

FUELING GAS DETECTION EQUIPMENT DEVELOPMENT



Dimension 3D Printers Allow for Multiple On-the-Fly Design Revisions for Industrial Gas Detectors

“We rely on functional prototypes to test usability, and the Dimension 3D Printer allows us to produce multiple early prototypes without the cost of a third party fabricator.”

— Mark Owens, Mechanical Engineering Manager, Industrial Scientific Corporation

Industrial Scientific Corporation relies on the Dimension 3D Printer to produce rapid prototypes for its best-selling MX6 gas detector. The prototype (left) allows engineers to test control placement and ease of use prior to finalizing design for the finished product.

Mark Owens takes pride in his role as an engineer for Industrial Scientific Corporation for many reasons, especially because his work produces life-saving safety equipment for many workers with dangerous occupations.

“Miners, petrochemical workers, utility personnel and many others put their lives at risk every time they work in a mine shaft, refinery or manhole due to the potential for toxic gas buildup,” Owens said. “Our detection equipment is the ‘gold standard’ for keeping workers safe, and our engineers are responsible for maintaining that legacy of making reliable and intuitive products.”

Owens and his team rely on the Dimension 3D Printer from the beginning of the conceptual design stage. Surprisingly, Industrial Scientific Corporation engineers don’t solely focus immediately on functionality – initial prototypes are developed to also gauge comfort and portability. How a handheld detector “fits” in a worker’s grasp, for example, is crucially important to the unit’s design.

The engineering team might spend weeks tweaking the unit’s shape and size, getting feedback from marketing and project management departments as well as from potential end-users. The Dimension 3D Printer allows Industrial Scientific Corporation to produce many different prototype iterations and get the case, button layout and surface feel just right before moving forward with product design.

“Once we’ve settled on a size and shape, we start breaking up the one-piece prototype into its constituent parts,” Owens said. “We might add some threaded inserts into the case parts to make the assembly more realistic which facilitates manufacturing involvement very early in the development cycle. This is critical to the overall success of the project, and the Dimension 3D Printer makes the whole process much easier and faster.”

Prior to getting a Dimension 3D Printer, Industrial Scientific Corporation had essentially two choices; send all model files outside for printing or machined prototypes. This would typically add many days to tight timelines and reduce the amount of feedback and interaction that could drive product design improvements. With the Dimension 3D Printer, Owens and his team can now keep more people within the company updated about a project’s progress and give decision-makers more opportunities to interact with the designs.

"Everyone at Industrial Scientific Corporation, including the executive staff, know how fast we can produce prototypes with the Dimension 3D printer and what impact that has on our development efforts." Owens said. "I have never had a problem justifying its value to our company."

Why Dimension?

Owens knows there are other 3D printing systems available, but he has stuck with Dimension since arriving at Industrial Scientific Corporation six years ago because its Fused Deposition Modeling system is a cost effective method to produce prototype parts that meet key testing demands. "The Dimension 3D Printer is the perfect fit for us – otherwise, we'd be spending five-to-ten times as much money doing all our prototyping using outside sources, plus shipping charges and time delays."



Industrial Scientific Corporation's MX6 gas detector is a lifesaver for miners and utility workers worldwide. Engineers use the Dimension 3D Printer to make full-scale prototypes for testing, ensuring a user-friendly finished product.



Industrial Scientific Corporation uses the Dimension 3D Printer to conduct form, fit and function testing "critical" to the overall success of production.

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