

The whole package: why an industrial enclosure is about more than just the box

Choosing an industrial enclosure is seldom just about the enclosure itself. It has to meet the right level of quality and standards, but frequently an off-the-shelf design won't meet design needs. If customisation is required, let alone a bespoke design, choosing an enclosure is more about your choice of supplier.

Chris Lloyd, Managing Director, Spelsberg UK, looks into the considerations to make when choosing an industrial enclosure.

An industrial enclosure must be sufficiently constructed to protect whatever's inside it – and if that means electrical distribution, the enclosure has also got to provide safety to people coming into contact with it. To achieve this, the enclosure should fit your design and installation environment to ensure safe and functional performance, which can mean customisation or even bespoke design. If any stage of customisation isn't executed to the required standard, at best this can impact the installation deadline; worse still, it can lead to field failure. For these reasons, when it comes to choice of industrial enclosure, you're never just buying a box: it's crucial to pay close attention to your design and how it's going to be executed.

Starting with the enclosure itself, it's got to suit the application setting, whether that's cast-in-place concrete for a hotel construction, an outdoor railway terminal or the ceiling alcove of an office. Considerations on protection against the elements such as water and particulates (IP rating), UV rays and impact resistance (IK rating) are essential. The enclosure should also enable rapid, simple component installation, which means flexibility over positioning of fixtures and cable routing, also allowing for easier access during field maintenance.

Spelsberg UK holds the largest ex-stock supply of non-metallic enclosures in the UK, with over 4,000 standard enclosure designs to choose from, yet requests for customisation are commonplace. Computerised numerical control (CNC) capability from Spelsberg's Telford facility takes care of straightforward requests to cut holes for cable glands, through to complex requirements which could include machining of intricate vent holes or accommodation of specialised equipment, such as scanners or cameras. Milling, drilling and thread tapping are regular aspects of customisation, and ultrasonic welding can also be used, for example to attach new fastening points for electrical assembly.

Cutting multiple radii, precise angles or dimensions means that if exacting requirements aren't met, the enclosure could be damaged or component fit could be compromised. This could impact IP rating or affect the enclosure's ability to fulfil its designated task. Keeping CNC machining as the responsibility of your enclosure provider is therefore a sensible approach.

Customisation usually involves scanning a detailed customer drawing, which can be read directly by the CNC machine. The ability to directly scan CAD drawings enables the creation of intricate designs which previously would have been extremely time consuming, if not impossible to achieve. If a customer isn't able to provide a CAD drawing for their customised specification, Spelsberg can create them. This level of service demands not only the expertise in CAD, but also the flexibility of the enclosure supplier to accommodate the design from the bottom up. The benefit to the customer is time saving; it means that they don't need to invest in in-house CAD capabilities and that they can receive expert assistance.

Where customisation of an existing enclosure design doesn't fulfil the specification, completely bespoke designs can be created. With bespoke projects it's crucial that the manufacturer can work with your needs to advise on what's achievable in practical terms. Spelsberg can create a prototype within a week and this process is invaluable to the customer to qualify how the design can be achieved before launching full-scale production, removing the risk and demonstrating viability in real-life form. This process also includes testing to ensure aspects such as IP rating and UL are met with the bespoke design.

Personalisation of an enclosure also includes printing. This can range from a company's name and contact details through to instructions, and Spelsberg can print any text or image directly onto enclosure lids or sidewalls. Where longevity is important, such as is the case with written safety instructions, engraving is an option to secure permanent text. Special enclosure coatings can also be applied, for example military or heavy-duty requirements, and virtually any colour of enclosure can be moulded. Concerning material choice, polycarbonate is frequently selected for its highly robust qualities, as well as ABS thermoplastic, to variants with properties for fire-resistant applications, such as Spelsberg's WKE Lifeline enclosures which can maintain integrity in a fire for up to 90 minutes.

If a supplier can also assemble your enclosure with your components, this can save significant time and resources. Spelsberg can assemble an entire unit, which could range from a standard distribution board to a keypad and wiring loom. During the ongoing Covid-19 pandemic, this capability has provided a significant advantage to customers with reduced staff levels. Special packing requirements can also be fulfilled, using specific containers or packaging depending on delivery requirements. A recent project for electric car charging points required special packaging to ensure secure handling and shipment of the enclosures, as well as appropriate branding.

Customisation, from CNC machining to assembly, can alternatively be provided by a third-party. The main challenge though involves expertise and accountability, at outset for delivery and installation, but also to ensure trouble-free use in the field. Instead, the benefit of working with a single supplier means accountability for a smooth product development process. Crucially, it also means confidence over the lifetime of a product, which could be installed for 20-years plus.

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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