

Fire protection enclosures: choosing between connection, fused, and safeguarded fused versions

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Selecting the right fire-protection enclosure is essential to maintain the operation of safety-critical systems during a fire. Spelsberg's WKE enclosure range offers a choice of standard connection and fuse versions, enabling designers and installers to achieve the protection, connection flexibility, and safety performance across an installation.

Chris Lloyd, Managing Director at Spelsberg UK, explores the options.

Critical equipment for fire safety, ranging from lighting to smoke extraction systems, depends on a safe and reliable electrical supply. To ensure this, industrial enclosures are essential to protect electrical connections, and Spelsberg's WKE range can endure for up to 120 minutes in the event of a fire. Depending on the installation, the enclosure might need to protect a cable connection or provide additional circuit protection through fusing.

The main categories of WKE enclosure for fire safety includes standard connection enclosures, fuse holder junction boxes, and safeguarded fused branch housings with integrated fuse connections. Each enclosure type can provide the required level of fire protection dependent on application requirements and making that choice is a key decision for system designers and installers.

Fire protection for connections

The WKE standard connection enclosures are the solution when the aim is to connect, extend, or distribute fire-resistant cables to maintain operation during a fire. While these housings include high-temperature-resistant ceramic terminals, they don't include fuse fittings, and as a result, they're selected when circuit protection is provided elsewhere in the electrical system.

These enclosures are designed to provide electrical functional integrity for between 30 and 120 minutes in the event of fire, depending on the model of selection. This is combined with IP66 protection, making them dust tight and able to withstand water jets, plus high-level IK08 impact resistance. Based on a thermoplastic housing, the enclosures feature flexible terminal positioning with external fixing lugs for faster installation.

As a typical application for a standard WKE connection, an emergency lighting circuit supplied from a protected distribution board may require a junction along its route. In this case, the WKE enclosure maintains electrical functional integrity by protecting the cable connection, while the existing upstream protection safeguards the circuit.

Protecting downstream circuits

If a branch circuit requires its own independent protection, or if a smaller load needs protecting from a larger supply, a WKE fused enclosure is recommended. Hosting an integrated fuse holder, these enclosures allow a fuse to be installed to provide local protection for a downstream circuit. As well as safeguarding cables and equipment, this approach allows faults to be isolated locally, saving significant time in diagnostics and maintenance. Crucially, an enclosure with a fuse prevents one fault affecting multiple fire safety systems, while keeping critical devices protected within fire-rated insulation.

These enclosures combine the fire protection characteristics of the WKE range with one or two integrated fuse holders. A significant advantage for fast access and simple management is that the fuse holder can be accessed after installation. Once the circuit has been made safe, the enclosure's protective cover can be unscrewed as part of an appropriate maintenance procedure to access or change the fuse.

An ideal situation for use of the WKE fuse holder enclosure version is the protection of emergency lighting circuits branched from a fire-resistant supply cable. Individual lighting branches require protection, and a fused WKE enclosure allows each branch to be protected while maintaining fire integrity.

Fire protection for branch connections

WKE enclosures with integrated fused branch connections are designed for installations where a supply must continue through an installation while providing a separately protected branch. These enclosures include a factory-configured fused branch within the enclosure, combining cable connection and overcurrent protection while maintaining the electrical functional integrity of the installation.

The integrated fused branch connection enclosures are a pre-engineered solution, providing standardisation for installations that need defined branch protection. They can be supplied with a replaceable fuse cable, or an alternative such as D01 fuse socket, designed around a specific fused branch. Like other enclosures in the WKE range, they're designed around E30-E90 functional integrity and incorporate appropriate IP and IK ratings.

As an installation example, if a commercial building has a fire-protection circuit supplying multiple emergency lighting branches, an enclosure with an integrated fuse can provide a protected output to the branches while maintaining the safety of the main fire-resistant cable route.

Fire-protection enclosure selection

A useful tool to identify the ideal fire-protection enclosure is the WKE Product Finder. The online configurator, [which can be accessed here](#), guides designers and installers through a concise series of questions, such as fuse requirements and functional integrity rating, to identify an appropriate enclosure.

Spelsberg's enclosure engineering team are also available to provide guidance over the phone or in person to advise on optimising fire safety protection, while ensuring the most efficient design and installation - [contact us here](#).

Image captions:



Image 1 : Safe connections when it matters most. Spelsberg WKE junction boxes deliver certified fire resistance for critical emergency systems.

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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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