helping SK improve first-pass transfer efficiency.

For smaller jobs that typically will take under 10 minutes to run, SK uses its two non-recycling Prodigy manual guns. The guns are used in a Nordson Lean Cell™ booth batch system that can accommodate parts up to 8'x8'x16'. The booth has an open-face canopy to give operators easier access to the parts they are coating and flexibility to move based on part size and shape.

The company coats a range of parts, from large electrical boxes for the telecommunications industry to decorative wire molding to appliance and automotive parts, including 2.4 million manual seat track adjusters annually for a domestic tier one automotive supplier. Parts begin the coating process with a five-stage iron phosphate wash and non-chrome sealer pre-treatment process. They are transported via an overhead conveyor to a 300 degrees Fahrenheit dry off oven for 10 minutes. They then enter the coating room for coating in either the automated system or the batch system depending on the quantity and size of the parts.

Following powder coating, the parts enter a 1200-degree Cata-Dyne™ flameless infrared catalytic gas gel oven before entering a 400-degree cure oven for 20 to 25 minutes. The line runs at 8 fpm with plans to increase to 12 fpm as SK's operators become more experienced using the new equipment. SK's arsenal of 650 colors includes powder from a number of suppliers, with Sherwin-Williams and Royal Powder Corporation being the two primary suppliers.

For help in controlling the automated line, SK uses Nordson's iControl® system. A single touch-screen graphical interface provides operators with digital control of application parameters. Part identification sensors provide input to the system for gun triggering and in/out positioning while allowing operators to adjust various gun control parameters, such as flow rate, atomizing, KV and current.

A Colorful Future

The two new systems allow SK to cost effectively coat any part, while increasing production and reducing powder usage. Where color changes with its reclaim system used to take two hours, SK is now changing colors in less than 10 minutes with dark-to-dark changes and in 15 minutes with black-to-white color changes, and with no contamination. The ColorMax system has several features for faster color changes and reduced powder usage. A non-



Where color changes used to take two hours, SK now changes colors in under 10 minutes with dark-to-dark changes and in 15 minutes with black-to-white color changes, with no contamination, using the ColorMax® System.

conductive booth and canopy minimize powder retention so it is easier to clean. An air distribution system uses high air velocities to contain powder in the air stream and air knives that reduce powder-in-process.

On small, quick runs, SK uses the Prodigy manual system. It has a color-on-demand feature that allows the operator to instantly select a color with the gun capable of purging out and changing colors in 20 seconds. Mahoney figures the non-recycling system

actually averages two-minute color changes because of the 8 fpm line speed.

"Color change time is dependent on when the last part leaves and the next one arrives," he adds. "And our line speed is dependent on our operators. To meet our turnaround guarantee, our first pass yield needs to be 100 percent. We don't want to hurry and have any mistakes."

SK will do a total of 10 to 12 color changes per shift with two or three of those color changes done on the automated in-line system. In one month, SK will do 400 to 500 color changes in two shifts. Before, it used to struggle to do 240 changes per month with three shifts.

"Now, we don't care if it's five pieces or 5 million pieces. We can do it quickly, cost effectively and with very high first pass yield," adds Mahoney.

Faster color changes and high first pass yield have translated into better line utilization. Instead of spending valuable downtime changing colors, SK is coating more parts.



The new systems have increased productivity for SK while reducing costs by dropping from three shifts to two. Plus, powder usage has been reduced, with savings of 60 to 75 percent. Before, SK used 8,000 pounds of powder per month; now it uses 2,000 pounds per month.

It can also quickly re-spray any parts that aren't perfect without interrupting production. The part or parts are re-hung and sprayed in the batch booth with the Prodigy guns while doing a color change on the automated line. The manual Prodigy system uses high-density powder and low-velocity air, known as HDLV technology. The HDLV technology uses less compressed air to propel powder to the gun for less air velocity, less overspray and higher transfer efficiency.

Increased productivity allowed SK to reduce costs by dropping from three shifts to two shifts. It has plans to add the third shift back soon as business has been increasing with its new capabilities.

"Our sales guys are bringing in more business," notes Mahoney. "Our competitors are really feeling it. We now offer a better product at a more competitive price and faster turnaround."

Reduced powder usage has been another major benefit, with powder savings of 60 to 75 percent. SK was discarding 8,000 pounds of powder per month. It's now discarding less than 2,000 pounds per month.

With the new powder coating systems, SK is able to deliver on its 24-hour turnaround with 100 percent completed orders. Such capabilities are proving to be a boon to both its top line and its bottom line.

"We've had to learn to step up our game because of the new equipment. I can't imagine life without it. We can do any color and we don't care how large or small the job is," explains Mahoney. "We make money every day when others say they can't."



For control of the automated line, the iControl® system's single touch-screen graphical interface provides SK operators with digital control of application parameters.