

Filling Line Systems

The modern filling and bottling lines now run on the potentialities provided by Scada/HMI systems. Movicon proposes an example.

Bottling machine and filling plant solution providers are constantly looking for a better way to provide end customers with plant floor information systems that are capable of integrating the various types of machines used in the production line into one entity with the aim to increase productivity and drastically cut down on machine downtimes with the help of powerful diagnostics and effective guidelines. The ideal system should be capable of integrating difference types of machinery, independently from their brand names, into the production line with its kernel operating from the filling machine, which performs the main task of the



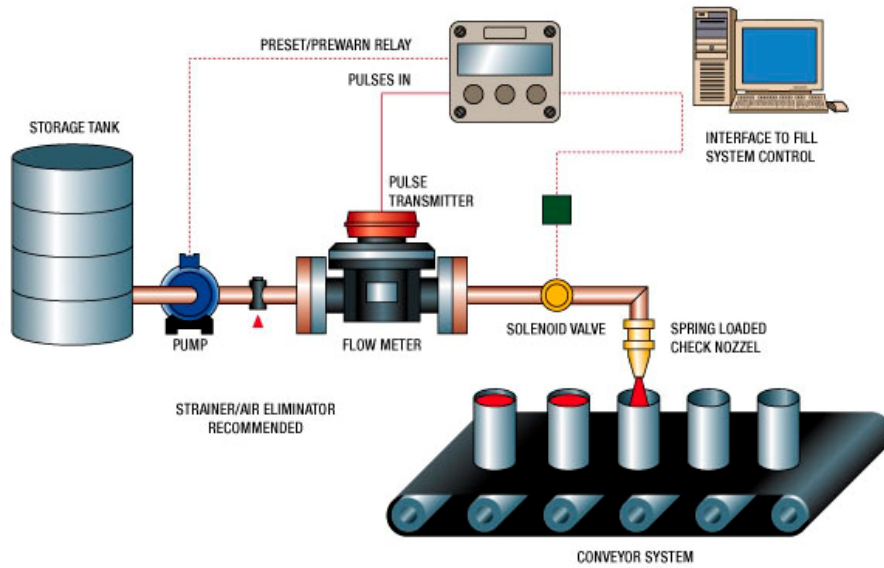
whole bottling process. The only tool qualified in making this a realization happens to be a SCADA platform (Supervision, control and Data Acquisition) which, using standard hardware such as PCs, allow all the components of the entire production line to be integrated into one managerial point where the whole process becomes easier and more efficient to manage.

Therefore machine quality is determined by the quality of how the system is managed in controlling and supervising the whole production process in the best way possible in terms of productivity and efficiency.

Architecture possibilities

A supervisory PC workstation is applied to the production line and, by maintaining the same architecture, is interfaced with the machines that are managed with normal PLCs. This allows the user to acquire information and activate different commands, of the different machine types involved in the bottling system, from a centralized monitor and control point.

Parameters can be set for each individual machine which may include a pallet dispenser, unscrambler, cleaner, orientor, conveyor belt, filler, cappers, label applicators, quality controller, packaging or stacker.

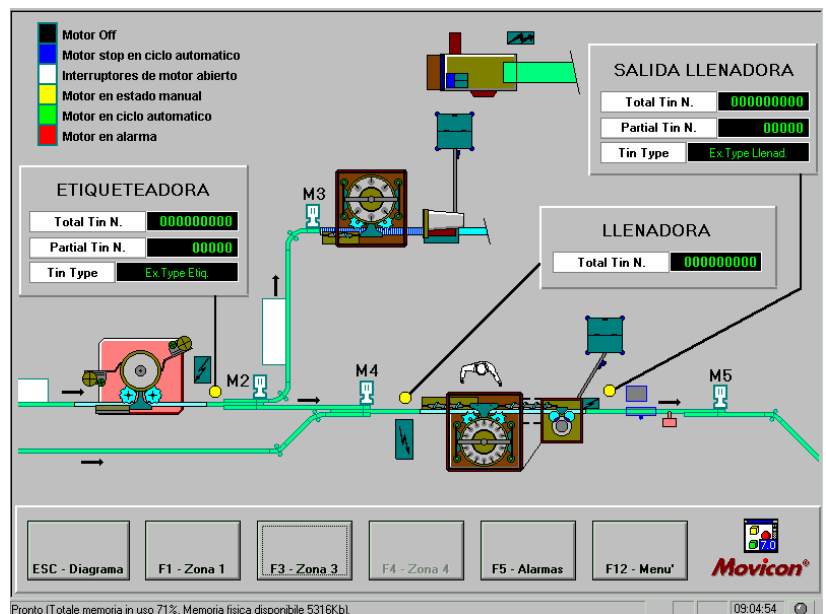


Even though these machines may be different makes, they can still be united together into one managerial system to supply and receive information and commands. The Movicon SCADA platform has numerous communication driver libraries, contemporary and performance management possibilities for a vast spectrum of different devices to allow easy PC supervision and control application. Movicon internal control functionalities (SoftLogic, VBA™) allow the user to apply Movicon to any pre-existing production line or machine where very little program modification or adaptation is needed.

Movicon cannot only be used in PC-PLC architectures. Some major companies actually use Movicon as an-all-in-one control platform to directly manage I/O peripherals distributed on a fieldbus (Bitbus for specific cases) and made possible using the internal SoftLogic which, with the IEC1131 language standard, can be easily used with a PLC-like approach according to Instruction List techniques (the Movicon SoftLogic is akin to Step7® IL logic).

This characteristic makes Movicon DCS-like with the added benefit of simplicity and intuitiveness of a modern SCADA system with a 32 bit client/server and Microsoft standard ready architecture.

The optimal results in using this type of architecture (in addition to the man-machine interface, the PC also manages logic and I/O directly) have caused great interest and demand for application decentralization. Movicon is at the forefront for being the first designed to host internal 'PLC-Like' SoftLogic right from the beginning.



An example of a screen displaying a section of an oily liquid bottling plant system in South America.

The performances, provided by its logic engine, are completely configurable (scheduled times, processing times, critical logic) to allow easy machine adaption with high precision.

The PLCs are left with task of managing critical machine process velocity unburdening CPUs of same set of tasks delegated to an operating system (video screen and keyboard management, historicals, printouts, animation graphics, trends, reports etc.).

The builder therefore evaluates and sets up the most suitable architecture based on specific client needs, keeping in mind that Movicon allows communications (serial or network) with the designated equipment, whether direct control of discrete or analogic I/O peripherals, aboard the PC or decentralized.

The advantages of using Scada solutions

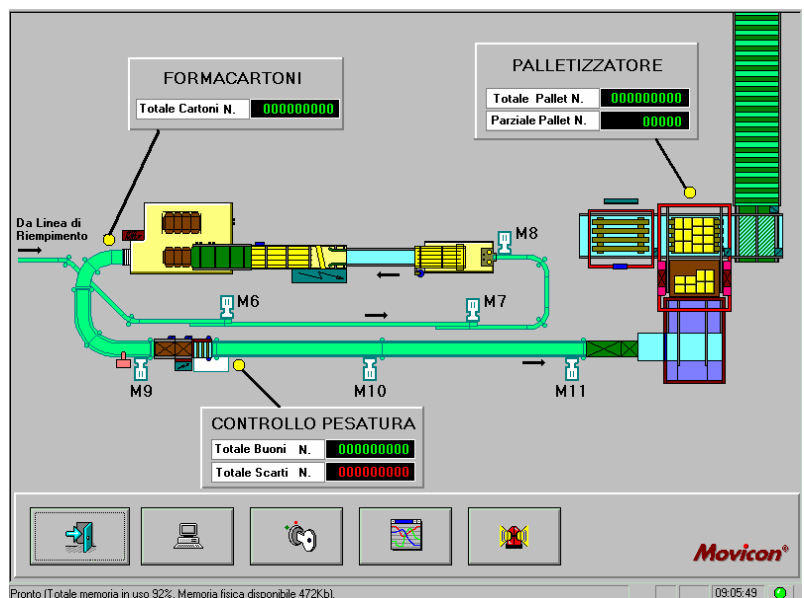
Using a SCADA solution in a bottling line means, in addition to the those generally described above, a wide range of operating possibilities which contribute significantly to a modern business management for the end user, especially when talking about security, quality and productivity. Those builders using Movicon in bottling line systems actually propose hi-tech solutions to their clients worldwide that do not require much learning time and which provide a various range of tools needed for breakdown preventions, reducing downtimes to a minimum, managing production batches and analyzing results to ensure that quality is kept up or improved on.

Among the many advantages offered by using Movicon in bottling line systems, along with the usual diagnostics, historical event archives, onscreen plant floor supervision, and production parameter management functionalities, many companies are particularly interested in the screens used for managing maintenance prevention, where a working hour count can be kept on the various machines and proposes, in function with the number of hours reached, the kind of maintenance prevention needed. Companies can create their own online hypertext help in conjunction with the type of intervention required for the different types of machines they are using. By using these pages the operator can follow the detailed instructions of each single case entered, with the help of images and photos, spare part codes and additional remarks where thought necessary. The HLP files are managed by Movicon by calling up the Help page relating to the intervention to be executed.

The powerful report management is another very interesting feature used for analyzing data gathered from the various machines or acquired and stored by the field.

Movicon provides its users with an extremely simple and powerful data acquisition function that supports the ODBC standard rendering data to external managerial systems. Movicon provides the most powerful analyzing and report functions found on the market today. The historical databases are linked to report files in .RPT format (using Microsoft's Crystal Reports) to allow sophisticated statistical reports with powerful 3D charts.

The production analysis is fundamental to the successful running of bottling systems, allowing the operator to monitor, control and supervise all the different aspects of the process, such as production totals by batch, number of bottles produced or discarded, carton or package shape and sizes handled, pallets ready



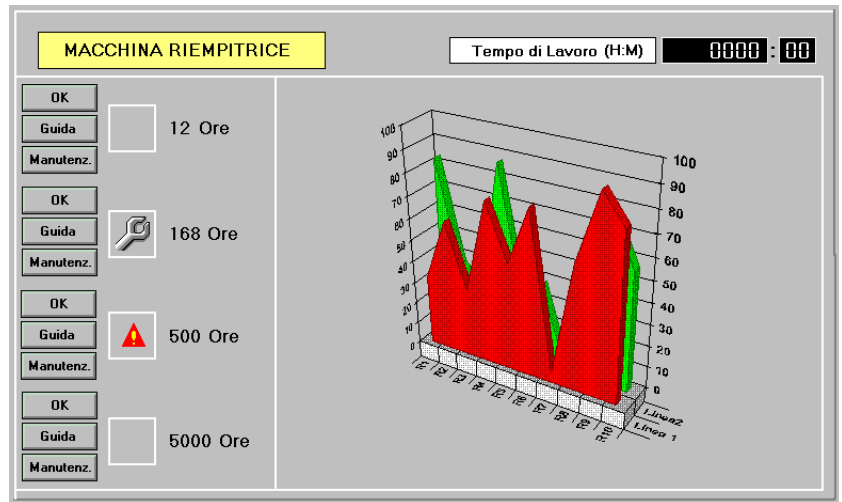
An example of a Movicon Bottling line application

for or being delivered and get hold of data instantly with a simple command or automatically be provided with end of shift printouts.

It can be rightly said that the solutions, proposed by the bottling line system builders using architecture based on the Movicon platform, are state-of-art solutions, which allow the end user to obtain guaranteed improved productivity. United with the use of a platform native to the Windows operating systems in 32 bit, ensuring the user that they will save time in learning which is made easier with the very popular Windows graphical system. User can also be assured that managerial system connectivity can be achieved costing practically next to nothing, and that investments made are safe and sound with future business and production expansions.

There are other advantages for builders in having an extremely simple system that, apart from drastically reducing application development times, allows them to save even further as only one technician is needed to operate the PLC and PC at the bottling line startup phase.

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An example of a Real-time bottling line analysis