

# PRESS RELEASE

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## Enterprising engineers use Mitsubishi Electric robot to automate printer cartridge refills



A team of UK maintenance engineers has developed a new automated cartridge refill cell built around a Mitsubishi Electric articulated arm robot. The cell quickly and accurately refills printer cartridges, making the company's recycling programme more cost effective to operate. The solution has proved so successful that it is now being rolled-out to other plants around the world.

Faced with the challenge of making one of their processes more cost effective or moving the function to another plant, engineers decided to look into the possibilities of automating the refilling of office printer / copier cartridges. Originally the process involved taking a cartridge, manually removing its cap, refilling the cartridge, fitting a new cap and finally checks weighing.

This labour intensive process needed to be changed in order to keep it cost effective and increase capacity without increasing headcount. The engineers decided to look into automating the task, hoping that productivity could be significantly increased. They called in automation specialists from Mitsubishi Electric, who not only suggested a robotic approach, but also offered to lend the customer a robot for evaluation.

Several complicated movements were required to complete the task, and space was limited, so Mitsubishi Electric suggested an RV-2F, 2kg pay load

vertical axis robot which has a very small footprint and is able to work effectively within confined spaces. The cell is still manually loaded, but then the robot takes over, manipulating the cartridge through each step. The robot also had the precision to achieve repeatability targets set for the cell.

The plant is the recycling technology center for the company. Its core business is the manufacture and recycling of toner cartridges and it is responsible for collection schemes that run throughout Europe, so product turnover is high.

The RV-F series set the benchmarks for speed, flexibility, ease of integration and simplicity of programming. Combining a wide area of coverage with the industry's fastest cycle times, the RV-F robots have provided a cost-effective means to boost productivity and consistently maintain product quality standards.

The robot cell is completed with an HMI (human-machine interface) and an MES (manufacturing execution system) module, both from Mitsubishi. The former makes stopping, starting and resetting the robot intuitively easy, while the latter connects the robot to the wider production control system providing key data and enabling effective plant visualisation.

Not only has the use of this robot ensured that jobs are protected by keeping the function at the site, but the team that developed the robot cell has gained new skills and experience and hence been designated as a robot cell development team with responsibility for similar work across the Northern Hemisphere.

More about the RV-F

The RV-2F is an entry-level model and has made it possible for new users across many sectors to reap the benefits of robotic lifting, positioning and assembling for the first time. Based on high performance Mitsubishi servo motors, amplifiers and controls, the RV-F's working envelope is a full 360o, which further reduces cycle times by avoiding unnecessary movements and also increases the tasks which the robot is able to perform. Every model has connections for pneumatic grippers, Ethernet, USB, tracking functions, camera interface, hand I/O, additional axis controller and an interface for up to eight additional axes.



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## About Mitsubishi Electric

With over 90 years of experience in providing reliable, high-quality products to both corporate clients and general consumers all over the world, Mitsubishi Electric Corporation 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, as well as in products for the energy sector, water and waste water, transportation and building equipment.

With around 124.000 employees the company recorded consolidated group sales of 39.3 billion US Dollar\* in the fiscal year ended March 31, 2014. Our sales offices, research & development centres and manufacturing plants are located in over 30 countries. 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 United Kingdom.

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