

Industry: Automotive /// Manufacturing

Products Used: Robots

Assembly solution for plastic mouldings uses a Mitsubishi Electric RV-E2 robot

Mitsubishi Electric robotics system integrators, Barr and Paatz Ltd, have developed a new automation solution for a plastic moulding assembly project using a small Mitsubishi RV-E2 six axis industrial robot.



The new system, developed for ITW Fastex Engineered Components, assembles a spring release mechanism into the plastic sleeves which hold head restraints into car seats. Each assembly comprises three pieces, the main sleeve which fits into the seat back, a bar spring to hold the head restraint in place and a push button to release it.

Sleeves are fed into a vibratory bowl feed hopper as mixed fittings and as each is presented to the robot a vision system recognises it as right or left and registers the angle of presentation. This information is passed to the robot which collects a spring and assembles it with the appropriately handed push button. This action requires precision to within 0.1 mm.

Application story first released July 1999 by Mitsubishi Electric UK

The RV-E's unique combination of speed and accuracy makes the complex assembly possible in a cycle time of only 5 seconds. The robot presents the completed assembly to a second vision system which checks that the spring is correctly aligned and the button correctly installed.

In the past early robots were far too clumsy for precise handling of delicate small parts and were better suited to heavy duty, modest precision jobs. However, in recent years, robots have evolved a long way. Costs have come down and speed and precision have increased out of all recognition. The purchase price of a modern industrial robot and its peripherals can be recouped within 12 - 15 months, but additional cost savings can be gained through savings in working space which is often at a premium.

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Stirling Paatz
Barr & Paatz

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According to Stirling Paatz, Managing Director at Barr & Paatz, "The dynamic performance, precise repeatability and excellent speed / price ratio that these robots offer, coupled with our integration expertise enables us to provide solutions to complex tasks in a very cost effective way."