

Precise assembly of magnets for LITMAT's drain plugs with OMRON TM5 cobot

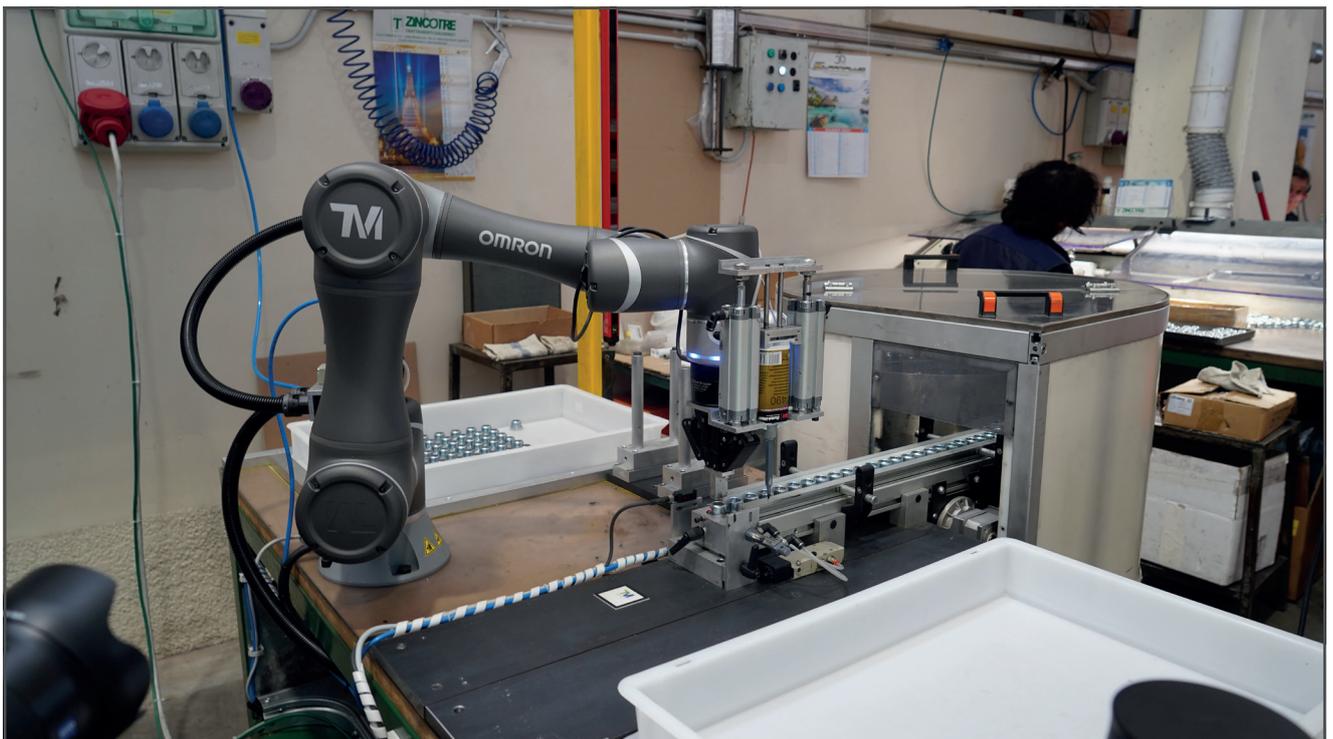
Collaborative robots (cobots) are being used more and more extensively, in a range of different industries and across a wide variety of applications. They can make a significant difference to the efficiency and productivity of the production cycle. One company that is enjoying such benefits is LITMAT spa.

Based in Turin, Italy, LITMAT specialises in the production of metal oil drain plugs for the automotive industry and for manufacturers of hydraulic, pneumatic and motion transmission equipment. The company has over 70 years of experience in supplying components for the automotive industry.

Precision assembly with cobots

LITMAT recently decided to simplify the process of assembling the magnets that are needed to attract and remove any impurities in oil. The company therefore started looking for automated solutions, which led to the choice of OMRON's TM5 cobot. This cobot is designed to be safe, simple to programme, and easy to integrate with other equipment. It represents a big step towards creating an intelligent manufacturing environment where people and machines work in harmony.

The cobot takes care of the complete magnet assembly process - including applying the glue and inserting the



The cobot takes care of the complete magnet assembly process - including applying the glue and inserting the magnets into the plugs.



The new cobot solution now enables LITMAT to assemble approximately 180 caps per hour, using a total of 1,500 parts in each eight-hour shift.

magnets into the plugs. It even verifies the amount of glue applied with the integrated camera. All of the data is managed centrally by an OMRON NX102 programmable logic controller (PLC). This can be connected to the manufacturing execution system (MES) for the integrated supervision of the entire production cycle in real time.

At the OMRON's NB Series 7" operating terminal, the operator can view information relating to the processed parts, types, rejected parts, causes of stoppage as well as timing. The operator can also modify all of the parameters so that they will meet the required formats if necessary - such as the height of the cap, the magnet and magnetisation. All of these variables are supplied to the cobot, which then proceeds with the machining according to the quotas assigned for each different part to be assembled. This adaptability eliminates the need for any expensive tooling operations.

Safety, repeatability and quality

Like all OMRON cobots, the TM5 installed by LITMAT can operate safely in the presence of personnel. Two barriers equipped with a safety module are connected to the PLC and allow the cobot to enter collaborative mode. This enables the employees in charge of sorting the magnets in the boxes to work near the automated area without any risk.

Overall, the new cobot solution now enables LITMAT to assemble approximately 180 caps per hour, using a total of 1,500 parts in each eight-hour shift. The assembly is achieved with unparalleled consistency: the cobot always exerts the same pressure on the plug, ensuring continuing repeatability and quality.



The robot always exerts the same pressure on the plug, ensuring continuing repeatability and quality.

About LITMAT spa

LITMAT spa specialises in the manufacturing of metal threaded plugs that are supplied mainly to the automotive industry (oil drain plugs) and to manufacturers of hydraulic, pneumatic, hydronic and mechanical equipment. It is the largest Italian manufacturer in this field, making a full line of plugs in different materials (steel, brass, aluminium), according to various national standards (DIN, SAE, UNI, etc.), and with any thread (metric, English etc.), cylindrical and taper. LITMAT also manufactures many different types of magnetic plugs and can make almost any plug according to the client's specifications or drawing. The company is particularly competitive in the international market in the production of cold-formed steel plugs according to DIN 906, 908, 909 and 910, and special plugs designed to customer specifications. Since 1950, LITMAT has been an OE supplier to the most important automobile and truck manufacturers in Italy for all drain and fill plugs for the oil pan, gear box and differential. Its clients include many of the most important manufacturers of mechanical components (axles, gear boxes, pumps etc.) for the automotive and industrial vehicle sectors and many important fastener dealers in Europe. www.litmat.it

About OMRON Corporation

OMRON Corporation is a global leader in the field of automation based on its core technology of 'Sensing & Control + Think'. OMRON's business fields cover a broad spectrum, ranging from industrial automation and electronic components to automotive electronic components, social infrastructure systems, healthcare, and environmental solutions. Established in 1933, OMRON has over 30,000 employees worldwide, working to provide products and services in 120 countries and regions. In the field of industrial automation, OMRON supports manufacturing innovation by providing advanced automation technologies and products, as well as through extensive customer support, in order to help create a better society. For more information, visit OMRON's website at: industrial.omron.eu