

APPLICATION EQUIPMENT

AUTOMATED PAINTING MACHINES



Sophisticated, computer-controlled painting machines are simplifying complex panel painting and product finishing tasks.

The Troy automotive laboratory of Akzo Nobel Coatings produces a lot of test panels. The introduction of one new dazzling color means that hundreds of panels that need to be produced for all sorts of short- and longer-term testing. Many of these panels end up “on the fence” in Florida or on racks in Xenon weathering chambers, gravelometers or other test machines.

“During the new color introduction periods we are cranking out test panels continuously in our laboratory,” says Tom Prescott, group leader for Exterior Coatings at Akzo Nobel.

Not only is the volume of panels high, but the quality demands are equally daunting. “We produce a lot of panels that use three steps: primer, basecoat, clear coat systems,”

says Prescott, “each coating of which needs to be applied precisely with proper film build control. That’s three times the headaches of a simple monocoat process,” he adds.

Effortless Painting

The test panels serve several important cosmetic and functional purposes. They are the means of testing new coatings against the rigors of weather/ultraviolet (UV) exposure and other elements that might cause failure months, even years later, so the coating process must mimic the

ABOVE: Consistent film build is essential for the company’s test panels, since too much or too little paint on the surface can translate into differences in appearance and performance.

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"With other methods of making panels," notes Prescott, "we have to spray a base coat and then clean out a gun to spray topcoat. The Artomation machine does all this automatically, greatly reducing the time and effort required by us."

The much larger spray zone has a couple of benefits for the lab. First, it allows more panels to be sprayed at one time, which is a benefit to productivity. "The larger

The system's design incorporates a tool "garage" with several different paint guns, each of which can be picked up and sprayed in seconds.

spray zone also allows us to make a better test panel with less edge effect," observes Prescott. "On a smaller machine, where we cannot move the gun past the panel as far, we see less control over 'windowing' and other effects at the edge of the panel."

Precise Control

Consistent film build is essential for the company's test panels, since too much or too little paint on the surface can translate into differences in appearance and performance. "We have seen that it is easier to correlate color for our customer when we can control the film build precisely," says Prescott.

application of paint to real-world product in terms of film build, cure and adhesion. But the panels are also used as color standards that require precise control of application variables such as coating thickness, atomization, electrostatics and other parameters that could cause color and gloss variation from panel to panel.

Given these demands, Akzo Nobel recently installed a new system to help with this demanding task. While the company had experience with a large number of other panel painting machines, it felt that the rigorous demands of the market were requiring a new and better approach.

The new device, a PanelPro Plus from Artomation, gives Akzo a larger spray window than other machines, as well as the ability to switch "effortlessly" between spray guns or a rotary atomizer, according to Prescott. That's because the system's design incorporates a tool "garage" with several different paint guns, each of which can be picked up and sprayed in seconds.



The system includes three servo-driven axes of motion, each of which is controlled through the machine's Windows-driven computer interface.

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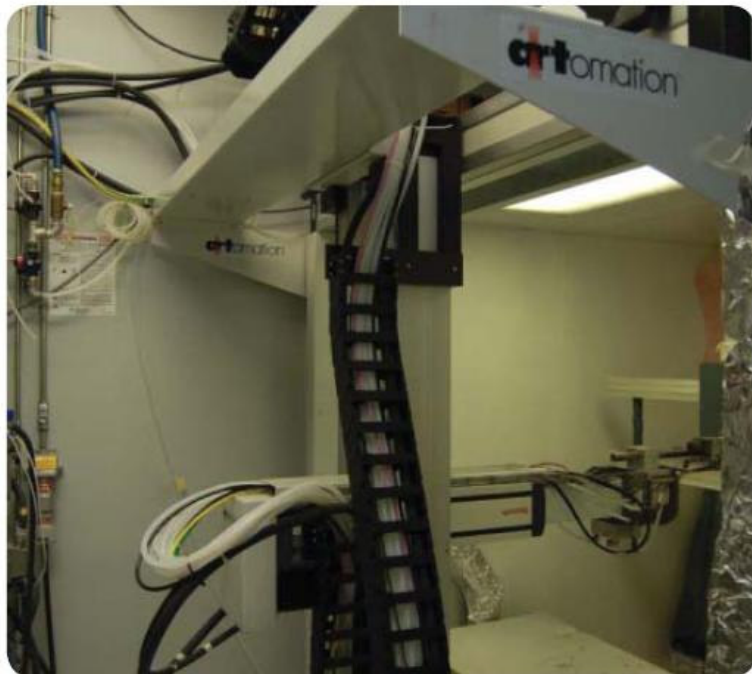
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The real key to precise film build comes from the machine's ability to control not just motion, but painting variables as it moves as well.

However, precise film build is not just a two-dimensional issue for the lab. The system includes three servo-driven axes of motion, each of which is controlled through the machine's Windows-driven computer interface. This interface allows lab staff to quickly create and download complex paths to the machine through a simple to use graphic interface.

The real key to precise film build comes from the machine's ability to control not just motion, but painting variables as it moves as well. At any point in the machine's path, adjustments can be made to virtually any of the paint guns' parameters, including fluid pressure, atomizing air, shaping air, bell speed, electrostatics, etc.

Akzo engineering staff integrated a plural component mixing system with the machine to give them the on-demand capability of spraying a number of their standard primers and topcoats, along with specially formulated basecoats. "The combination of the mixing system and the Artomation machine give us significantly more flexibility and productivity," says Stewart Kowalski, an Akzo

technician who worked on the project. "We can produce far more high-quality test panels with this system than we ever could have imagined with older technology."

Kowalski also engineered a small, separate

"The simplicity of the machine's controls allows us to actually take advantage of this control over panel painting without a lot of time or hassles."

room for the system's installation to reduce the likelihood of dirt contamination on panels, which need to have a highly cosmetic finish.

"This ability to dial in the machine to produce nearly perfect panels is really unique and gives us a lot of peace of mind," explains Kowalski. "Fortunately, the simplicity of the machine's

controls allows us to actually take advantage of this control over panel painting without a lot of time or hassles.”

Higher-Quality Panels — and Finished Products

According to Artomation President John McDonough, the automated machines being used by Akzo Nobel are really a new generation of panel machine that has evolved during this era of graphic computer interfaces.


“We are used to great, simple, graphic control over all kinds of equipment in our world — but paint systems have lagged behind,” explains McDonough. “We decided to bring the same degree of sophis-

It's not just coatings suppliers that are benefiting. The same level of control and sophistication can be found on the latest generations of automated finishing machines for manufacturing.

tication and control to the panel painter that you have on an iPod,” says McDonough, “because cranking a few knobs and making mechanical adjustments just isn't good enough anymore.

“PaintPro allows the user to really control the process — not just precision movement of every axis, but all the paint variables. It can mean the difference between a poor panel and perfect one,” McDonough adds.

And it's not just coatings suppliers that are benefiting from this advanced technology. The same level of control and sophistication can be found on the latest generations of automated finishing machines for manufacturing. By using touch screen controls, computerized precision and memorized product presets, these advanced machines can “shift on the fly,” coating different items on a single conveyor at high rates of speed. As with the panel painting machine, adjustments are fast and easy to learn.

Implementing such innovative technologies can help coating suppliers and product finishers alike improve their finishing operations and gain a competitive edge. 

For more information about automated painting machines, contact Artomation at 877.805.1126 or 440.234.1988, e-mail sales@artomation.com, or visit www.artomation.com.

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