



BEVERAGE

FANUC for “Lambrechts for Haacht Brewery”

Task Modernise a filling line using industrial robots to process, inspect and palletise beer kegs. In order to meet demand, the line at the Haacht Brewery in Boortmeerbeek, Belgium, needed to be capable of processing 500 kegs an hour

Solution To use a FANUC R-2000iB robot connected to FANUC iRVision via the robot controller to visually inspect the kegs. Install two FANUC M-410 robots at the end of the line to palletise the filled kegs. The solution was developed by Lambrechts Konstruktie, a manufacturer of specialised machinery for filling kegs with beer

Result The line has been operating reliably since 2010. Flexibility and productivity have increased significantly. Maintenance costs have proved to be much lower than for a conventional palletisation solution



Industrial robots keep the kegs coming on busy brewery filling and palletising line

The Haacht Brewery in Boortmeerbeek, Belgium, has a filling line capable of processing 500 kegs an hour to ensure that more than 5000 cafés and catering establishments are supplied on time. The FANUC robots are responsible for processing, inspecting and palletising the kegs.

The Haacht Brewery is the third largest brewery in Belgium with an annual production of around a million hectolitres (21 million imperial gallons).

“The catering sector occupies a central place in our activities,” says Koen Van de Velde, the assistant master brewer at the Haacht Brewery. “We not only produce beers such as Primus, Tongerlo, Charles Quint and Mystic but also soft drinks, mineral water, wine and even coffee, in short everything that a café may need. Several employees are specialised in serving catering establishments and we have our own team for the maintenance of drink dispensing installations.”

One line for cleaning and another for filling kegs

One consequence of this focus on the catering sector is that a large part of the beer production is distributed in kegs, which prompted modernisation of the filling line several years ago. The Haacht Brewery turned to Lambrechts Konstruktie a manufacturer of specialised machinery for filling kegs with beer – a niche which only a few other companies in the world also serve.

Filling kegs is actually more complex than it would appear at first sight, especially as the filling must be performed in such a way that the beer does not foam and above all because the kegs on the production line must be cleaned and sterilised before filling. Overall this completely automated production line has around fifty controls ensuring that all individual operations are performed in line with requirements. The first of these controls is a visual inspection of the kegs, which are placed on the production line by a FANUC type R-2000iB robot.

iRVision completely integrated into the robot controller

“A camera located above the pallet supply line detects the kegs and transmits this data to the robot,” explains Filip Beyens, Managing Director of Lambrechts Konstruktie. “The robot has two grabs that enable it to lift two kegs simultaneously.

The robot then presents the kegs to two additional cameras, which verify that the kegs and their plungers are OK (the plunger shank at the centre of the keg) and that the cap is raised. If necessary, the robot can return the kegs then place them on the conveyor which takes them to the cleaning station.”

For the visual recognition system, Lambrechts selected the FANUC iRVision system.

Filip Beyens: “The big advantage of iRVision is that it is totally integrated in the robot controller. This means that the robot can evaluate each keg without having to communicate with the PLC. Any kegs that do not meet the criteria for one reason or another are placed on the reject line by the robot.”

Maximum efficiency

The program for inspecting the kegs with a vision system was developed by Lambrechts and is also runs in the



robot controller. All required communication is conducted



within the system. Of course, the operators can also view the images on the robot console but the evaluation is actually performed automatically by the robot controller. At the end of the line, when the kegs have been filled,

labelled and checked one last time, two FANUC M-410 robots are waiting to palletise them. These robots are located so that they can both place the kegs on the pallets. However, in normal operation, one robot takes care of the finished kegs while the other places the kegs from the reject line on separate pallets.

It was a conscious decision to install the smallest robot at the start of the line and the two larger ones at the other end. A simulation had shown that this configuration resulted in the greatest availability and maximum efficiency.

Simulation with the Roboguide software

Filip Beyens: “We used the Roboguide software to simulate the operation of the line in advance. Estimates were made of the number of rejects so that the robot workloads could be analysed. With a 3-robot configuration, we obtained a good equilibrium, with the third robot handling the pallets.”

The complete package with robots, controller, vision system and simulation software was a persuasive argument for Lambrechts to select FANUC for this type of application.

Filip Beyens: “When we started to work with robotics, 15 years ago, the technology was little known outside the automobile industry. The FANUC team explained the possibilities to us and helped us to get started. Over the years, FANUC has become a genuine partner, communications are excellent and FANUC employees are always available when we need them.”

Increased flexibility and productivity

The basis of the successful partnership between the Haacht Brewery and Lambrechts Konstruktie is good communication.

“We are proud to be a Belgian company and we prefer a local partner, which can directly vouch for the quality of its work,” says Koen Van de Velde on the subject of the partnership with Lambrechts. “The collaboration with FANUC is likewise excellent. Our operators were trained in handling robots and we have signed a maintenance contract. The robots are an essential factor in the performance of the line as a whole. The line has been operational since 2010 and we have not had any problems to date with robot faults. In addition, the cost of maintenance is much lower than that for conventional palletisation while flexibility and productivity have increased significantly.”

