

Nordson Systems Deliver Fast Color Change and Precise Process Control for a Major Home Appliance Manufacturer

After multiple customer lab trials between competitive powder system suppliers, Nordson was chosen for advanced color change systems and precision control with robotics for porcelain enamel and organic powder on consumer home appliances.



First and foremost, they wanted Nordson to come to the table with new and innovative solutions. Another requirement was to not have piles of powder on the floor while in operation. The customer said that they did not want to spend a lot of time cleaning the booth, even if the booth was in an off-line position. They also wanted a low profile design that would allow them to decrease the distance between the conveyor and the floor, thus avoiding steep conveyor elevation changes. Finally, the customer requested a good looking and “dressed out” system that would hide all of the hose, tubing and cable runs typically associated with a powder system installation. Nordson was able to provide all of these system elements that the customer requested – and more.

In all, Nordson provided a total of eleven systems housed within three separate rooms. Nine of the booths have the ability to roll on and off line allowing for both fast color change in less than two minutes, and the ability to clean off-line. In the first room, six systems were sold to coat oven cavities with PE ground coat and PE top coat. The top coat

can be applied with either blue PE or gray PE depending on the end product requirements. The top coat booths in the cavity coating room are equipped with robots carrying multiple guns. The robots provide precision control of the PE allowing the customer greater repeatability and uniformity, and fast cycle times. These efficiency improvements result in higher production capacity, less rework, and fewer rejects.

The second room contains three PE booths to coat oven tops. Similar to the cavity coating room, each system has the ability to roll on and off line. The first booth in line applies a ground coat. The

second booth applies a white bisque top coat. The third, booth is dedicated to black top coat. Each system contains four gun movers with multiple guns for faster coating as well as three manual guns for reinforcement of specific areas of the part.

The third and final room in the facility contains two systems that apply organic powder to trim parts for the ovens. These parts do not require PE coating because they are not exposed to the higher temperatures that the oven cavities and oven tops are exposed to. Both systems roll on and off line. The first booth in line is a ColorMax® cyclone based system capable of changing colors in seven minutes or less. The customer runs a number of colors through this system. The second system is also a ColorMax quick color change system.

In an effort to deliver systems that met the customer’s requirements, the six PE systems in the cavity room and the three PE systems in the oven top room were designed with low profile bases with innovative floor panels that caused powder to move toward the cartridge style collector during operation instead of settling on the floor. The panels could also be retracted to the side walls allowing the operator easy access inside the booth during cleaning. Since this system incorporated high

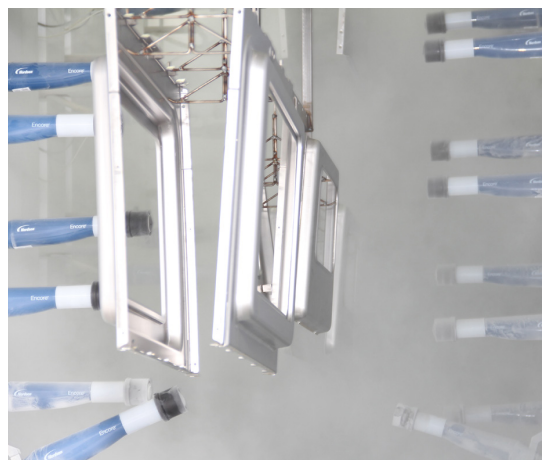


The Colormax® quick color change system is capable of color change times of seven minutes or less.

velocity air through the booth and a dedicated cartridge style collector, the customer was able to realize less powder in process as with a quick color change system. Also, with a dedicated collector, the customer was able to realize the high efficiency and reclaimability of a dedicated cartridge collector.

The low profile base design also helped the customer to significantly decrease the distance between the plant floor and the conveyor, eliminating the need for steep conveyor elevation changes. Lastly, all of the PE systems and both of the organic systems were equipped with utility decks that concealed the many circuitous runs of gun cables, powder hose, pump tubing, and other miscellaneous communication cables.

Finally, there were a number of key advantages that Nordson had over its competitors that resulted in winning the order for this world class installation. First, Nordson's lab was equipped with multiple robots that allowed for real production demonstration capabilities instead of attempting to simulate gun movement with multi-axis machines. Secondly, because Nordson's customer lab contains multiple booths with dedicated ovens, Nordson was able to easily satisfy the customer's requirements for a six week production run of customer prototypes for rigorous testing and evaluation of the coating.



Encore® PE automatic guns can apply PE ground coat and PE top coat for oven doors.

In the customer's words, "The lab at Nordson was one of the main decision points in choosing Nordson to help us launch our green field plant install. Not only did we have multiple platforms of new enamel ovens to determine the process, we also had hundreds of prototype units to build for product development. We were able to robotically apply porcelain, determine the process parameters in the Colormax quick color change booths, fire the cavities, and measure the quality of the coating we applied. Having access to these systems allowed us to start up and launch the finishing system on schedule".



Multiple Encore® PE automatic guns provide repeatability and uniform coverage of oven cavities.

For more information on powder coating technologies from Nordson, call 1.800.433.9319.

For more information, speak with your Nordson representative or contact your Nordson regional office.

United States

Amherst, Ohio
+1.800.433.9319 **Phone**
+1.888.229.4580 **Fax**

Canada

Markham, Ontario
+1.905.475.6730 **Phone**
+1.800.463.3200 **Phone**
+1.905.475.8821 **Fax**

Europe

Erkrath, Germany
+49.211.9205.141 **Phone**
+49.211.9252.148 **Fax**

Japan

Tokyo, Japan
+81.3.5762.2700 **Phone**
+81.3.5762.2701 **Fax**

Asia/Australia/ Latin America

Amherst, Ohio
+1.440.985.4000 **Phone**
24-hour message service:
+1.440.985.4797

China

Pudong, Shanghai
+86.21.3866.9166 **Phone**
+86.21.3866.9199 **Fax**

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