



Painting

Case study: High-tech painting, D&M, Australia

Applications in Plastics

- Cutting/Finishing
- Glueing/Sealing/Dispensing
- Flaming/Painting
- Assembly
- Packing/Palletizing
- Inspection/Quality control
- Machine Tending

From its origins painting jet skis in a backyard garage, D&M in Melbourne, Australia, has transformed itself, with the help of robots, into a cutting-edge industrial supplier working with the big automakers.



Robotic production line

Today the company has 20 employees and five robots, with two additional robots due to arrive shortly. Some 90 percent of their work is for the automotive industry, specializing in painting small component parts. Their customer base includes most of the leading manufacturers, both local and international. Other work includes painting train doors and components for bio-medical equipment. The first robotic line was installed in 1998, just 10 years after the pair opened their doors for business in the garage. There were some initial problems, but with persistence, the demonstrable benefits of using robots became evident. The D&M robotic production line handles consecutive operations that progress through several stages, from cleaning, inspection and priming through four or five paint applications, seamlessly.

Currently there are three IRB 5400 spray paint robots in operation, equipped with spray paint guns, and within a few months, two new, enhanced IRB 5400 robots will be installed. One “slim arm” robot for ice application and one “process arm” (integrated pneumatic component onboard) robot to allow spray painting of two components. The IRB 5400 Process Arm robot incorporates the latest ABB Pattern Control Bell (Robobel 951), which reduces paint waste considerably.

From humble start to high-tech result

Australians Darren King and Michael Von Dort realized some eight years ago that the use of robots was the way ahead if they were to be successful in the very competitive and specialized field of industrial spray painting.

Van Dort, a panel beater, and King, a spray painter, worked alongside each other in a suburban Melbourne car repair shop some 20 years ago. That was when they decided to start their own business. D&M Auto Industrial Spray Painting Pty. Ltd. Initially was a very modest operation, based in their garage, with very basic technology. Their first drying tunnel was a 200-liter drum and a domestic electric fan





Flexibility for low-volume runs

King explains that, for D&M, this new ABB technology bell could reduce the consumption of paint by 30 to 35 percent, compared with traditional spraying guns. "This reduces waste, giving us a competitive edge," he says. "The other benefit of using robots is the ability to have low-volume runs, as well as to change jobs every few minutes to cater to any application and to suit practically any size and shape. We are extremely flexible in the type of part we can handle. You could say that 'small is beautiful.'"

Why robots?

Why did D&M select ABB robots? Van Dort says that quality, flexibility, reliability and back-up service were major considerations. Day-to-day maintenance is carried out in-house by D&M staff. Another aspect of the robotic operation of the plant is the impact on the health and safety of employees, reducing accidents and work-related illness.

The robotic lines operate 12-hour shifts every day, King says, and have boosted productivity and profitability by 80 percent. He recalls one employee asking why the line didn't stop for lunch. The reply was: "Because the robots aren't hungry."

Linked to the production line at D&M are other innovative concepts, including a production log that records programs, cycle times, paint type and other relevant data of every item handled, giving a total history over a three-year period.

"Traceability is vital in being able to replicate repeat processes for any item on a recurring basis," King says. "Coupled with the ability of a robot to carry out repeatable operations consistently, we can rapidly program our production, cutting out the 'human error' factor. In fact, yesterday's spray painter has become today's operator; the robot carries out the actual painting process."

D&M's commitment to high quality was recently recognized, when the company won the Melbourne Business Award for Innovation and Excellence in March 2006. The award is valued throughout the industry. "We take ownership of the part we are processing, with quality and consistency in our process being the No. 1 factor," Van Dort says.

Automation benefits at D&M:

- Productivity and profitability boosted by 80%.
- Consumption of paint reduced by 30 to 35%.
- Flexibility increased, allowing for very low-volume runs and job changes.
- Number of accidents and work-related illnesses reduced.

ABB and the Plastics Industry

ABB's wide range of plastics robots can handle most of the tasks involved in and around injection mould machines, regardless of required cycle time or size of the machine. Together with our partners, we provide automation solutions for most manufacturing processes in the plastics industry.