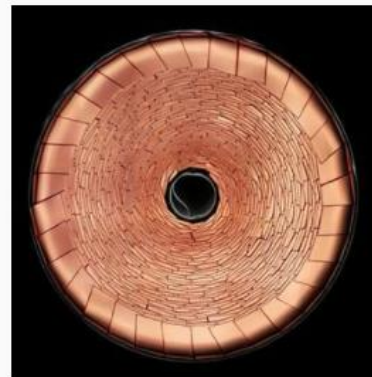
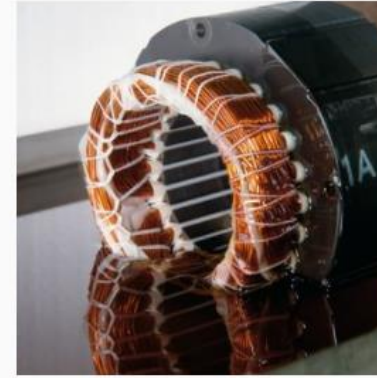
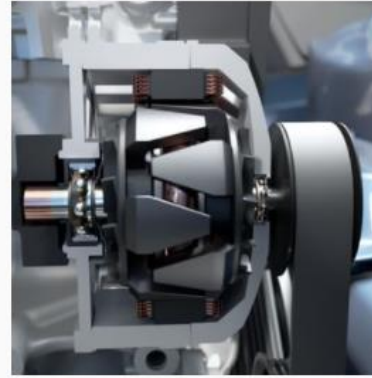


E-MOBILITY ENGINEERING ONLINE PARTNERSHIP



**BCL25-700-8**

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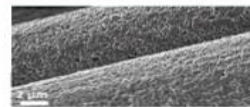
May 27th 2021

Bridgestone has designed a tyre specifically for solar-power EVs (writes Nick Flaherty). It has been designed for Netherlands based solar car designer Lightyear and its Lightyear One car to reduce the weight and rolling resistance and so increase its range compared with the regular production tyre. The Lightyear One has a range of 450 miles [...]



May 27th 2021

Horizon Aircraft has developed a hybrid electric vertical take-off (eVTOL) aircraft with safety at the heart of its design (writes Nick Flaherty). The Cavorite [...]



Jun 01st 2021

Researchers in the US have taken a key step forward towards using aluminium for rechargeable batteries that have far higher capacity than current lithium-ion [...]



May 27th 2021

Infineon has launched a 650 V hybrid silicon carbide (SiC) and silicon transistor for inverter designs (writes Nick Flaherty). The CoolSiC Hybrid Discrete for [...]



Jun 02nd 2021

Nanom in Iceland has developed a nanotechnology process that can turn carbon fibre structures into solid-state batteries (writes Nick Flaherty). The company says this ...

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**Dossier****Dossier****Irizar Group le truck**

Rory Jackson investigates the development of this electric/hybrid refuse truck, which is already operating in various European countries. Developing heavy EVs for urban applications, where regulations on emissions and noise are the strictest of any operating environment, requires a wealth of research...

**Dossier****Energica Eva Ribelle**

Rory Jackson explores how this e-bike combines the efficiency for urban commuting with the performance for recreational use. Rebel with two causes Since its founding in 2014, the Energica Motor Company has sought to combine outgated electrical engineering with designs that capture the ergonomics and aesthetics needed to thrive in the world of luxury motorbikes. [...]

Dossier**Focus on...****Battery Safety****Power Electronics**

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In 2021 we relaunched www.emobility-engineering.com to provide electric vehicle engineers with a central content hub enabling access to our full back-catalogue of magazines and articles.

We understand that our readers need access to unbiased technical insight and professionally peer-reviewed critical analysis in varying formats. With that in mind, each issue of *E-Mobility Engineering* is published as the traditional print magazine, the 'Flipping Book' digital magazine and as standalone articles in a blog format.

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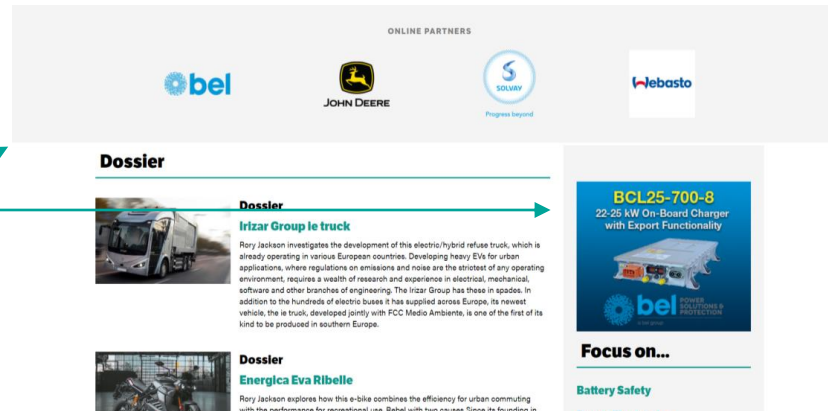


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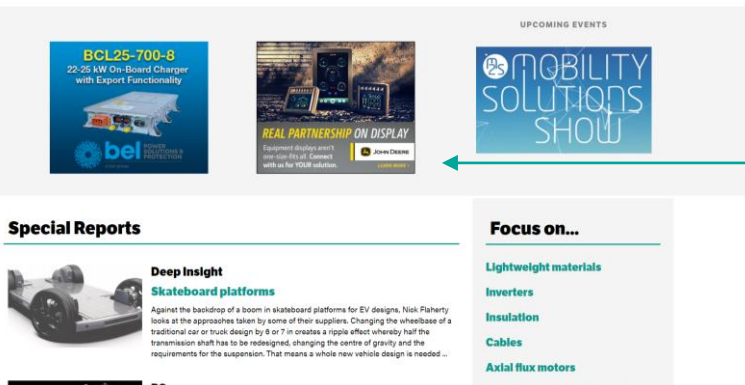
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DISPLAY BANNER:



Scrolling down the homepage between the dossier section and our special reports you will find advert sites 3 & 4, which feature alongside the upcoming events banner.



[Home](#) > [Features](#) > [Battery Safety](#)

Battery Safety



Crash and post-crash safety tests for batteries include complete vehicle tests, allowing structural as well as systemic protection systems to be proven
(Courtesy of Polestar)

Cut-off points

The EV battery industry offers a variety of ways to minimise the hazards they can pose, as Peter Donaldson explains.

Proximity to large amounts of energy has always presented hazards, but people have mostly learned to live with them and enjoy its benefits. However, being close to a high-energy electrochemical system such as a 100 kWh battery is still relatively novel. What's more, a series of high-profile EV battery fires, vehicle recalls prompted by fire risks and the new Chinese government rule mandating 5 minutes' warning between detecting an incipient thermal runaway and penetration of the passenger compartment by fire to give passengers time to escape have sharpened the focus on battery safety, even though such events are rare.

For obvious reasons, batteries are made from non-flammable materials as far as possible, and their electronic control and thermal management systems provide increasingly tight regulation of operating conditions. Generally conservative design and over-

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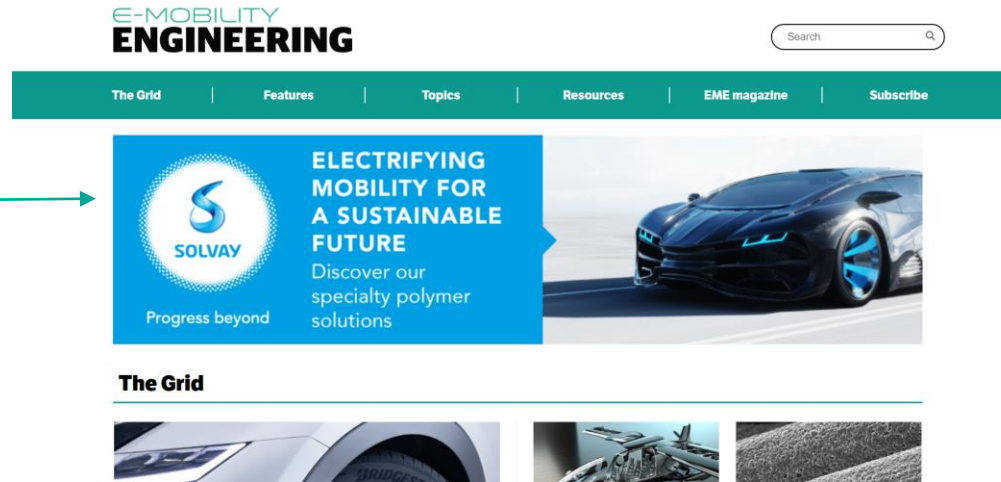
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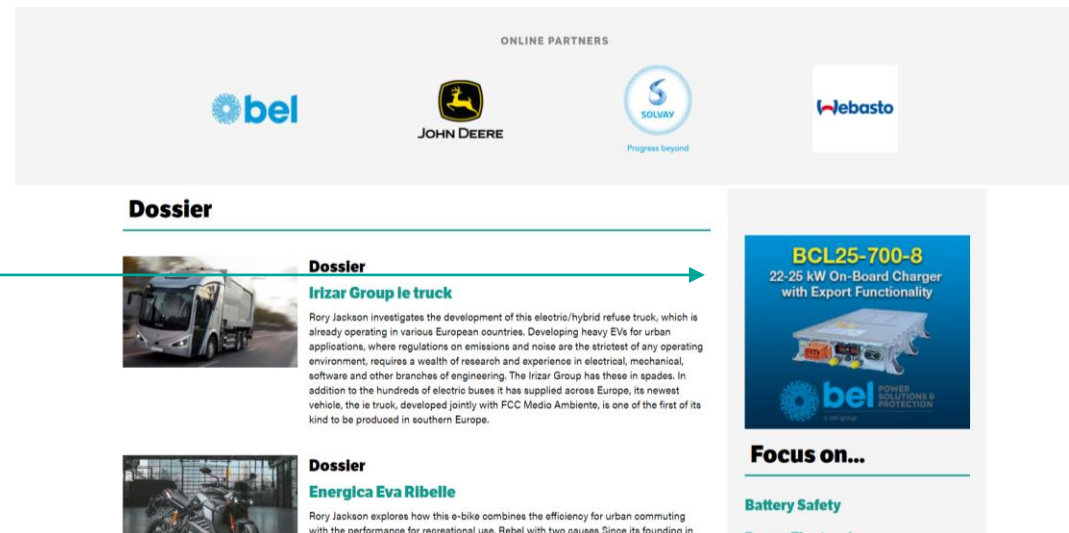
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300 x 250 px
RESOLUTION: 72 DPI
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We can also help design and produce the ad copy for you. If this service is needed please ask at the point of booking.

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E-MOBILITY ENGINEERING AVAILABILITY

Focus | Battery cooling

modular cells, another TMS specialist says. That often means filling in large areas and then glass during manufacturing, a challenge that has led the company to develop an ultra-low viscosity gap. The first is a "flowable water" filling to even level and filling the entire space.

The company illustrates the flow as a two-component system with a viscosity of 0.05 Pa.s and a thermal conductivity of 1.8 W/m.K. The second is a thermal interface layer of 10 microns. Because the second is so thin, it can be applied in a very thin layer to accommodate the vibration and thermal expansion of other components.

Cell design also has a major impact on how quickly heat can get into and out of the packs, with cylindrical, prismatic and pouch cells all presenting different challenges, he predicts. To larger the surface area of the cell is relative to its volume, the easier it is for heat to move in and out. As an illustration, a prismatic cell is a size rectangular box, so if the right lines, the surface area available for cooling is a combination of all comparable capacity, one of our experts explains.

Other differences in cooling behavior can be associated with cell performance, our first TMS specialist adds, as high performance or high energy cells tend to generate less heat than others. However, the cooling system must meet even more quickly to changes in heat temperature to keep them within their optimum range.

While comparing it to modular, single numbers of small cylindrical cells, for example, are often considered fluid channels, creating between the rows of cells, with an inlet at one end of the module and an outlet at the other. That is not considered a good way of getting heat temperatures through, as the coolant picks up heat on the journey from one end of the cell to the other, creating an increased thermal gradient and increasing the risk of a short circuit and a consequent thermal runaway in the event of a leak.

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Spring 2021 | E-Mobility Engineering

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Minimising thermal resistance

Creating Future-Proof Battery Systems

Cost effective, modular and scalable battery solutions for e-mobility applications.

Minimising thermal resistance

Booking for 2022 is now open, and to maximise your reach and visibility we can combine the online partnership with print and digital adverts in the magazine for 2021-22.

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