micro & nano *Mag*

The Magazine of the micro-nanotech Cluster of Western Switzerland

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MiCRONARC
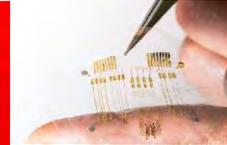
Thin-film multilayer encapsulation

Silicon nitride photonic integrated circuit
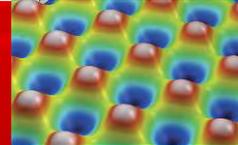
Stainless steel 3D sinusoidal surface

Western Switzerland

Nanomaterials

Micro-electronics

Watchmaking

Sensors

Time

Precision

The future of microtech

Innovation

Reliability

MEMs

Prosthetic hands with tactile sensing

Cleaner energy in aviation through electric propulsion systems

New single-piece oscillator in Zenith's «Defy Lab»

Founded in 1999, CPAutomation SA provides 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.

A standardised platform for AI and industry 4.0

Today, 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 (AI), 3D printing and the internet of things.

The unchecked approach to consumption – with ever shorter product life cycles, and new concepts launched with increasing frequency – is pushing companies to develop production equipment which are flexible, upgradeable, and available without delay. To meet these challenges, the teams of engineers at CPAutomation have spent 3 years developing the best 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.

«We offer breakthrough technologies - previously only available to Apple, Google and Tesla.»

Marcel Dubey, Chief Sales & Marketing Officer

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.

Self-learning inspection
CPAutomation has developed unique visual inspection solutions based on artificial intelligence, capable of replacing, and even surpassing, human inspection. It enables automatic visual inspections to be performed on microtechnical 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.

Cutting-edge laser technology
CPAutomation has developed standardised picosecond and femtosecond 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 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.

1. CP Series: the new Swiss flexible automation platform.

2. «CP Dials Inspector» cell.

3. Automated inspection of a dial, based on artificial intelligence.

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. It is possible to start a production run at the end of the day, and pick up the finished parts in the morning.

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, things and services.

www.cpautomation.ch