

Delta Engineering uses OMRON technology to control its new pallet assembly robot

Cardboard pallets aid sustainability by reducing transportation needs

Delta Engineering has created a versatile new robot for the in-house assembly of cardboard pallets for manufacturers. The robot's movements are controlled by OMRON's Sysmac automation platform, which provides the flexibility, reliability and accuracy required for such a complex operation.

About Delta Engineering

Delta Engineering develops complete solutions for companies in the blow moulding industry. They design and manufacture a whole range of machines for the production and packaging of plastic bottles and containers. Thanks to their focus on the needs of their customers and the actual problems that factories in the sector are facing, Delta Engineering has become one of the leading suppliers of automation solutions for the blow moulding industry. Today, Delta Engineering counts large multinational groups as well as smaller independently owned companies among its customers.



Delta Engineering designs machines and solutions to improve customers' efficiency in terms of process, labour, packaging material and/or transport costs, which also applies for the DPR200 pallet assembly robot.

Developing the new robot

Traditionally, many blow moulding factories use wooden pallets for transporting their products. The empty pallets are brought to the factory, filled and then moved to the filling factory. These transports of empty bottles between factories mostly consist of air, increasing the need for transportation. Delta Engineering realised that if cardboard pallets could be produced in-house, this would significantly

reduce the amount of road transportation needed, providing a more environmentally sustainable operation.

The company therefore developed the DPR200 pallet assembly robot, which has been designed to enable factories to produce their own cardboard pallets of all sizes up to 56 inches² (1422 mm²). The robot can be used to assemble up to 100,000 pallets in-house each year. This will help to reduce the costs, transportation needs and weight of the pallets when compared with the wooden alternatives, which are heavy and labour-intensive to handle for the operators. Another advantage of cardboard pallets is that they are recyclable in the current paper or cardboard recycling stream. Moreover, it is a space-saving solution because factories will no longer need storage space for their pallets, as they can produce the pallets by themselves whenever they need them.

However, the company needed a supplier that could provide a flexible platform for controlling the robot's movements. This included the need to create pallets of different sizes and a flexible way to glue the pallet parts. The glue needed to be applied in the correct places so that up to nine cardboard blocks, also folded by the robot, could be attached to the base of the pallet board. This could be achieved with the help of a CNC (computer numerical control) code. The blocks produced in the robot's pallet framework can then be inserted in the correct orientation on the pallet board.

Developing the solution

Delta Engineering explored various options from different vendors of industrial automation equipment and then selected OMRON as the supplier. Determining factors in the process were, in addition to good collaboration with OMRON in the past, the impressive features of Sysmac, OMRON's machine automation platform and controller, which integrates a range of activities, including motion, sequencing, safety, networking and vision inspection.

Along with the Sysmac controller, Delta also opted for OMRON's CNC code implementation in the controller; its NA HMI (human machine interface), MX2 inverter, 1S servo drives for smooth control and precise operation; and the NX safety system from OMRON. The Sysmac platform has been built to be powerful, reliable and robust and meets the high performance, speed and accuracy criteria required by the DPR200 robot.

Reaping the benefits

Koen Hendrickx, Teamleader Automation Engineer for Delta Engineering, says: "We chose OMRON because of our long-term relationship with them, their reputation for industrial automation and innovation, the easy implementation of their automation concept, and the qualitative technical support they supply. We were also impressed by the Sysmac platform EtherCAT's very fast machine network, the safety implementation, the motion concept, and the company's ability to provide the solution in a short timeframe.

"The new DPR200 pallet assembly robot will enable factories to produce cardboard pallets in-house, frequently avoiding transport and trouble involved when using wooden pallets, helping them reach their sustainability goals. OMRON's Sysmac controller has been a key item in enabling us to offer flexible design, high reliability and state-of-the-art technical components."



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About Omron

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 social infrastructure systems, healthcare and environmental solutions. Established in 1933, OMRON has about 30,000 employees worldwide, providing products and services in some 120 countries and regions. In the field of industrial automation, OMRON supports manufacturing innovation by providing advanced automation technologies and products, as well as extensive customer support, to help to create a better society. For more information, visit OMRON's website at www.industrial.omron.eu.