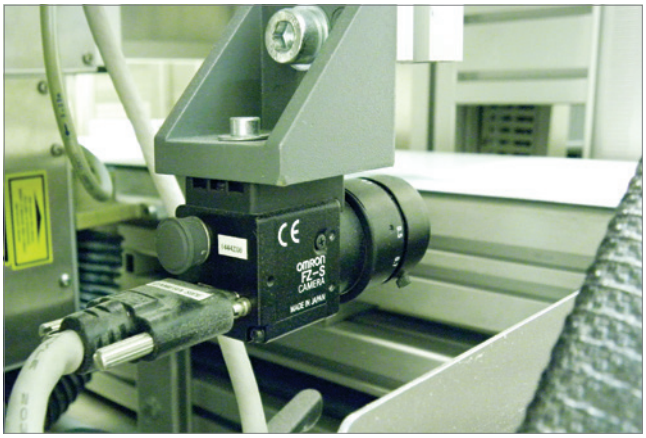
Printed packaging info verified
using touch-screen operator interface



The printing of texts (alphanumeric characters) and 2D codes on paper boxes and the verification thereof are considered as an essential station within the automatic packaging process of pharmaceutical products. In this stage of the technological process a conveyor is taking the medicinal products packed in paper boxes to the data marking device where printing is done by a special laser printer, the correctness of printing is verified and assessed by a camera and at the end of the process faulty boxes are removed from the conveyor by means of compressed air. Finished products with faultless printing on the boxes are packaged ready for delivery at the end of the technological process.

Units of the data marking device

In order to control the marking phase of the packaging process a PLC was required for operating the conveyor and controlling the printer and the verification camera. In the original solution a separate HMI was necessary for setting the operation parameters of the conveyor and checking the conveyor's operation and another HMI for entering the text and code to be printed and correcting their position. A third HMI was also needed to check the measurement and assessment results of the camera's shape recognition and control system. The units used to set up this system were an Omron controller and inspection system and a laser printer of UK based Domino Printing. Due to its complicated handling and checking owing mainly to the three-screen design, the relatively small system was a bit difficult to operate.

Advantages of the touch-screen operator interface

The request of the buyer – a production facility located at Körmend and belonging to the EGIS Pharmaceutical Factory of Hungary, where medicines are both produced and packaged – was to simplify the operation of the above described system. This simplification had been performed by the staff of Omron Electronics Kft of Budapest, Hungary, as subcontractor by using a touch-screen monitor and designing appropriate software required for its operation.

The advantage of the solution is that all details of the box printing technological phases are integrated into a common screen, while all the details of the previously elaborated operational process have been maintained. Thus, this solution represents a very economical development on the system, with the main advantages being the considerably simpler and more flexible arrangement and ease of handling in addition to the high degree of integration.

Functions of the automatic marking station

All the functions of the marking station can be seen on the main screen which consists of 6 clearly separated panels. The arrangement of the panels also follows the logical sequence of the administrative and technical preparation, execution and assessment of the technological process.

- Step 1 is to log in as this will decide the intervention possibilities available to a given user. In case of the operator's, technician's, engineer's or administrative authorisation levels certain functions are enabled or disabled depending on the extent of accessibility allowed.
- In the 2 step the layout form, content, position and angle of rotation of the text to be printed can be given in the production menu; here also the modification of all these and the content of logging can also be given.
- The 3th panel serves to set the production parameters (box dimensions, dimensional tolerance, viewing the print image).
- The 4th panel will show – in a form identical with that worked out for the previous solution – the messages related to the station's operating condition and mode of operation and to the manufacturing process that are continuously being updated on the screen by the PLC unit.
- The display will also show the camera images and thus provides a colour marked visual checking possibility to verify the quality of printing; however, upon request it will also display all the printing-related information (e.g. position, place and number of characters of the 2D matrix code and text, etc.).
- Finally, the system will display in a logged form all the operator interventions, production messages and wording information concerning the condition of the system. It is also possible to save the logbook messages and to retrieve earlier logged information.

Operational experiences

In connection with the assessment of the newly designed marking system, Róbert Németh, the plant engineer of the pharmaceutical factory had explained that "The touch-screen operator interface designed by Omron's staff members meets customer expectations in all aspects. The primary reason for that is that through its highly automated operation the system makes the job of the people working on the medicine packaging line considerably easier, as the operation of the system is simple and can be easily followed thanks to the solution that integrates the adjustment, operation and control of the functional units belonging to the marking and printing equipment into a single screen."
"The favourable experiences of the EGIS Pharmaceutical Factory

in connection with the Omron products are proven clearly by the fact" – says Róbert Németh – "that out of our 6 packaging equipment used for similar purposes 4 are equipped with cameras of Omron make, the procurement of which had been carried out on the basis of previous favourable experiences". This is why Omron's products were again ordered during the design of the marking system, but the factory's staff had not been left alone during the further development stage, either, as the staff of the company's representation in Hungary had also been involved in the development work successfully.
In respect of the project concerning the marking equipment it.

is worth mentioning that from the technical point of view the implementation of the project took place in a very short time, which, in addition to the use of the reliable products of excellent quality could also be thanked to the high standard of expertise and successful contribution of the staff members working in Omron's branch facility in Budapest. This cooperation had also proved that Omron is a reliable and highly competent business partner in the development and application of products and it should be emphasised that the solution developed fully meets and in certain cases even exceeds the customer's initial requirements.

In respect of the wide use of Omron products within the pharmaceutical industry it is very typical – as plant engineer Róbert Németh puts it referring to the pharmaceutical factory's investments – that the manufacturing company offers a complete production equipment to the pharmaceutical factory in such a manner that at the outset of the project no information is available as to what sorts.

About EGIS

EGIS Pharmaceuticals Plc (EGIS) is a pharmaceutical company focused on the research, development and commercialization of pharmaceuticals and active pharmaceutical ingredients (API). The company is principally focused on the development of human pharmaceuticals for the treatment of cardiovascular, central nervous system, respiratory and digestive system disorders. The company sells its products in several countries across the world through its subsidiary companies network. EGIS predominantly operates in the Eastern Europe and has presence across countries such as Russia, Ukraine, the Czech Republic, Poland, Romania and Slovakia. The company is headquartered in Budapest, Hungary.

About Omron

Omron Industrial Automation is a leading manufacturer of high-tech products and solutions for industrial automation. The company is part of the Omron Corporation founded in 1933 in Kyoto, Japan, and employs more than 37,000 people worldwide. The wide product range includes control, drive and safety technology, image processing and sensor systems, as well as control and switching components. The aim is to provide engineers with demand-driven, integrated automation solutions from a single source. In addition, Omron offers its customers comprehensive application know-how. as well as region-wide on-site service.