

DOMINO A520i CONTINUOUS INKJET PRINTER

Development of a new highly-resilient enclosure for use in harsh environments

THE CHALLENGE >

Domino Printing Sciences had identified the need for a ruggedized enclosure, meeting IP66 sealing requirements and realised in stainless steel, for their existing A-series printer range. These changes to the existing printer range would broaden their product offering to the food and beverage industry. The key challenges were sealing the entire enclosure against water & dust ingress, keeping both the ink and electronics cool without requiring a factory air source, developing a solution to meet the FCC Class B standard and packaging the printer whilst retaining existing systems and functionalities. In addition, whilst a direction had been set during early phases of the project, Domino felt there was a need to review the aesthetics and usability before launch.

THE SOLUTION >

Thermal modelling using CFD analysis enabled virtual testing of various internal layouts and thermal management concepts capable of removing heat from this high performance, environmentally sealed product. Having selected the most appropriate layout and thermal concept, a cost effective auxiliary PCB was developed and built to assure thermal robustness. Early prototyping confirmed the virtual test results, and we were able to proceed with detailed sheet metal and IP66 sealing design development. Similarly, materials were sourced to support the EMC design for meeting the challenging FCC Class B standard. This allowed us to build the first fully-functional prototype of the enclosure which we successfully tested against key thermal and environmental performance benchmarks.



In addition, by interviewing key stakeholders, our industrial design team was able to refine the overall aesthetic, with detailed consideration of the screen mounting and other auxiliary items, and, to enhance usability. This led to a cleaner, highly flexible and easy-to-use product. Throughout the process manufacturer liaison was essential to ensure the printer production could be supported.



CDP were brought on board to extend our resources during a busy period within our own R&D operation. Their team successfully integrated with our own, the professionalism and approach to problems was outstanding. They have a great depth of skillsets and were able to help us progress towards our goals in a number of key areas – Curtis Boon, Project Manager, Domino Printing Sciences

RETURN ON INVESTMENT >

The A520i launched as planned at Interpack 2014, and generated a considerable buzz at the Domino show stand. Customers were excited not only by the product's harsh environment capabilities, but also its clean stainless steel aesthetic, stackability, and flexibility in the positioning of the User Interface and traffic lights. The A520i is the first CIJ printer to incorporate the innovative plenum airflow cooling system, which CDP developed to unlock the performance of this fully-sealed enclosure – ensuring the printer stays cool whatever the production environment. Domino have not only gained a competitive advantage, they have produced a machine that is more flexible, robust and better meets their customers' needs.

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