

# Packaging & SCADA

*Solutions packed with advanced technology in the packaging sector are based on SCADA system integration with packaging machines. Farcon improves product quality and system efficiency.*

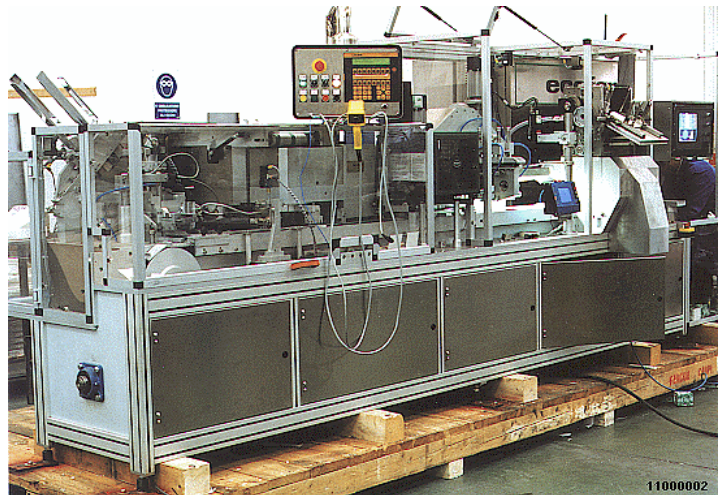
Di Federico Tusberti

The packaging sector is one of the most important for automatic machine builders. Together, Italy and Germany are the leading international manufacturers in this sector (considering that the United States and Japan manufacture packaging mainly for their own internal market).

80% of the Italian Packaging companies are located in the northern regions of Emilia Roma and Lombardia and owe their success to production flexibility and technology innovation capabilities.

An example of technology innovation has been proposed by Farcon S.r.l., a company from Carpi (Modena) well known for building quality and innovative technology applied to its machines and systems for over 30 years.

With the mission to increase production capacity while maintaining and without altering the original quality of their machine structures, Farcon S.r.l. have designed and installed management system software in the carton packaging production lines.



*The ECOFAR FDC50 cartoner machine designed and manufactured by Farcon Srl for carton packaging .*

## **The machine and the production line**

Farcon not only makes individual machines but also machines for entire packaging production lines, for which it has developed standard solutions that easily adapt to each machine in the packaging production line to work together using the same management philosophy.

Each machine works as an autonomous unit and can be easily integrated within a managerial context at zero cost. The solution adopted by Farcon implements a PLC for automation tasks, an operator interface for low level monitoring, control and reporting, and a PC for top level managing, analysing, interfacing and operator guides.

In addition to the specific mechanical solutions used, conferring system quality, velocity and reliability, the main innovation of this type of system is attributed by the PC. The use of the PC guarantees great machine deployment flexibility, great simplicity of production line integration and expansion to high levels thanks to network connection simplicity. Furthermore, optimal production line running is guaranteed thanks to a sophisticated system that guides the operator step-by-step, with a wide range of indications on operations to perform with clear instructions on where to perform them.



*The ECOFAR machine's main screen showing the machine's working parts graphically animated.*

The PC is mounted on the machine as an industrial solution but can be used as a normal desktop IBM compatible PC indifferently. Farcon chose the Movicon SCADA platform, designed and produced by Progea, and the Windows operating system for its userfriendliness. The operating system reliability is guaranteed by denying access to other applications or operating systems which can be setup in Movicon, to consent the use of those functions provided in the project only.

The PC communicates with the PLC using serial protocol and response time is highly satisfactory considering the speed at which Movicon performs being most suitable for packaging machines that must work at non-stop high speeds.

The standardization of the machine configuration consents great deployment flexibility, guaranteeing openness towards enterprise-wide at a high level thanks to the expandable network infrastructure used. The application, designed by Farcon, permits production planning and optimization, final product with relating report printouts, quick and easy manual research using on-line help.

Apart from supervising situations in realtime, the management system's task is also to set and optimize production data, format type, builder etc., in the most optimal, simplest and intuitive way possible. This task is further simplified by using the Windows platform.

By using dialog windows, activated with the appropriated buttons or a simple mouse click, the supervisory consents a rapid and intuitive setting and displaying of the machine's status and all its working parameters.

Ultimately the operator can set values according to production type in question for each type of machine in the production line (from 1 to 8). A sequence of information such as Product Code, Production Date, Operator Name etc., can be set through a dialog window recorded and stored on file.

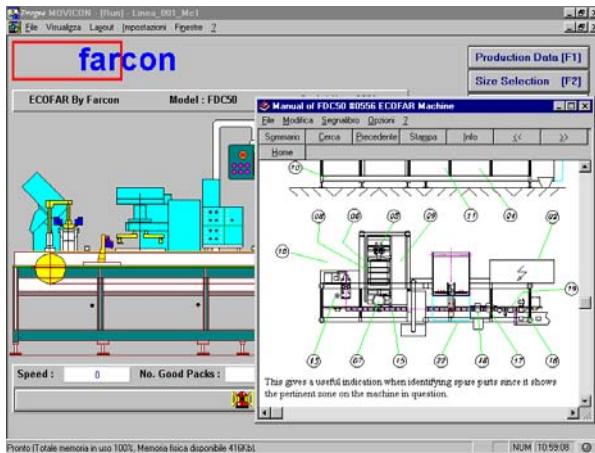


*Parameters are set through dialog windows that guide the operator in configuring the machine production process.*

One of Movicon's powerful control features, the Basic Script Language is provided for invoking the adequate commands to send variable data to the machine's built-in print systems (batch, expiry date, production date, etc.) and for managing control systems and production conformity verifications (visual inspections, bar code scanners, etc.). The various plant sections are controlled and supervised through Screen video pages. By using these simple and pleasant looking screens the operator is guided throughout the running of the plant. Seven selection buttons, presenting each enabled production line, are provided on the first screen. The production line selected for monitoring is displayed with all its parameter settings along with the machines' attached. The machine monitored, FDC50 in this case, a test tube and syringe packager in cardboard boxes, has a series of moving parts that can be displayed on screen in their real form with a simple mouse click.

Any alarm type occurrence is alerted immediately with its appearance on screen along with an acoustic sound. The help on-line is an interesting and essential feature of this system: all alarm manuals and descriptions are easily obtainable whenever needed by using an appropriate button.

The specific system diagnostic features proposed by Farcon were also realized through the alliance established between Progea and Farcon.



*The operator is guided with a powerful hypertext help rich in illustrations and links. The operator or maintenance person has full command of each situation at all times.*

The specific system diagnostic features proposed by Farcon were also realized through the alliance established between Progea and Farcon. The requirements stipulated by Farcon to adapt the supervision application to perform in line with the machine documentation, were analysed and solved by Progea at zero costs, by inserting the clients' specific functionalities into Movicon, which have now become a part of the Movicon developer package. Movicon therefore offers this possibility to anyone wishing to interface their project dynamically with any format (Movicon provides documentation compilations in HLP HTML formats), such as for machine manuals, descriptions, interactive multimedia guides (i.e. images, movies, etc.). Where alarms are concerned in the Farcon project, the operator can call on-line Help with a simple mouse click in the Alarm Window to get images, movies, descriptions, tips, change updates and other. This has allowed Farcon to reduce operating training time at the startup phase and drastically reduce maintenance interventions, usually prominent during the first year. This all contributes to client and local maintenance staff satisfaction and production improvement.

Using solutions based on PCs in packaging have greatly improved packaging versatility, quality and output efficiency. Even more so, other machine builders are starting to realize how essential this requirement is, truly saying that the Farcon experience has been a positive one. Thanks to the collaboration demonstrated by Progea, whose foresight in evolving its Movicon SCADA system towards specific needs, which can be shared commonly by all the Movicon user community, today allowing Farcon to get ad Hoc solutions in much less developing time than before, thanks to Movicon's remarkable simplicity of use.

Great interest has been shown in sectors that would greatly benefit in using these type of solutions and which have been demonstrated in the most important fairs (by Ipack-Ima and important exbos abroad and in the USA in particular).