

INSIDE INFORMATION

Giving high tech the K.I.S.S. off

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Back in the days when I designed things for a living, I had this axiom drilled into my brain: Keep It Simple, Stupid (K.I.S.S.). My boss reminded me of this axiom every time I tried to complicate simple designs by adding the latest high-tech bell or whistle. It seems many engineers in the powder coating industry didn't have the same upbringing that I did. I constantly see simple applications being complicated with high-tech gizmos, often with no regard for economic or maintenance concerns. Such a near-sighted approach to automation seems a fitting topic for this issue on the automotive industry because it's an industry that's often driven by the motto, Give us every high-tech gizmo, not by the question, Which gizmos make the most economic sense?

Don't get me wrong. I'm as excited about new developments in the powder coating industry as the next person. But powder coaters need to exercise some practical judgment when buying high-tech automation by weighing the perceived benefit against the total cost of the equipment. The true total cost can be obscured initially because many people look only at the purchase price. The true cost of automation, however, is the purchase price plus the costs of supporting and maintaining the equipment. You should also add other hidden costs, such as the increased installation and start-up

time, to more accurately reflect the true cost of high-tech automation.

I arrived at this revelation about true cost in 1981 after I spent 10 months with a well-known appliance manufacturer debugging the first US-built powder coating system to incorporate a programmable logic controller (PLC). I can cite more recent experiences that illustrate my point about the true costs of automation. To protect the guilty, I won't use actual company or product names.

High-tech powder application means higher costs

In an effort to lessen, or completely eliminate, manual touch-up of its parts, company X bought an automation package from a powder application equipment supplier. To determine how much and what type of automation equipment was necessary to satisfy the customer's requirement, the application equipment supplier performed tests in its laboratory. The automation package in the tests included a PLC with a graphical user interface, a three-axis gun mover, individual gun triggering, and gun-to-part profiling. This high-tech automation package was going to replace a simple, low-tech system that included single-axis gun movers and manual reinforcement.

Tests showed that the automatic system couldn't coat all of company

X's parts, no matter how much automation was thrown into it. As a result, company X still required touch-up personnel to powder coat its products. The project engineer at company X justified the new system, however, by claiming a 50 percent reduction in touch-up. Maybe that was true, but it didn't produce any savings because touch-up workers still had to be there all of the time to touch up each part, although they had to touch up less area on each part. In addition, company X had to support the newly automated system with specially trained maintenance and engineering personnel. And the cost of maintenance increased in proportion to the amount of equipment the company used. All in all, buying the automation package didn't seem like the project engineer's best decision. In addition to the cost of touch-up personnel, the company now had to pay higher support and maintenance costs to keep the automation system running.

Automation overkill delays start-up

Company Y was interested in a simple visual annunciation system to indicate which finishing system components were malfunctioning or causing a fault condition. Such a system would allow the operator to immediately recognize which piece of equipment required attention. The company had seen a simple add-on panel that met its objec-

tives. The panel had five lights in a box and provided space to write down what each light meant when it signaled.

Using this simple panel as a starting point, company Y's equipment supplier transformed the annunciation system into a 10-rack PLC system with a programmable operator interface. This newly designed system took 2 additional weeks to debug and required special training to support it. Although the PLC system was more versatile than the five-light annunciation panel, the latter would have provided company Y with just the right amount of information without the additional support requirements of the PLC system. Furthermore, the 2-week start-up delay cost company Y time and money in the form of contractor support and lost production.

Competition can fuel automation excess

What happened to the PLC system that I debugged in 1981? Well, the automation package was removed to control another process in the plant. Eventually, the plant closed and production was moved to a market with lower labor costs. In this case, automation failed to save time, worker hours, or jobs.

My point is that many suppliers in the powder coating industry have difficulty separating customer needs from customer wants. Many will provide customers with what they want, whether or not it makes economic sense. Customers that expect suppliers to look out for their best interests by providing the right amount of automation may be unpleasantly surprised when the equipment shows up at their door.

Why do suppliers like to add all these features? Because they're looking for ways to define their capabilities in terms of equipment features (automation in this case) to separate themselves from their competitors. As a potential buyer, you have to ask yourself, Do I need this? As I've explained here, even when the purchase price seems low, the true cost—including support, maintenance, and long debugging times—

must be taken into account. Remember: Just because you can do it with high-tech automation doesn't mean you should.

Epilogue

This is the thirty-third Inside Information article that has appeared in *Powder Coating*. Our company has had the pleasure of writing all of them since the magazine began. I wrote 25 of the columns myself. George Trigg wrote seven, and our newest associate, Mike Santolupo, wrote one. All of us consider it a privilege to have written them for the past 5½ years. But like all good things, it too must end. The magazine has asked us to do the Q & A column beginning with the April issue. We look forward to it. We covered a lot of topics in Inside Information. Here's a list:

- Quick color changes
- The importance of training
- Proper ground
- Hanger design and maintenance
- New part setup
- Post-shift maintenance
- Housekeeping and finish quality
- First pass transfer efficiency
- Film thickness control
- Compressed air problems
- Powder feed problems
- Powder coating start-up expenses
- JIT and powder coating
- Powder pattern control
- Powder handling and storage
- Manual spray techniques
- Powder room design
- Powder coating rework
- Cure oven design

- Cure oven maintenance
- Powder test lab setup
- Cartridge booth maintenance
- Supplier insights
- Load-unload area design
- Pretreatment system operation
- Powder coating limitations
- Booth airflow
- Reclaim economics
- Used equipment
- Turnkey contractor selection
- The permitting process
- Outgassing
- Automation

We'll be adding to this list of topics with occasional Inside Information articles in the future. In the meantime, we at Powder Coating Consultants thank the publisher, editor, and our loyal readers for your support. Writing the articles is an experience we hold in the highest regard. If you would like reprints of the articles, please contact me or the publisher. We'll see you again in the Q & A column when you, the readers, get to play Stump the Consultant! Goodbye for now. **PC**

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