



Uteco

Solutions for the Printing Industry

RESULTS

- Extremely versatile laminating press
- Rugged, compact and ergonomic control solution
- Reduced training/configuration/installation times
- Portability of developed software
- Excellent potential to develop new machine functions
- Data access available via web/intranet

“We wanted to develop a rapid, compact, modular and cost-effective control solution when producing our most versatile laminating press, the Mistral.”

Claudio Semperboni, Designer
Uteco Electrical Technical Department

Multiple functions in one machine

Thanks to the use of a GE Intelligent Platforms QuickPanel CE Control, Uteco’s Mistral laminating press can be easily and quickly adjusted to carry out a variety of applications for companies producing materials for flexible packaging machines.

Founded in 1985, Uteco designs and produces solutions for flexographic and gravure printing, converting, coating and lamination applications using innovative technology with maximum flexibility. Paying special attention to its customers’ requirements, Uteco quickly became a world leader in the production of machines for flexible packaging applications.

Modularity

Claudio Semperboni, a designer in Uteco’s Electrical Technical Department, explained: “We wanted to develop a rapid, compact, modular and cost-effective control solution when producing our most versatile machine, the Mistral.” This new laminating press features state-of-the-art technology. Using interchangeable modules, it was developed to be extremely versatile. The multi-process machine offers multi-purpose capabilities.



Mr. Semperboni continued, “We needed an easily configurable control system for the machine that could be readily adapted to suit any of our production models during the design stage, and which could be modified and customized quickly to suit individual customer needs. To meet these aims, we chose the GE Intelligent Platforms QuickPanel CE Control operator interface (OI) which allows us to use a common interface, database and software platform for visualization and control on our coating and laminating lines.”

The Mistral

Uteco’s laminator press is an innovative machine capable of performing solvent-based, water-based, solvent-less, dry and wet coatings, registered primer/lacquer laminations, hot melt, registered cold seal, and heat sealing.

Incorporating a sophisticated on-board control system, the Mistral can process all types of material: PE, PP, OPP, BOPP/MET, PET, aluminum foil, paper, PVC and nylon.

Today the Mistral is capable of achieving what would previously have required the use of two or more separate machines. With its interchangeable carriages it can be used to perform different types of machining processes.



Control Solution

In conjunction with the CE-based QuickPanel OI, Uteco chose Versa-point distributed I/O products, both of which are programmed with Proficy Machine Edition software. The GE QuickPanel is a robust and user-friendly integrated hardware and software control and visualization solution. A 12" panel is used for the Mistral, but panel sizes ranging from 6" to 12" can be configured to suit specific application requirements. Features include an expandable memory, communication ports, and a built-in web server for access to data and control logic via a network.



QuickPanel is the ideal choice for customers who require HMI/SCADA functionality, but do not want to use an industrial computer. In spite of its compact size, the panel offers all the usual supervision and control functions such as communication with field devices, alarm management, graphic trending, diagnostics, recipes, objects, animations, multi-language control logic (ladder diagram, structured text, sequential function chart, instruction list, function blocks, etc.). In short, all that is included in the Proficy Machine Edition software.

Since different “accessories” can be used to customize machining processes, a rapid machine configuration tool is essential. Uteco has developed SmartPack, a software suite for multi-process laminators providing intelligent, complete and automated support for management, supervision, control, monitoring and diagnostics of the processes during the entire production cycle. All that is needed is for the connector to be inserted in the carriage chosen on the machine; then production is simply activated from the control panel by choosing the required units to carry out the process.

The same application program also uses the Proficy Machine Edition software to control the movements of mechanical parts, via the fieldbus, and the cycles to control critical variables in all phases of the process.

Lamination: the QuickPanel can be used to adjust the process parameters so that the layer of adhesive is applied evenly across the entire width of the material. The roller rotation speed can be adjusted according to the type of process being performed.

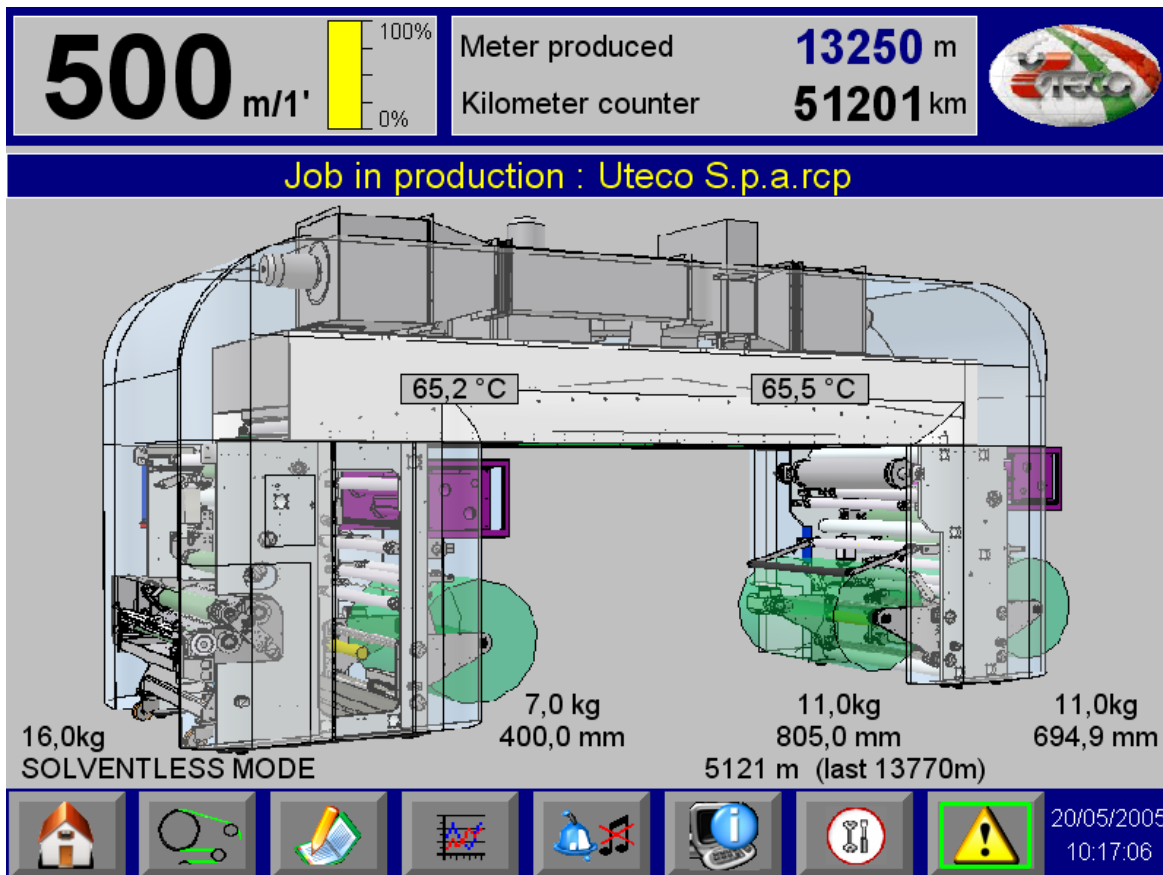
Ventilation: there are three fans inside the machine to dry the material deposited.

Unwinding and rewinding: thanks to a sophisticated axis adjustment system, precise tension control of the material is guaranteed regardless of speed or diameter.

Future plans

For a machine like the Mistral there is unlimited potential for the development of new functions. This is also thanks to the QuickPanel, a stand-alone solution combining the advantages of a compact unit offering extensive communication capabilities, even with third party devices.

Future developments of the Mistral could include state-of-the-art systems to control drives and other actuators, and the acquisition of sensor readings and setpoints directly by the panel or from a remote station using an intranet or directly via the web. The use of remote control systems could also allow several units to be managed from a central station and make it possible for diagnostics or reconfiguration procedures to be performed remotely.



The QuickPanel/Versapoint solution offers some important advantages over the classic PLC/distributed I/O systems for onboard control:

- Reduced configuration/installation times - The QuickPanel eliminates the need for programming a PLC and the entire system is configured easily from the panel using a single interface and a single product. All the variables are defined in a single environment (regardless of the source), so as to be available at all programming levels.
- Ease of use and versioning - The variables are defined and stored in a common database. This makes the programmer's job much easier, as the control logic can be modified without having to worry about low-level communication. When the second machine was built, which had modifications to approximately 20% of the original Mistral project, new software development only required 20 hours. The availability of a common software platform for all programming means fewer hours are needed to train people at Uteco and at the end-user. It also reduces the amount of literature that must be supplied with the machine.
- Compact size and ergonomic design - The QuickPanel is a stand-alone processing unit. When connected to the VersaPoint module, which handles all the signals between the machine and the panel, it is an extremely compact control station providing control, data display and external communication. The panel is housed in a NEMA 4x unit and, with an IP 65 protection rating, it is rugged enough for use in harsh environments.
- Expanded connectivity - In the Mistral, the QuickPanel communicates with the VersaPoint module, which receives I/O via Ethernet. It also provides 485 Modbus communication with third party devices which activate the roller motors. Besides communicating with GE protocols, the QuickPanel is compatible with all of the most commonly used industrial automation fieldbus communication standards.
- Remote programming/maintenance - Graphic pages can be published using Java web technology, the control system being immediately displayed in a standard browser on PCs with intranet or internet connection. This allows supervision of production processes with the relevant data and statistics.
- Software portability - For this project the HMI Proficy Machine Edition platform resident on a PC was migrated to the QuickPanel hardware platform with Windows CE, resulting in a significant reduction in space requirement. GE guarantees portability between the various platforms, which means that work performed on the panel can also be used directly on a different platform. This portability enabled an application simulation to be run from a PC before being transferred, unaltered, to the QuickPanel.
- Performance - In spite of its extremely compact size, the panel incorporates a CPU with Windows CE.Net version 4.10 multi-tasking capabilities, to guarantee control without neglecting viewing functions.

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