

# Painting the future



Ramiro H. Mora, Pinturas Doal operations director, right, admits he can be somewhat obsessed. "Everywhere I look, if I see repetitive work, I think of how that can be automated—all the time, everywhere! We are increasing capacity by 15 percent a year. We can do more." Ramon Medrano, Pinturas Doal production leader, listens closely.

DRIVING THE STREETS OF MONTERREY, MEXICO, is a colorful tour through parallel worlds. Trucks and cabs barrel noisily around the occasional horse-drawn cart. This same duality appears in Mexican manufacturing as industries leap from manual labor to automation. Nowhere is this more evident than at Pinturas Doal, paint and solvent processors, an automation customer of Industrial Weighing Solutions (IDN).

Pinturas Doal had been making paint by hand: mixing pigments, filling cans, sealing lids, and applying labels since the company was founded by Dom Domingo in 1960. Ramiro Mora was hired two years ago as the company's director of operations. His goal has been to increase productivity and decrease errors. His strategy: total automation of the plant in two phases. His tactic: hire IDN.

Director Mario Garza of IDN says his engineers were up to the challenge. "We looked at this as a great opportunity to create an automation system from the ground up."

IDN engineers programmed the power of the 920i® Programmable Indicator/Controller to store orders and formulas and control 14 ingredients at the Pinturas Doal plant. The operator sets parameters such as jogging and flow time, since some additives flow more slowly than others. According to Ramiro, "They can go to lunch and have the 920i finish a process. If there is an error, the 920i stops the process and sends an alert."

Using Ethernet networking, the Pinturas Doal quality laboratory creates paint formulas and transfers the data through the iRev program in comma-delimited text files.

- ▶ The 920i stores the data along with operator instructions.
- ▶ Pending work orders are also stored in the 920i.
- ▶ Prior to initiating a formula, the system confirms the scale is empty.
- ▶ The ingredient amounts are given in percentages.
- ▶ Each ingredient is weighed on a 1,000 kg capacity RoughDeck®.
  - ▶ The 920i opens electrovalves and discharges each ingredient into the line of mixers.
  - ▶ After each ingredient is discharged, the 920i discharges water to clean the tank and sends a message that the order is finished.

Ramiro says, "We like this 920i-based setup. It was less expensive than a PLC system. It is very intelligent in that it allows new actions for the future. We can include more additives and add more stages of automation. Our plan is to continue automating the water-based paint line and then move on to Phase II, the enamel and specialty lines. We can do that using this single 920i."

Phase II of IDN's master plan includes a list of new hardware requirements: a 12-slot expansion card, a pulse input card, two I/O cards, two racks of relays, 17 double-output relays, 27 quench arcs and the housing. The 920i now has two channels, three I/O cards, memory card, Ethernet card and a six-slot expansion card.



Each of the mixing tanks has two valves to discharge the materials in the tank. One valve has been operating in Phase I for dosing the ingredients being weighed— adding small quantities at intervals that give sufficient time for processing. The second valve in Phase II will be used for dosing ingredients that are measured by a flow sensor.

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Phase II of IDN’s plan is now in full operation. Even so, there is no doubt that Ramiro is still looking everywhere, all the time, for repetitive work and thinking of ways to automate it. Inside the Pinturas Doal plant, modern methods and equipment streamline processes in stunning leaps. Outside, the cart horses trot along, unfazed, through the honking gas-fueled traffic. Viva Mexico!

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Mario Garza, director of Industrial Weighing Solutions

