

Test tool accuracy more than critical to explosion suppression company

Technology at Work

To Rick Reade of Fike Corporation, an eternity is measured in milliseconds.

Fike, of Blue Springs, Missouri, designs and manufactures systems that protect against fires and explosions in business and industry worldwide. From fire protection for telecommunications facilities, hotels, convention centers and electronic switching stations, to explosion protection for chemical and petrochemical, food and pharmaceutical manufacturing plants, textile and paper mills, Fike's critical life-safety systems require the highest degree of reliability.

Dust, gas and assorted components found in manufacturing environments can create a potentially hazardous environment before you realize it. Fike's Explosion Protection Group specializes in combustion testing and designing on-site systems that detect and eliminate fires and explosions, even as they're developing. Even though they may appear instantaneous, explosions actually take varying times to develop to damaging proportions - time measured in milliseconds (.001) and microseconds (.000,001). Pharmaceutical dust may react one way, while propane gas another. Fike's combustion testing helps companies characterize what levels of danger may exist. Its protection systems are designed to respond to a specific level of hazard, stopping an incident in its tracks.

With electronics that make a hair trigger seem downright slow, a Fike system at work can respond 800 times in the time it takes a human to blink once, shutting down a fire or explosion before it gains enough heat or explosive capacity to do much



damage. In an environment where response times are plotted in micro- and milliseconds, Fike's world is one that demands calibrated accuracy that reaches beyond the imagination.

Based in Kansas City, it's Reade's job to provide training to those who will operate and maintain these suppression systems once they're on the job, whether they end up at a bowling ball factory, a cookie factory, or monitoring fuel at a Titan 5 launch pad. In 1999, the U.S. Drug Enforcement Agency asked Fike to determine the flammability of seized drugs it would be destroying in a new facility it was creating for just that purpose.





"It's like working for The Discovery Channel," Reade said. Or being on it. In 1998, Discovery's World of Wonder aired a segment on industrial explosions titled "Fireball," featuring Fike's explosion protection technologies.

With mechanisms that sensitive, Fike systems are tested all along the manufacturing route, from order to installation and beyond. "We test every aspect of the system," Reade says. "Wiring resistance, output circuits, how long it takes to put out enough electricity to fire the circuit."

Continual testing is an integral part of any suppression system once it's installed, as well. Regulations require that certified technicians completely test a protection system every 90 days.

Fike contracts that maintenance to certified technicians across the world. To ensure each is trained to Fike's exacting specifications, Reade and his team provide comprehensive training and support, both at Fike certification workshops and on site.

"Technicians come to a five-day class at Fike in Kansas City," he says. "They're tested at the end and if they pass, they're certified for two years." Some larger customers sponsor in-house technician training.

Because of its specialized nature — and the life-or-death responsibility that rides on its

accuracy — Fike provides each certified technician with a Fike toolkit. "We have very specific tools to test and service this equipment," Reade says. "Our systems are pretty exclusive. They require tools that can handle that level of demand. Some tools we've designed ourselves, some we have come to rely on so much that we include them in the tool kits."

Because he is training technicians with varying backgrounds to understand, maintain and certify such complex systems, Reade needed to develop training manuals and tool kits that were both thorough and easy to understand. Fike's curriculum, while stringent, is specifically designed to allow someone with no scientific or little mechanical training to use the full capability of each tool in ways that provide the exactness required by the sophisticated electronics.

"It is very important that the instructions, the training and the tools we use be easy to learn," he said. "I've been able to get this system to people who have no background in the field at all and have them understand it."

An integral part of the Fike operations and its training tool kit is a ScopeMeter® 190 Series hand-held oscilloscope from Fluke Corporation. The ScopeMeter 190 combines a powerful oscilloscope, a digital multimeter and a paperless recorder in one compact, hand-held test tool, and its new 190C Series adds a full-color display and even faster waveform update rates. The ScopeMeter 190 and 190C provide the hair-trigger measurements Fike production systems demand with a portability and ease of use that Reade's on-the-job technicians require.

Since Fike tests each of its systems throughout production, before giving final sign-off, after installation and routinely after that, the ScopeMeter gets a good workout. "We use the ScopeMeter for many tests," Reade said. "In one, we use the ScopeMeter as a stopwatch. We

hook it to the input side of our main electronics controller and trigger the system. We check to see how long it takes the control panel to receive the signal to set off the pressure relief devices."

Calibrating a protection system that must respond in fractions of a second requires the next generation of test tools and a way of constructing a training system that leaves no room for error. Fike ensures system reliability through its design expertise and thorough extensive quality testing. It helps its customers maintain that level of protection by providing access to on-going certified system testing. By pre-packaging the curriculum and test tool kit, Fike ensures everyone who goes through Reade's program is ready to join him in an environment where the blink of an eye is way too slow.



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