Laser Quality Markings automates repetitive machine tending process with a cobot solution

Moving from manual labour to collaborative automation frees up operators for creative work

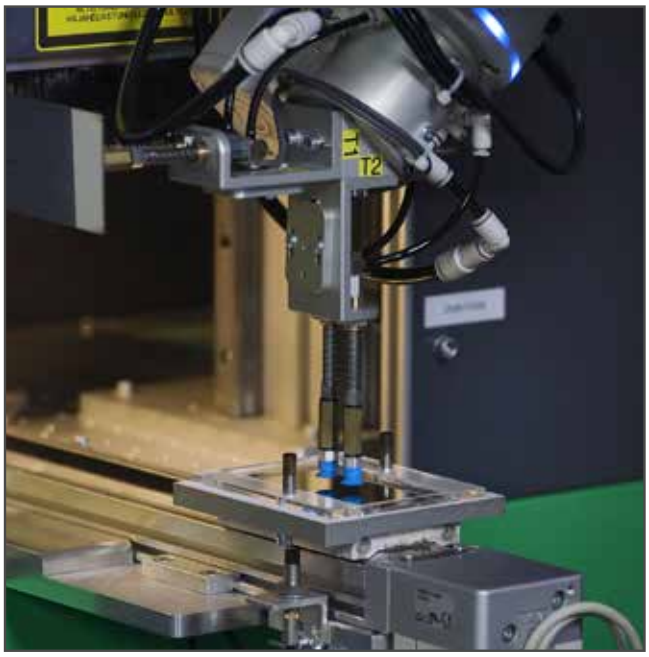
The number of potential uses for collaborative robots (cobots) in production processes continues to grow. A recent example comes from Finland, where OMRON cobots are being used to speed up and improve the production capacity of the laser marking machines at Laser Quality Markings, a specialist company based in Halikko, near Salo.

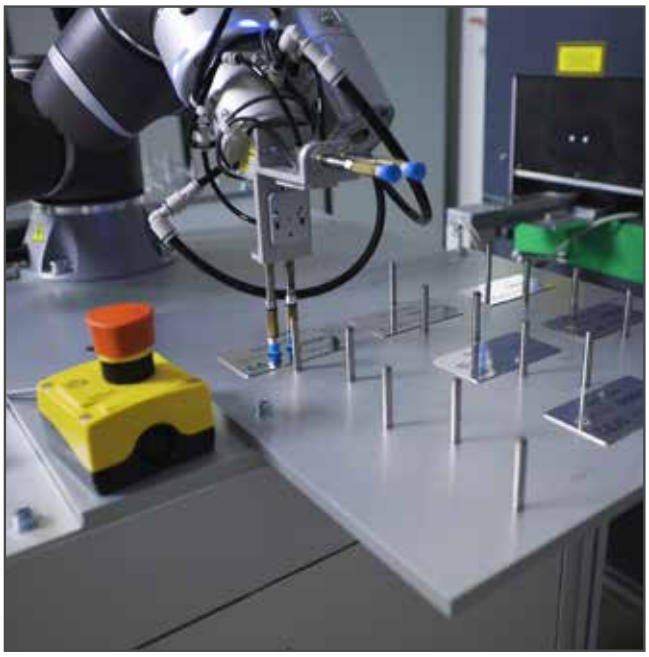
Laser Quality Markings provides permanent markings and colour patterns on a range of different surfaces - from wood and leather through to metal and plastic. Its clients (who include hospitals, industrial manufacturers, artists and consumers) expect the highest standards of accuracy, durability and quality.

The company uses world-class, unique colour laser marking technology that creates precise, permanent markings that make use of the object material itself. Recently, the company decided to upgrade and automate one of its key production processes due to a shortage of manual labour.

A need for automated machine tending

Kim Nivalinna, the CEO at Laser Quality Markings, explains: "We wanted to improve our production capacity and reduce waiting times while also being able to assign more business-critical tasks to our operators. Previously, they had to endure long waiting periods while operating the laser machine manually."





The company started looking for a suitable robot to carry out the task instead. Another Finnish company, Heina Ltd, which is also based in Halikko, recommended cobots from OMRON. Heina Ltd mainly develops innovative testing devices for the electronic industry.

Ilkka Heinä, Managing Director at Heina Ltd comments: "We at the company of Heina Ltd have noted how collaborative robots have gotten a more important role in mass production. We have been cooperating with OMRON for more than 20 years. Within this project, our role was to supply a full solution to automatize the Cajo laser marking device."

The OEM firm has worked with OMRON many times before in the past, so the two companies worked closely together again. Heina Ltd led the development of a suitable cobot solution that would meet Laser Quality Markings' specific needs, using OMRON's automation products and platform.

Ilkka Heinä adds: "We made sure that the system was safe for the human labor by doing a safety risk assessment and by using an OMRON safety scanner. The OMRON cobot picks up the parts from the feeder station and places them in the Cajo laser marking station to be laser marked."

The main need for the cobot was to provide automated machine tending for the laser marking machine. The cobot would pick up the raw material that required marking and feed the items into the machine - and then pick them out again after the process. The cobot can alarm the operator if the feeder station is empty. In this way, the system can run longer time periods on its own.

OMRON products for a total solution

The solution centres around the OMRON TM5-900 cobot. This is a collaborative robot that is specifically designed for assembly, packaging, inspection and logistics applications. One of its many functions is machine tending for CNC machines, injection moulding machines, stamping and punch pressers, grinding, and cutting machines. This type of use reduces the need for workers to carry out repetitive and potentially dangerous work.

As part of the automation platform, various OMRON products were used to build the complete solution, including an NX1P2 central processing unit; an NA5 machine interface; and an OS32C safety scanner that ensures safety for operating also at higher speeds.

OMRON's Project Manager, Aku Itkonen, says: "This is one of the first examples of the OMRON TM cobots being used in production processes in Finland. The laser marking machine tending application is very interesting and represents a perfect use of the many benefits of our cobot."

A successful result

Kim Nivalinna concludes: The OMRON cobot application has effectively fulfilled our goals of enhancing production capacity and minimizing waiting times. Additionally, it allows our operators to dedicate more time to design tasks instead of repetitive machine tending. An extra benefit is that production can now continue uninterrupted even if operators are on sick leave or away on holiday. In summary, we have achieved optimized efficiency, reduced labor costs, and attained a higher level of operational efficiency. Looking ahead, we envision great potential in expanding our capacity by building additional automated cells, enabling us to increase production and serve more customers."

About Laser Quality Markings

For more information about Laser Quality Markings, please visit: http://www.lqm.fi

About Heina Ltd

For more information about Heina Ltd, please visit: https://www.heina.net/

About OMRON Corporation

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