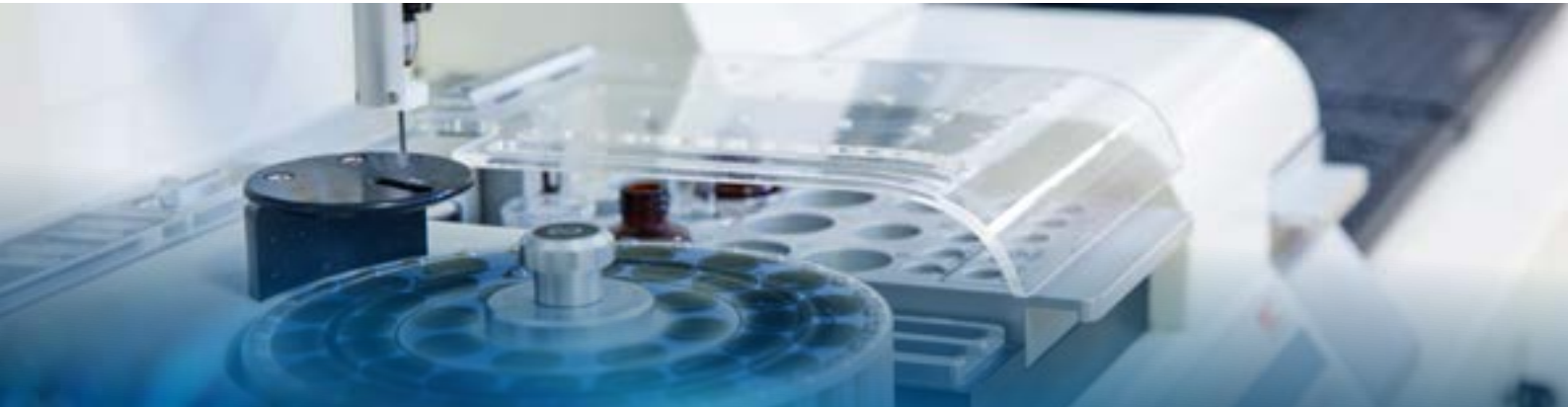




Custom Automation Workstation

Automated Filter Quality Control



Captec delivered a highly customized compact computing platform for a leading tobacco quality control instrumentation manufacturer, overcoming environmental, space, and machine interconnect constraints. Utilizing in-house specialized engineering and EMC compliance testing, the solution improved reliability, reduced instrument assembly times, and future-proofed the customer's operations while significantly lowering their lifecycle costs.

A leading manufacturer of quality control solutions for the tobacco industry, offering systems that measure and regulate the quality, length, and weight of mass-produced filters to ensure consistency and brand integrity.

They sought to implement a tech refresh for an existing computing platform while streamlining machine interconnect and integration for improved efficiency.



The Challenge

The customer required a custom industrial computing platform to enhance an earlier model while meeting constraints on physical dimensions to fit within the available space envelope. The solution needed to protect against particulate ingress common in tobacco production environments, optimize internal cabling for efficient connection/disconnection inside the machine, and provide for custom sensor connection interfaces.

Compliance with CE EMC emissions standards was essential, as was the ability to handle high data throughput from the continuous inspection processes. Additionally, the system had to be designed with future requirements in mind, to ensure machine interconnects could seamlessly adapt to hardware upgrades without requiring a redesign of internal wiring looms.



The Solution

Captec Designed and manufactured a highly customized compact computer enclosure, utilizing in-house metalwork design and engineering expertise to meet the customer's strict space envelope constraints.

Integrated fan filters and gaskets were incorporated to guard against heavy dust ingress, ensuring reliable operation in harsh environments. A custom internal wiring PCB reduced internal cabling, protected against disconnections, and presented interfaces in the most optimized way for integration into the machine—while also future-proofing the external interconnect from any internal motherboard upgrades.

Captec's in-house EMC testing lab validated compliance with CE/ FCC standards, delivering cost-effective assurance of meeting regulatory requirements. A dual LAN card was integrated to split network traffic, enhance performance, and provide redundancy. To future-proof deployments, Captec implemented clone imaging, ensuring the efficiency and consistency of software builds and mitigating the impacts of future hardware updates.

The Outcome

Captec delivered a robust, high-performance computing solution through its full end-to-end design, engineering, backed by its through-life support capabilities. By consolidating the supply chain, Captec improved quality, reliability, and product availability while also simplifying procurement for the customer. Reduced lead times and design-for-production efficiency accelerated the delivery schedule, giving the customer a faster route to market.

Through-life costs were significantly lowered through design simplification and optimization, resulting in substantial long-term savings. Designed specifically for harsh operating conditions, the platform was protected against particulate ingress that regularly compromises conventional computers, causing downtime. Rigorously validated with extensive pre-shipment test cycles ensured readiness for fitment with zero DOAs. This ensured seamless deployment into the customer's environments, while reinforcing Captec's value as a reliable, trusted partner for the customer's in-house teams.



CAPTEC

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