

Protecting automated controls to enhance fire safety

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Sprinklers are an essential component of a building's fire protection system. Automation can enhance safety, as well as ease of use, but this means that the control system requires its own protection. Grifen Sprinkler Solutions requested Spelsberg UK to provide high durability enclosures that could withstand the demanding environment. The service required digital printing as well as CNC machining, but it was essential for this customisation to maintain the integrity of the enclosure.

To protect from the threat of fire, sprinkler system design and manufacture is governed by strict standards. Though these regulations are highly robust, some sprinkler system manufacturers say that standards can be extended further.

“Key aspects of protecting a sprinkler system's backup and maintenance, for example, are not completely included in the regulations, but ensuring the long-term electrical reliability of the system is important to optimise safety,” says Gary Noble, Managing Director of Grifen Sprinkler Solutions.

In the event of a water leak in the sprinkler system's supply, the resulting pressure drop would typically cause the pump's motor to temporarily kick in, as if it were reacting to the activation of the sprinklers. These motor re-starts would happen continuously, drawing repeated high current and damaging the motor's windings. Instead, Grifen's Asset Protect functionality upholds long-term reliability by putting the system into safe mode and generating an alert, enabling rapid maintenance.

Optimising protection

Features like Asset Protect are the result of Grifen's holistic focus on fire safety. The company supplies sprinkler system contractors in the UK and Ireland, with systems designed for domestic, industrial, and commercial buildings. This ranges from Category 1 residential dwellings through to Category 4 tower blocks above 18m, including the highest EN 12845 standard.

Even Grifen's sprinkler systems for individual residences are electronically controlled by an industrial PLC, with logic control and software functions authored in-house. At the other end of the scale, Grifen's fire sprinkler systems for Category 4 commercial properties include remotely controlled testing on a weekly basis. This optimises safety by providing more regular tests than the regulations require and reduces the resources necessary for on-site inspection.

Automation enhances safety

The system's electronics need a high level of protection. In the event of a fire, the enclosure must be able to withstand the initial heat. Then, the unit has to prevent water ingress when the sprinkler system is activated. The enclosures also have to be sufficiently durable to protect the electronic controls from any impact. Grifen uses Spelsberg's high-durability industrial enclosures, manufactured from polycarbonate. These boxes protect in temperatures up to 80°C, sufficient to match the rating of the electronics, and they endure until the sprinklers activate to quell the heat. The enclosures can also withstand water jets and provide a high IK09 impact resistance rating.

To accommodate the automated system's multiple cable connections, as well as the control unit's digital display, every enclosure requires a CNC machining process.

The digital display window, as well as the cable entry points, must be cut in specified locations and to exacting dimensions. Crucially, when the display and the cables are installed, the surrounding gap must be sealed to uphold the level of ingress protection.

High durability enclosures

Spelsberg provides all CNC work on-site at its Midlands facility, and although Grifen supplies its own drawings, Spelsberg's technicians can also create CAD designs. Providing a test prototype in days, Spelsberg then despatched the full quantity of Grifen's order in less than three weeks. As a result of the enclosure's precision CNC machining, combined with specially designed cable glands, when Grifen installed the control unit, this upheld the high IP rating.

"Spelsberg's machining ensures repeatability," says Gary. "It's also a fast turnaround, so it's become a key service for us."

Although Grifen's control unit is designed to be accessed remotely, or via the digital display, the device is still required to present a variety of user and safety information. Spelsberg provides Grifen with digital printing directly onto the enclosure, providing a highly durable, long-lasting finish. Combined with Grifen's graphic design, Spelsberg's printing service also ensures a professional presentation.

Time-saving service

"Previously, we used stick-on labels. Printing directly onto the box is much more hardwearing, and it saves us significant time resource compared to manual application. It also ensures a high-quality finish," says Gary.

While the capability of Grifen's systems lay within its software functions, supported by the quality of flow control hardware, the protection of the automated system is fundamental.

"We're committed to Spelsberg for our enclosures," says Gary. "We've put our faith in this process, and the quality of the service means there's no going back."

Image captions:



Image 1: Spelsberg's high-durability industrial enclosures, manufactured from polycarbonate.



Image 2: Sprinklers are an essential component of a building's fire protection system.

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About Spelsberg

Spelsberg is one of the largest manufacturers of electrical enclosures in the world. With over 4,000 enclosures available as standard and further customisation possible, it offers solutions for almost any application.

With the largest supply of non-metallic enclosures, ex-stock in the UK, its products are often available for delivery within 24 hours; customisation is possible on any product, including bespoke entries, engraved corporate logos or fitted terminals, within 48 hours. Products can be ordered direct from Spelsberg or from most leading supply specialists including RS, Rapid, Farnell and CPC.

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