

Industry: Printing /// Packaging

Products Used: Modular PLCs /// Servos /// HMIs

Servo and PLC expertise makes perfectly labelled cans

Significant improvements are being made in quality and yield of aerosol cans screen printed at James Briggs, thanks to intelligent application of Mitsubishi PLCs and servo amplifiers.



With an annual turnover in the region of £24 million and an output measured in millions of bottles and cans, James Briggs is rated as Britain's largest producer of car care products such as paints, thinners, waxes and lubricants. James Briggs designs its own printing machines and has for the past five years been working on automation in conjunction with Mitsubishi Electric systems integrator CR Solutions.

A pilot exercise which helped persuade James Briggs that full automation was practicable was suggested by Steve Bennett of CR Solutions. They took a broken machine about to be scrapped and equipped it with an MR-J2 600 watt digital servo drive in place of a traditional AC stepper. The experiment was a convincing success, demonstrating the value of the Real Time Adaptive Tuning of Mitsubishi servos and the easy installation and commissioning that result from this important feature.

In designing the printing machine, the conventional rack and pinion arrangement for rotating cans and positioning them relative to screens has been superseded by two MR-J2 servo amplifiers. These devices use absolute encoders, a characteristic they share as standard with all Mitsubishi servo systems, for high precision and accuracy in positioning. This practice achieves superior print registration with fast response. A result is higher yield of perfectly printed cans. Reject rate is down to less than 0.5%, ten times better than before, and practically all the scrap is due to inherent defects in the cans supplied.

The whole set of Mitsubishi motion control components is totally integrated. The A1SD75-P2 position controller simply plugs onto the A series PLC backplane and is then connected using pre-made cables with compatible amplifiers and motors, making for quicker and easier installation. Operator control and supervision is provided by a Mitsubishi MAC 50 water and dust proof HMI.

Following pre-registration, the system controls all actions through servo motor such as positioning a can against the screen on the first print head, rotating it under an ultraviolet curing station, indexing and accurately registering for the second print head and turning it again for final UV curing. Now the yield of perfectly printed cans exceeds 99.5%.

Application story first released February 1998 by Mitsubishi Electric UK