

## CP Series: the new, flexible Swiss automation platform

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### A manufacturing industry with needs undergoing rapid change

In an industrial production environment which is globalised, competitive and automated, the needs of manufacturing companies are undergoing profound change. Production equipment must be more flexible, modular, and interconnected. There is no aspect of the industry untouched by the digital revolution. Companies have to adapt to new, breakthrough technologies, such as artificial intelligence, 3D printing, and the internet of things. "Our unchecked approach to consumption — with ever shorter product life cycles, and new concepts launched with increasing frequency — is pushing us to develop production equipment which is flexible, upgradeable, and available without delay", explains Marcel Dubey, Chief Sales & Marketing Officer at CPAutomation. Customers want to be given budget estimations for equipment, sometimes highly complex systems, within extremely short deadlines. Last, but not least, prices are subject to constant renegotiation.

Figure 1: Marcel Dubey, Chief Sales & Marketing Officer at CPAutomation SA.

### The standardised platform democratising artificial intelligence and industry 4.0

To meet the new challenges facing the watchmaking and medical sectors, the teams of engineers at CPAutomation have spent 3 years developing the best, most flexible automation platform possible. This CP Series platform is composed of basic cells which can house a large range of standard or specialised modules. This 4.0 modularity enables manufacturing processes — such as assembly, inspection, laser engraving or welding — to be combined. When several processes need to be performed in series, the cells can be interconnected to create a production line. Based on customer requirements, the cells can be used in "standalone" or "in-line" mode. "The CP Series program is a breakthrough innovation which enables industrial companies to create their production equipment with great ease, whilst giving them access to new technologies, such as artificial intelligence and the IoT (Internet of Things), currently only available to companies like Apple, Google, or Tesla", said Marcel Dubey.

Figure 2: CP Series: the new Swiss automation platform

### Artificial intelligence facilitating visual inspection

To make the most advanced technologies available to its customers, CPAutomation has developed unique visual inspection solutions based on artificial intelligence, capable of replacing, and even surpassing, human inspection. "By mimicking the functions of the human brain, the technology enables inspection tasks that cannot be performed by traditional industrial vision systems to be automated" explains Marcel Dubey. Standard machines, designed using the CP Series platform, enable automatic visual inspections to be performed on micro-technical parts with highly varied dimensions and shapes for the watchmaking, medical, and electronics industries. Furthermore, the inspection can be quickly set up and configured by any operator, the consistency of the control criteria is maintained, the cycle time is reduced, and the traceability of customer products is assured. For the first time, a platform is available enabling inspection

which is either off-line (in concurrent operation time), in-line (synchronously) or in-situ (as part of the process, during laser welding, for example).

Figure 3: Automated inspection machine for micro-technical parts

Figure 4: The flexibility of the CP Series enables work to be performed on a wide variety of parts

## Laser technology for precision welding and engraving

CPAutomation has developed standardised picosecond engraving and micro-welding modules, compatible with the CP Series platform. The modules integrate cutting-edge laser technology. They enable exceptionally high quality interactions between the material and laser, such as welding a spiral spring to a collet, welding rotating parts, or even 3D engraving. The flexibility and simplicity of the CP Series modules enable a wide variety of materials to be machined with ease, including stainless steel, precious materials, ceramic, and titanium. The advanced algorithms developed by the laser specialists at CPAutomation enable automatic localisation and orientation of parts, and micrometric machining precision. The software and its intuitive operating interface are utterly unique. "Offering faultless precision, it is so easy to use that welding and engraving of even the tiniest parts becomes child's play", Marcel Dubey states.

Figure 5: Welding a spiral spring to a collet

## Assembly and handling modules

Assembly, laser machining, and inspection operations are only possible when the parts are supplied and positioned in the production equipment with high levels of precision and repeatability. To support the various manufacturing processes, the handling solutions developed by CPAutomation enable parts or trays to be supplied, conveyed, handled and moved within a cell or along a complete production line. If necessary, palletisation and depalletisation modules can increase the autonomy of the equipment. "It is possible to start a production run at the end of the day, and pick up the finished parts in the morning", reveals Marcel Dubey.

Figure 4: Tray conveyor and optical setup positioning modules

## An ergonomic, interconnected 4.0 platform

In collaboration with UX (User eXperience) and UI (User Interface) specialists, CPAutomation software engineers have designed the best user interface on the market, to meet both the growing demand for ergonomics, and future requirements for interconnectivity of machines and things.

Particular efforts have been made to ensure:

1. daily work is more pleasant for operators;
2. recipe creation is more efficient for adjusters;
3. reports are easier to generate and view for management.

"We are trying to get closer to the kind of graphic interfaces that we use every day on our mobile phones and tablets", explains Marcel Dubey.

The CP Series platform was developed to enable communication with the customer's ERP, MES or CAPM systems.

To ensure it provides the best service to its customers, the after-sales team at CPAutomation can remotely connect to the platform to carry out work.

Figure 7: Flexible, interconnected, intuitive, and user-friendly man-machine interface

## The CP Series platform... the future of automation is here

The flexible Swiss CP Series platform from CPAutomation is bringing the innovative breakthrough technologies of artificial intelligence, the internet of things, flexibility and modularity - previously only available to companies like Apple, Google, and Tesla - to industry, particularly the watchmaking and medical sectors. The CP Series enables customers to equip themselves with flexible, modular production lines which integrate the most innovative self-learning inspection, positioning, and laser technologies. Furthermore, the modularity and standardisation of the CP Series enable costs to be reduced by almost 40% compared to a custom-built machine offering the same functionalities, and can reduce the time to submit tenders from 6 weeks to 1 and decrease delivery lead times from 8 months to 5.

Author: Marcel Dubey, CPAutomation SA

## About CPAutomation SA

Founded in 1999, CPAutomation SA is a member of the CPA Group, providing turnkey systems based on standard programs and platforms. It can also create and provide solutions tailored to customers' needs. Its customers benefit from a broad range of skills and expertise in the fields of micro-assembly/micro-handling, laser machining, and automatic visual inspection.

## Useful links

[Download the CP Series brochure](#)

[Watch the CP Series video](#)

## Contact us

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## Figures



Figure 1: Marcel Dubey, Chief Sales & Marketing Officer at CPAutomation SA.

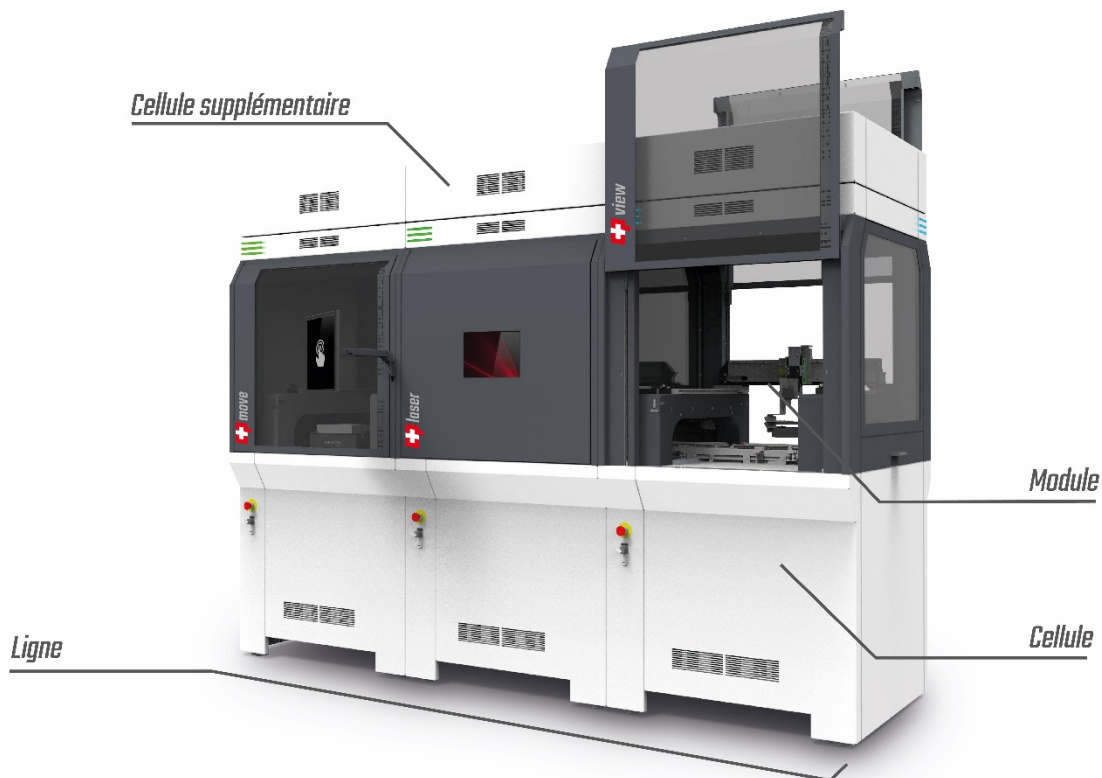


Figure 2: CP Series: the new Swiss automation platform



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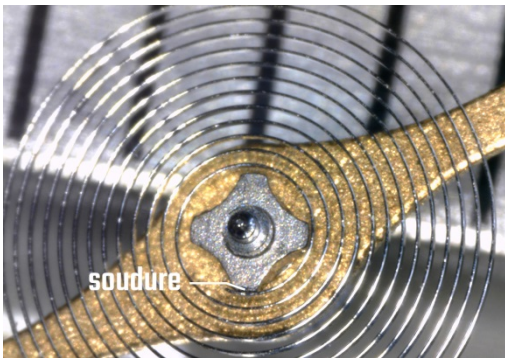


Figure 5: Welding a spiral spring to a collet

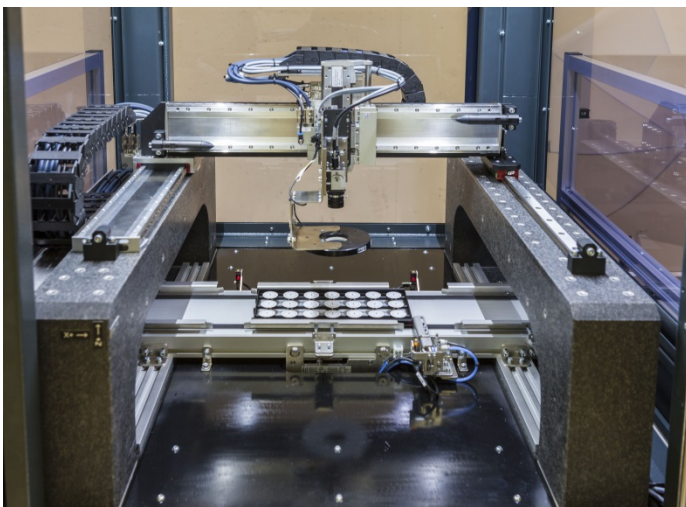


Figure 6: Tray conveyor and optical setup positioning modules

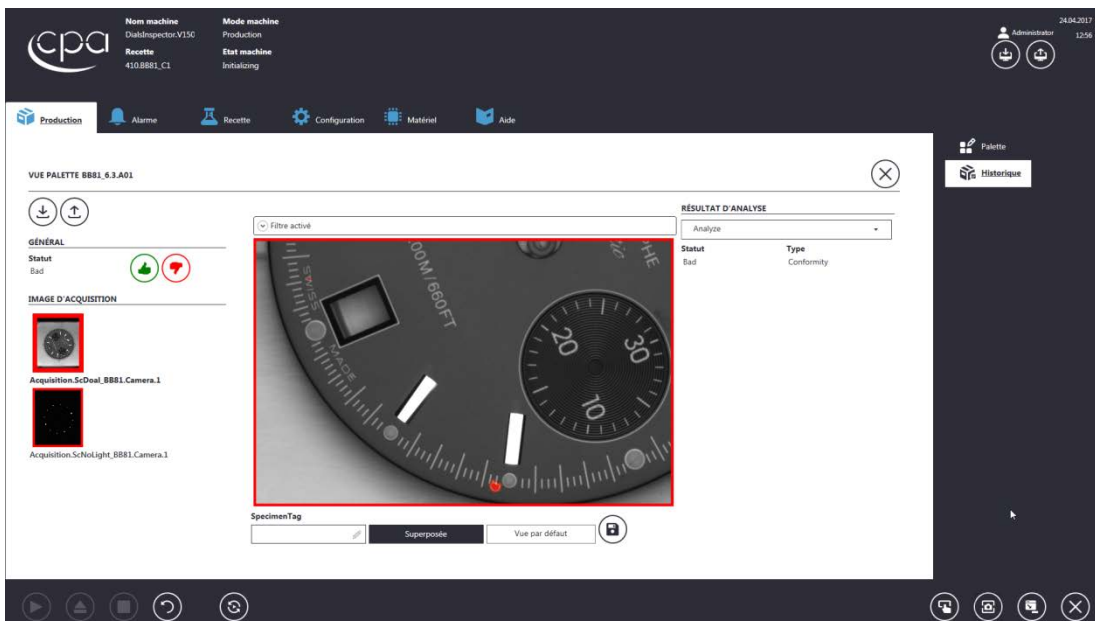


Figure 7: Flexible, interconnected, intuitive, and user-friendly man-machine interface