



Vandemoortele uses cobot to load filling line

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Food producer Vandemoortele was looking to optimise its production and considered using cobots to this end. However, they did not yet have the necessary experience. A test stand demonstrated the possibilities and allowed the company to take the next step.

Family business Vandemoortele has a rich history in the production of food products. The company is market leader in the production of bakery products, margarines, culinary oils and fats for retailers and professional users. Margarines and deep-frying fats are still manufactured at the plant which was established more than a century ago in Izegem, West-Flanders. The company attaches great importance to innovation and won the [Factory of the Future Award](#) in 2020.

Proof-of-concept

In order to boost the efficiency of production, Vandemoortele chose to invest in automation and at present they have built up experience with industrial robots, which are already being used for packaging. However, cobots were still unknown territory and the company wanted to change that. That is why they participated in the user group of the [ColRobFood project](#), which investigates the use of cobots in the food industry and allows companies to submit proposals for proofs-of-concept.

Vandemoortele wanted to check whether it was possible to load the machine with empty tubs at the beginning of the two filling lines for margarine. This task is now performed by an operator in between other tasks. He takes stacks of empty tubs from boxes that are ready for use on a scissor lift table and loads them stack by stack into the narrow shafts in the machine. When the box is empty, he cleans up the packaging material (cardboard and large plastic bag). There are two sizes of tubs, each stacked in a different way in a box.

First test setup

Sirris set up a test stand in its application lab: an UR-10 cobot, equipped with a commercially available gripper, of which the fingers were replaced by two custom-made slats, removed the two types of tubs per stack from a box and placed them in a holder, similar to the one on the filling line. This was done at a low speed, which is adequate for this application. The challenge in the operation was making sure that the tubs did not slip away and the gripper did not get stuck to the packaging in which the tubs are packed. Although it was not yet completely flawless, the test showed that there is sufficient potential with a cobot for the application that Vandemoortele wanted to automate.

Implementation

This information convinced Vandemoortele to look for a partner who could further develop and implement the solution. A suitable partner was found during the ColRobFood network event in September 2019 at the House of Food: the East-Flemish integration company KoMotion, which can boast a great deal of experience. Based on input from Sirris, KoMotion built a new test setup - with a different gripper and the addition of a turntable - in its own workshop. After that, the setup was tested in the Vandemoortele factory. Two box positions were used in this setup, so that the operator can replace the empty box while the cobot loads tubs from the second box into the machine. This was followed by implementation on one of the two filling lines.

Safety was also taken into account: in cooperation with Pilz, a specialist in safe automation technology, a scanner was placed near the cobot and several access zones were installed around the cobot. When an operator enters the yellow zone, the cobot starts working slower and when someone enters the red shaded zone, it even stops completely.

In the meantime, the cobot has been operational for several months. Vandemoortele is now considering equipping a second line with a cobot as well, so that both lines can be supplied with empty tubs by one operator. Because the operator is helped by the cobot, it is possible to work at a higher filling speed, which was what Vandemoortele ultimately wanted.

Authors



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