

Robots take their pick in plastic moulding application



PCE Automation developed the MK5 robot cell to improve productivity for manufacturers of blow-moulded plastic containers. Having seen an opportunity for making improvements over existing ISBM take-out technology.

"Existing take-out solutions tend to use three-axis robotic arms to carry out a simple pick-and-place function. As a result, users often need to redesign a part of the machine each time a new project or type of plastic container needs to be processed," explained Julian Tarratt, Sales Manager at PCE Automation.

"With increased personalisation and shorter runs of products becoming popular we wanted to develop a more versatile, efficient and reliable solution. Our preferred automation partner, Mitsubishi Electric, suggested a MELFA RV-F-Q series robot with a full range of movement through six-axis articulation. Using the more dextrous robot we were able to remove traditional limitations and provide a more adaptable solution."

Integrated automation solutions for optimal performance

The resulting MK5 is a compact system, fully compatible with existing machinery, where the MELFA six-axis robot picks the newly made plastic containers from ISBM machines and holds them firmly as airflow leak tests are performed. Once the testing is complete, the robotic arm sets the containers down onto a conveyor for onward packing processes.

"Many products do not have a solid base and therefore cannot stand-up on conveyor belts transporting them to testing or packing stations. Integrating an articulated arm robot to pick them up and move them to and from the test station provides a simple solution to this problem and reduces processing and testing times significantly,"

Adapting to different container shapes is another benefit that was realised with the new solution. Ian Davison, Sales Development Manager at Mitsubishi Electric, explains: "The MELFA robot is built around flexible control via Mitsubishi Electric's MELSEC Q-series PLC, which ensures very accurate high-speed operation. Once connected to a GOT 2000, GT25 model HMI, operating parameters and settings can easily be modified by the touch of an intuitive user interface. As a result, operators can select, add or modify new instructions from the HMI without any need to re-program the robot controller."

Julian adds: "The beauty of Mitsubishi Electric's robot package is the straightforward integration of the six-axis robot with the PLC and HMI. This not only results in a flexible system, but also allows the MK5 to have a very compact design. In the new format it is even possible to move the unit around the factory floor."

PCE Automation's solution is also a valuable tool for maintaining a controlled environment thanks to the robot reducing the potential for contamination. In sensitive applications, for example when producing containers for the medical or food and beverage industry, the MK5 machine can be equipped with HEPA filters or fitted-out for use in cleanrooms.

Moulding the future of plastic container manufacturing

Several variations of the MK5 have already been designed for PCE Automation customers in different industries. "The creation of such a cutting-edge machine for ISBM take-out and testing would not have been possible without Mitsubishi Electric and its industry leading automation solutions," concluded Julian Tarratt. "We first worked with the team there 20 years ago, when we specified one of their PLCs and we haven't looked back since. We look forward to continuing to work together on developing innovative solutions for the ISBM manufacturing industry and beyond."

Image Captions:

Image 1: Mitsubishi Electric suggested a MELFA RV-F-Q series robot for the PCE MK5 application because it provides a full range of movement through six-axis articulation.

[Source: PCE Automation]

Image 2: The MELFA six-axis robot picks the newly made plastic containers from ISBM machines and can easily adapt to different container shapes.

[Source: PCE Automation]

Image 3: The MELFA robot is built around flexible control via Mitsubishi Electric's MELSEC Q-series PLC, which ensures very accurate high-speed operation.

[Source: PCE Automation]

Image 4: The MK5 supports integrated leak testing of plastic containers and provides great flexibility to adapt for different production runs, with no retooling.

[Source: PCE Automation]

Image 5: PCE Automation developed the compact MK5 robot cell to improve productivity for manufacturers of blow-moulded plastic containers.

[Source: PCE Automation]

Image 6: Once the testing is complete, the robotic arm lowers the containers onto an outfeed conveyor belt.

[Source: PCE Automation]

The image(s) distributed with this press release are for Editorial use only and are subject to copyright. The image(s) may only be used to accompany the press release mentioned here, no other use is permitted.

All third party trademarks and/or registered trademarks are the property of their respective owners and are acknowledged.

Note to Editor: if you would like the text in another language please contact Carolin Heel at DMA Europa – carolin@dmaeuropa.com.

About Mitsubishi Electric

With nearly 100 years of experience in providing reliable, high-quality products, Mitsubishi Electric Corporation (TOKYO: 6503) is a recognized world leader in the manufacture, marketing and sales of electrical and electronic equipment used in information processing and communications, space development and satellite communications, consumer electronics, industrial technology, energy, transportation and building equipment. Embracing the spirit of its corporate statement, Changes for the Better, and its environmental statement, Eco Changes, Mitsubishi Electric endeavors to be a global, leading green company, enriching society with technology. The company recorded consolidated group sales of approximately 40.7 billion dollars* in the fiscal year that ended on March 31, 2019.

Mitsubishi Electric Europe, Industrial Automation – UK Branch is located in Hatfield, United Kingdom. It is a part of the European Factory Automation Business Group based in Ratingen, Germany which in turn is part of Mitsubishi Electric Europe B.V., a wholly owned subsidiary of Mitsubishi Electric Corporation, Japan.

The role of Industrial Automation – UK Branch is to manage sales, service and support across its network of local branches and distributors throughout the United Kingdom.

**At an exchange rate of 111 Yen = 1 US Dollars, last updated 31.03.2019 (Source: Tokyo Foreign Exchange Market)*

Further Information:

Website: gb3a.mitsubishielectric.com

Email: automation@meuk.mee.com

Facebook: www.facebook.com/MEUKAutomation

Twitter: twitter.com/MEUKAutomation

YouTube: www.youtube.com/user/MitsubishiFAEU

LinkedIn: [www.linkedin.com Mitsubishi Electric - Automation Systems UK](http://www.linkedin.com/Mitsubishi Electric - Automation Systems UK)

Editor Contact

DMA Europa Ltd. : Carolin Heel

Tel: +44 (0)1562 751436

Web: www.dmaeuropa.com

Email: carolin@dmaeuropa.com

Company Contact

Mitsubishi Electric Europe B.V. Automation Systems Division : Garry Lewis, Manager - Marketing & Communications

Tel: +44 (0) 1707 288769

Fax: +44 (0) 1707 278695

Web: gb3a.mitsubishielectric.com

Email: automation@meuk.mee.com