

Customised distribution boards increase productivity for van conversions

29 April 2025

An electrical distribution designer, commissioned to develop a system for mobile repair vans, needed to save time in distribution board preparation. Stuart Smith Engineering Services needed to customise the boards to integrate ammeter displays, but when they found an enclosure manufacturer that could provide CNC machining in-house, their productivity tripled.

In modern vehicle production, aesthetics are vital. More than 80% of wheels in the automotive sector are diamond cut, where the wheel's surface is precisely machined using a diamond-tipped tool, creating a polished finish with a metallic shine. These kinds of wheels are, however, prone to damage. To maintain them and protect from further deterioration, there's a strong market for their repair.

Kings Fleet Services is a van conversion specialist based in Tamworth, Staffordshire, and provides vehicles for the automotive repair industry, including vans dedicated to maintaining diamond cut alloy wheels. The company offers a choice of vehicles, including the D1 Diamond Build that features a mobile CNC lathe to achieve a complete, mobile refinishing service. The vehicles also include an air compressor to feed pneumatic tools and lacquer application, as well as various power tools.

Distribution for mobile vans

The vans' electrical supply can be fed from plug-in cables, a generator, or optional battery units. Managing the supply onboard the vehicles, Kings Fleet Services relies on Stuart Smith Engineering Services, which specialises in electrical distribution and

control solutions. To achieve the necessary mobile and transportable standards, provide safety for maintenance technicians, and protect sensitive electrical equipment, the vehicle's electrical distribution requires robust protection.

Previously, Stuart Smith Engineering Services provided a distribution board enclosure procured from a local electrical wholesaler. To accommodate digital displays for two ammeters, installed to monitor the circuit for the compressor, as well as the electrical supply for the lathe and additional sockets, the enclosure required customisation. This included two cut outs that were painstakingly cut by hand using a multi-tool. As a result, each distribution board took around half a day to prepare.

Looking for a more efficient solution, Stuart Smith Engineering Services approached enclosure designer Spelsberg UK, which specified its AK 14 Plus distribution board in replacement. The crucial advantage was that Spelsberg could provide a CNC machining service in-house, supplying the enclosures with the holes pre-cut, removing the workload from the electrical specialist and making the process significantly faster.

CNC machining saves time

“Using the customised Spelsberg enclosures saves us a significant amount of time, and now we can complete six distribution boards within a day,” says Adam Thraves of Stuart Smith Engineering Services. “As the holes are CNC milled, the quality is precise and consistent, achieving a safe and secure product that Kings Fleet is very happy with.”

The surroundings of the CNC-machined holes are protected with durable flange seals that maintain the enclosure's IP65 rating. The distribution board provides 14 modules, which Stuart Smith has used to integrate 14 miniature circuit breakers,

and the enclosure is rated to an operational voltage of 400V. The housing also features a ventilation system to prevent condensation.

To apply branding and to label the ammeters on the distribution box, previously, adhesive stickers were applied, but the stickers would deteriorate and peel off over time. Spelsberg was also able to provide in-house printing, applying the design directly onto the enclosure.

Rapid availability

“The boards look a lot more professional with direct printing on the enclosure, and the finish is a lot longer-lasting compared to using stickers,” says Adam. “As the enclosures are supplied to us ready-printed, this saves us more time.”

Stuart Smith Engineering Services develops the electrical distribution system for six vehicles per week. So far, Spelsberg has provided 40 distribution boards from an ongoing order of 100 units, and to ensure rapid availability, the enclosures are provided on a call-off system.

“When we order six boards, Spelsberg prepares an additional six enclosures that they hold in stock, so boards are quickly available for our manufacturing process,” explains Adam. “If Kings Fleet require more than six systems a week, Spelsberg can send us additional boards for next-day delivery.”

Increasing productivity

When Stuart Smith Engineering Services provides Kings Fleet Services with the completed distribution boards, installers from the van conversion company fit the boards onto the vehicles as part of the assembly process.

“Kings Fleet Services says the boards are easy to install, and they’re very satisfied with their quality,” says Adam. “For us, the enclosures are more expensive than the original boards we were using, but with the time saving that the new boards achieve, this has increased our productivity, and this is the only way we look at it.”

Image captions:

Image 1: Spelsberg provide a CNC machining service in-house, supplying the enclosures with the holes pre-cut, removing the workload from the electrical specialist and making the process significantly faster.



Image 2: Spelsberg provide a CNC machining service in-house, supplying the enclosures with the holes pre-cut, removing the workload from the electrical specialist and making the process significantly faster.

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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