

Detection Perfection

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Industrial Scientific's President and CEO Justin McElhattan talks about safety with such genuine passion, that it's no surprise this company is a leader in its field of portable gas detection. He describes the Industrial Scientific philosophy as a vision to end death on the job in this century, and it's evident this company takes its responsibilities seriously.

[Industrial Scientific's products \[2\]](#), including portable multi-gas and single gas detectors and instrument accessories, are often the first and last line of defense for a tradesman working in a potentially hazardous environment. "I sit down with all new employees - and I want them to realize that there are hundreds of thousands of men and women who are right now betting their lives on the work we do," says McElhattan. "We tremble at that responsibility, but we're honored to hold that responsibility. That concept drives a lot of our values."

One Life

Values are at the foundation of much of this company's efforts, and Industrial Scientific has made it its mission to aim high. Core values for Industrial Scientific put employees first, a strategy they believe propels them forward.

"We have a fundamental founding philosophy that says, we believe that good financial performance is the result of our doing the right thing for our people first, our customers second, and our shareholders third. Anything we look at, we always start at the Industrial Scientific person and what best serves them," says McElhattan. "We think that there is magic with starting with the people inside of the company, and doing the right thing for them; empowering them, and getting out of

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their way.”

For Industrial Scientific, empowerment means allowing employees to do the right thing for the customer in every instance. This is not the type of place where hierarchies and red tape stand between skilled workers and their ability to execute their objectives in the safest and most efficient way possible. In fact, the company “compact” assures that both the company and the employee adhere to a set of promises centered around things like respect, feedback, and motivation to do good things.

“Every fiber of the company needs to be reinforcing that and not weakening that. As leadership in the company, I think it’s my job ultimately to make sure that those fibers are lined up, that people can do the right things, do them with confidence, and be action oriented,” says McElhattan. Other ways Industrial Scientific works to reinforce its goals is through a recent initiative – the One Life video series – that helps non customer-facing employees better connect with the impact of the products they are making. Salespeople take a 30 second video clip asking the customers to explain how they use Industrial Scientific instruments, and each month the company showcases the video clip in an effort to help reinforce those core values. The results have been huge, and McElhattan feels the effort drives empathy between Industrial Scientific’s employees and their customers – which ultimately results in better work. “We really want people to understand the work that they are doing. When you understand why you’re doing that work, it shapes how you do it.”

Manufacturing Safety



It's clear that the team here has a strong handle on production, and an endless desire to make it more efficient. The Industrial Scientific plant floor is a sophisticated combination of Lean material flow and dedicated work cells. A system of color-coded boards help keep track of WIP, and regular Kaizens provide a structure of continuous improvement.

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The factory floor is peppered with automation, and certain machines can place up to 110,000 components per hour during board production.

“We’ve done a good job of taking parts that were placed by hand, historically, and making it so they can be placed by a machine,” explains Ben Kessing, Director of Manufacturing for the Industrial Scientific Oakdale plant. Industrial Scientific has home grown some of this automation by reverse engineering existing equipment and creating custom nozzles on a 3D printer. “It’s an interesting way to use that technology.”

Quality control of a device designed for safety requires high tech equipment, and no detail is overlooked. “Many of the gas detectors that we ship are looking for explosive gases. Intrinsically safe means you need to certify that your product will not be an ignition source in a potentially explosive atmosphere,” explains Kessing. “Sometimes you can do that through circuit design only, but in some instances you have to encapsulate a component like a fuse so that when it blows it doesn’t create a spark. As part of that design, we have to validate – if we’re supposed to have a resistor that is 100 ohms, that it’s exactly 100 ohms.” Production floor tests look at all the components and ensure the required parts are there, and in the right values.

Besides the complex particulars of quality control, there are other challenges. Says Kessing, “We shipped instruments into 128 different countries last year, and many of those countries have local requirements that dictate alarm settings, language options, and approvals. Our products and processes need to help us deliver with our promise of highest quality and best customer service despite the tremendous complexity. We’ve gotten a lot better at doing this over time.”

Customization like sensors, colors, accessories, language, alarm settings, and regulatory labels can mean endless configuration, and software tools help assist assemblers in keeping the right parts at hand to improve turnaround time. Automated testing prevents a box label from being printed if the assembled device hasn’t passed all of the required tests needed to ship it.

Besides just devices, Industrial Scientific is very service-oriented. The company recently celebrated a benchmark in October, announcing that more than 100,000 gas monitors across 5,237 worksites in 27 countries were operating on iNet, Industrial Scientific’s Gas Detection as a Service solution. iNet was developed as a way for Industrial Scientific to help offload some of the requirements their customers face relating to gas detection. It addresses common challenges associated with owning gas monitors such as maintaining equipment, managing calibration gas, and keeping records, and also provides visibility into gas detector alarms, exposure, and usage. “Companies are under continual pressure to get better safety metrics, and since we know gas detection really well, we can take the pain of managing a gas detection program off their shoulders,” says McElhattan.

Accolades, Expansion

The next step for this company is to address the operational challenges that come with explosive growth. Industrial Scientific recently announced that its four Pittsburgh locations will soon be consolidated into one location. This past

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September, the company broke ground on the construction of a new 200,000-square-foot building to serve as the company's global headquarters. According to McElhattan, there are two main reasons the company has elected to consolidate these locations. One is strictly about efficiency and the inconvenience that comes with traveling between facilities. The other, says McElhattan, comes back to company culture.

"For so many companies, as they grow, their culture gets diluted," he explains. "What I want is for Industrial Scientific's culture to intensify as we grow; that we get better and challenge each other. I think that's best achieved when you have people co-located." This expansion, slated to complete in 2015, allows Industrial Scientific to "redefine how we conceive of, build, develop and service products," by creating an environment where product managers, for example, are more mindful of production. For a vertically integrated manufacturer, it's important that employees not wind up being pigeonholed, but instead work collaboratively in an environment that facilitates it. One of Industrial Scientific's mottos - Seek Truth, Speak Truth - takes a "get real" approach to collaboration. This dictum asks team members to avoid sugar coating a message in an effort to keep things moving in the right direction and avoid misunderstandings. "The work we're doing is preserving human life," says McElhattan. "We need to be centered on the truth. Everyone needs to be able to give direct feedback, and we need to be able to handle it graciously."

An additional practical point about the expansion is that Industrial Scientific is simply growing at the kind of pace that dictates this project. The related hiring has created some buzz in the Pittsburgh area, and the company was named the Advanced Manufacturing Company of the Year in the Pittsburgh Technology Council's Tech 50 Awards this past October. In May, Pennsylvania Governor Tom Corbett recognized the company for creating jobs and making positive contributions to the state's economy at the inaugural Governor's ImpAct Awards.

For McElhattan, the biggest impact comes from understanding the end game. "We certainly focus on efficiency; we have every manufacturing metric there is. But I would take someone who brings a heart of service every day, and is hungry to come in and serve the customers whose lives are dependent on them," says McElhattan. "I think so many times we focus on these metrics - but it's not just about improving your yield by three percent; it's about helping this person get home alive. When you do good work, the result is good productivity."

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