



BÜFFELPOST ⁰¹ 2024

Banner THE POWER COMPANY



E-MOBILITY: OUR FUTURE FOCUS

INCREASED POWER

Optimum power with many control units

INCREASED ENERGY

Traction Bull as a high performance powerhouse

INCREASED SAFETY

Cybersecurity measures with Banner

Dear partners,

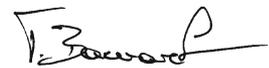
Electromobility, sustainability and innovation are set to characterise the mobility of the future. In this issue of Büffelpost, we take a look at the latest developments, trends and solutions in e-mobility.

Electric and hybrid vehicles are no longer niche products, but are increasingly characterising the landscape of our roads. But what technologies lie behind these vehicles and how does all this change the demands placed on batteries? What role will the lead-acid battery play in e-mobility? In this issue, our experts shed light on the topic from a number of different perspectives. One thing can be said right now - Banner partners benefit from a product that is ahead of its time.

That's because Banner always has an eye on the future - as is clearly demonstrated by the developments in the Energy Solutions division: With the high performance Traction Bull, we're setting new standards when it comes to performance and efficiency. We pursue similarly high standards in the area of cybersecurity. Read on to find out more about the latest security standards and measures Banner is taking to protect customer data.



Andreas Bawart
Commercial Managing Director



Thomas Bawart
Technical Managing Director



For many control units genuine BUFFALO POWER is a must

If the lithium-ion batteries fail, the lead-acid batteries take over! The mobility of the future is increasingly resulting in a shift in the batteries requirements profile towards cycle stability. Running Bull AGM batteries impress as reliable starter and on-board electrical system batteries for electric and hybrid vehicles.

A large number of control units are installed in electric and hybrid vehicles, which place high demands on a battery's performance. Control units are small computers that are not only installed in modern cars. They check various ACTUAL values in the vehicle and compare them with the manufacturer's TARGET values. If the measured value does not match, an error code is generated. A vehicle contains countless control units that are responsible for different areas, e.g. the engine control unit, climate control unit or the infotainment system, the cockpit displays, or the driver assistance systems. Modern cars are often equipped with over 100 different control units! Between 2006 and 2016, the average number of control units across all vehicle segments rose from 28 to 38. By 2023, up to 110 control units were being installed in luxury class vehicles, and around 20 even in small cars. A reliable battery is essential to prevent the many control units from partially or deeply discharging the on-board electrical system batteries.

Running Bull AGM as the perfect solution

Banner Running Bull AGM batteries are the ideal 12 V starter and on-board electrical system batteries for many electric cars and hybrid models. They are perfect for higher power requirements (capacity and/or cold start) or technology upgrades (per DIN Europabox H4/L1, H5/L2, H6/L3, H7/L4, H8/L5 and H9/L6). With them, all power consumers such as the alarm system, on-board computer, driver assistance systems, instruments including interior lighting, sat nav, headlights, sound system, central locking and many more are optimally supplied. If the high-voltage battery should fail, the 12 V on-board electrical system battery supplies the brakes, as well as the amplifier, interior light, windscreen washer system, headlights and power steering. High-voltage power consumers also include the passenger compartment auxiliary heater, air conditioning compressor and auxiliary coolant heater.



On-board electrical system battery correctly installed

With the AGM battery, it is essential to ensure that the thermal load is not "built up" due to (extremely) high ambient temperatures; temperatures higher than +55 degrees Celsius are not permissible. Temperatures of +85 degrees Celsius per day (not unusual in summertime) for a period of less than three hours are not considered critical. Values above this can cause premature total failure of the AGM battery, because the separator dries out and the grids become corroded! If the original battery was installed directly next to the engine block at the factory, the more heat-resistant Enhanced Flooded Battery with fitted thermal protection cover is a preferable solution. The situation is entirely different when installed in the boot or passenger compartment. In these installation cases, upgrading to an AGM battery is recommended. This is because the thermal load on the battery caused by heat is negligible. The same applies to an on-board electrical system battery in an electric car, because electric drives emit very low heat losses to the environment thanks to their high efficiency.

Lead-acid battery in the fast lane

"The security of supply and the high recycling rate clearly speak in favour of lead-acid batteries."

FRANZ MÄRZINGER, HEAD OF SALES AND MARKETING AT Banner BATTERIEN, TALKS ABOUT THE FUTURE OF LEAD-ACID BATTERIES.

Büffelpost: It starts to look like the world is focussing on electric cars. But what does this mean for the future of the lead-acid battery?

Franz Märzinger: In our view, the initial euphoria about electric cars is over and a sense of disillusionment appears to be setting in. Many first-time buyers of electric cars have realised that the promised ranges are simply not attainable - especially in winter, and that public charging facilities in particular are still highly unsatisfactory. As can be seen in Germany, for example, new registrations of electric cars are declining significantly following the abolition of state subsidies. We're also seeing clear trends at EU level towards postponing the full changeover to e-mobility further into the future.

Regardless of this, over 90% of electric cars currently also use the 12 V on-board electrical system battery with the trusted environmentally friendly lead-acid technology. We're anticipating further market growth in the lead-acid battery segment of around 1 to 2% per year over the next ten years.



Büffelpost: What is the difference between 12 V batteries for electric cars and conventional starter batteries?

Franz Märzinger: To answer this, we first need to define the term "conventional" starter battery. Until now, we've basically had two categories in the automotive sector. On the one hand, we have the customary wet batteries, which until around ten years ago were primarily used in original equipment for starting purposes. More recently, we've also had start-stop batteries, which have been used as original equipment over the last decade and recently increasingly also in the replacement business. These start-stop batteries have been heavily optimised in terms of cycle stability, fast charging and braking energy recovery. In other words, an energy solution that not only provides strong starting power for the combustion engine, but also the requisite charging and discharging cycles.

In this respect, the on-board electrical system battery in the electric vehicle is a further development of start-stop batteries. The requirement for cold-start performance is becoming a lesser topic, whilst cycle stability is growing in importance. And the battery is becoming smaller and lighter as a result of these changes in requirements.

Büffelpost: Asian competitors - above all the Koreans - are also entering the lead-acid battery market. What does that mean for Banner?

Franz Märzinger: In general, the much-maligned disadvantages of Europe as a location for industry

have unfortunately worsened over the last four years. Although the challenge posed by COVID-19 also affected Asia, the energy crisis arising due to the war in Ukraine, the massive inflation that followed and the subsequent hard-hitting salary increases did not materialise in Asia. These cost advantages are being utilised by our Asian competitors to gain further market shares in Europe.

However, this activity is offset by the current uncertainties in the supply chain, the associated delays in delivery and increases in transport costs. Many importers of starter batteries received their deliveries two months too late this winter, leading to shortages in winter and overstocking in spring. Despite all this adversity, we were able to maintain our market share.

Büffelpost: Tesla has been installing a lithium-ion lithium iron phosphate-based on-board electrical system battery in all its electric cars since 2022. Is there a risk that lead-acid batteries will be completely replaced in this area in the future?

Franz Märzinger: We don't see a risk here. It's certainly the case that Tesla has opted for this solution. However, the majority of car manufacturers are currently focussing on the advantages of lead-acid batteries, and we believe they will continue to do so in the future. In addition to the significantly lower costs, the security of supply (note: lead-acid batteries are produced in high numbers in Europe) and the unbeatable 100% recycling rate clearly count in favour of the lead-acid battery.



High performance Traction Bull – Increased power, increased energy

Energy Solutions

The Traction Bull is the ideal energy solution when high performance is a must. Thanks to new technology, the higher energy density delivers more power. Increased operating hours and lower operating temperatures lead to a significantly longer battery life compared to standard lead-acid batteries. It is also suitable for intermediate charging.

VISIT OUR NEW
ENERGY SOLUTIONS WEBSITE
FOR MORE DETAILS:



New battery regulation in force

Partners of Banner Batterien can be confident that they have their hands on a product that satisfies every regulation and the highest standards.

The new EU Regulation 2023/1542/EU applies to all categories of batteries and will be valid in every EU member state and in all European countries that adopt this legislation into their national law. Implementation is set to take place in several stages, with completion scheduled within four years (by February 2027).

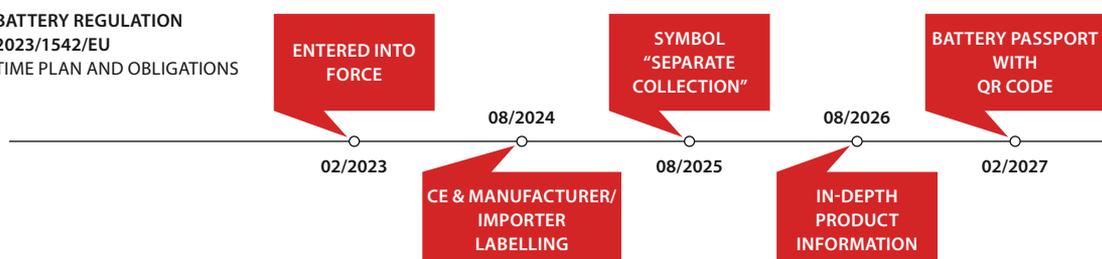
The first implementation package will come into force for all products "placed on the market for the

first time" in Europe from 18 August 2024 (i.e. new products in the EU or imports from other countries) and includes the following regulations:

- Integration of CE labelling on all batteries
A CE declaration of conformity must be available for each product
- Manufacturer's marks: Label indicating the manufacturer with name, address and contact details on the products
- Trademarks: Label indicating the trademark owner/distributor with name, address and contact details on all products

As a manufacturer, Banner will successively satisfy these obligations from the package described above for all products marketed under the Banner brand from summer 2024. Furthermore, from August we will also be offering CE declarations of conformity for all affected batteries in accordance with the requirements of this EU regulation by publishing them on www.bannerbatteries.com.

BATTERY REGULATION
2023/1542/EU
TIME PLAN AND OBLIGATIONS



Due to the low internal resistance, it is extremely energy efficient. The reduced operating temperature results in a longer battery life. The increased efficiency also results in cost savings. The charging time is also a major bonus: From 20% to 100% SoC in just four hours makes the Traction Bull a fast-charging alternative. As such, it is the perfect choice for multi-shift applications. It initially has higher capacities and is therefore also suitable for extreme temperature variants such as in cold stores and for outdoor applications.

Versatile in application

In addition to multi-shift applications, the Traction Bull can also be used in VNA applications (Very Narrow Aisle), cold store, DTS and tractor applications, or for seasonal peaks in demand. Intermediate charging is possible and it also impresses with its high-current capability. A battery monitoring system ensures safety, reliability and the optimum overview in every situation - it delivers important data about the battery, such as voltage, temperature and electrolyte condition. The charge and discharge cycles are saved, as is the duration of the low electrolyte state and deep discharge. Three highly visible LEDs immediately trigger alarms in the event of critical battery conditions.

Heavy-duty application

The Traction Bull is very impressive in heavy-duty applications thanks to its increased capacity and excellent high discharge performance, especially at high load peaks. Low operating temperatures prevail during charging and discharging, which also makes it ideal for intermediate charging because the current consumption is outstanding with minimal heat build-up. The longer running times ultimately reduce the total number of batteries required - a true win-win solution when more power is needed!



In-house production ensures on-time delivery

The last two years during and after the COVID pandemic have shown how global events can pose major challenges for globally networked supply chains.

"Even though supply chains have stabilised again, the tensions between China and Taiwan, the attacks by Houthi rebels in the Red Sea and piracy continue to place a strain on global trade by ship," says Reinhard Bauer, Head of Logistics, Purchasing and SCM at Banner Batterien. Shipping operators are currently avoiding the route between Asia and Europe, the Red Sea and the Suez Canal and are now diverting their vessels via the southern tip of Africa, which extends the transport time by up to two weeks and consequently drives up costs. The recurring Deutsche Bahn rail strikes also frequently delay the transport of goods shipped between Asia and Hamburg by a further one to two weeks. "Because our batteries are manufactured exclusively in Europe, we are almost entirely unaffected by the global challenges posed by shipping," explains Reinhard Bauer. To make sure that the batteries reliably reach our customers on time, Banner largely utilises short supply chains and procures the primary and raw materials for its starter batteries in Europe.



REINHARD BAUER HEADS UP THE LOGISTICS, PURCHASING AND SCM DIVISIONS OF THE Banner GROUP

Lead-acid battery including in electric cars

E-mobility does not spell the end of the lead-acid battery. On the contrary: Numerous renowned vehicle manufacturers rely on the dependable lead-acid battery to supply the vehicle electrical system.

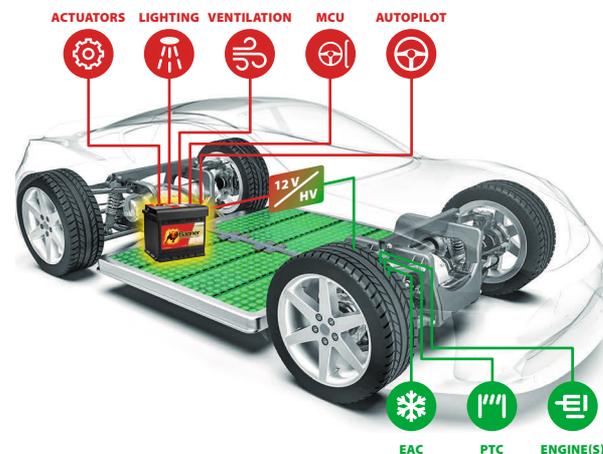
Electric mobility is a massive trend of the future, in particular when it comes to vehicles used for short, local trips. When we think of electric cars, we often immediately think of lithium-ion traction batteries, which have nominal voltages of several hundred volts; we tend to overlook the fact that every electric car is also equipped with a 12-volt lead-acid on-board electrical system battery. This on-board electrical system battery (also known as an auxiliary, backup, support, additional or second battery) plays an important role in electric mobility and Banner always has the right solution here.

FURTHER INFO ON THE TOPIC:



Here are just some of the reasons why the lead-acid battery remains relevant for electric cars:

- 12-volt on-board power supply: Electric cars



also use 12-volt electrical consumers (e.g. central locking, interior lighting, infotainment system, etc.). These have been perfected over decades and are used in both combustion engines and electric cars.

- Safety requires redundancy: The 12-volt backup battery also serves as a buffer to ensure functional safety aspects. For example, the power steering must continue to work when the engine is switched off in order to maintain the vehicle's manoeuvrability.
- Part of electric mobility: Renowned vehicle manufacturers also rely on lead-acid batteries to supply the vehicle's electrical system. The all-electric BMW i3, for example, is stabilised with a Banner lead-acid battery, which supplies the 12-volt electrical consumers in the car.

The lead-acid battery is therefore also an indispensable component of electric mobility and ensures the stability and availability of the on-board electrical system in electric vehicles.

New: Accucharger 15 A and 25 A

The Accucharger 15 A and 25 A chargers set new benchmarks when it comes to performance, versatility and technology.

The new state-of-the-art Accucharger 15 A and 25 A chargers are the perfect tools for charging and maintaining vehicle batteries. They offer a multi-stage charging program that guarantees the optimal performance and longevity of the starter and on-board electrical system batteries. With seven charging stages, a 16 V boost program and a maximum charging current of 15 A or 25 A, they deliver unrivalled performance. A supply mode prevents the loss of vehicle data when changing the battery and offers protection against splash water and overcharging. In addition, integrated cooling ventilation ensures maximum safety and

efficiency. The versatile Accuchargers are suitable for charging all 12 V and 24 V battery technologies (standard, Ca, start-stop Enhanced Flooded Battery/AGM and GEL), including lithium (LiFePO4). This not only enables conventional vehicles to be charged, but also opens the door to charging electrically powered vehicles such as e-scooters, e-carts and cars with lithium starter/on-board electrical system batteries and long-term discharge batteries in the hobby and leisure sectors.



THE NEW ACCUCHARGER 15A AND 25A

For faster and more sustainable production

The increasing importance of AGM batteries in electric cars and in the aftermarket segment has resulted in a need to convert the BM6 production line. Production on the line will be faster and even more sustainable in future.

The demand for high-quality Banner AGM batteries continues to rise. On the one hand, these are required for the aftermarket, while on the other hand an increasing number of electric car manufacturers are installing higher-quality batteries. This is necessary because the power requirement for over-the-air updates is constantly rising. AGM production was therefore resumed on the BM6 line at the Banner plant. The COS plant will be modernised in summer 2024, in order to deliver the capacities and guarantee the high sustainability requirements. With the line set to produce both types of technology, the focus is primarily on reducing set-up times. In future, the heated lead pot will be transported into the plant by means of a rail system, saving heating time inside the plant and enabling safe equipping. The modernisation should significantly reduce set-up times. In addition, the buffer station will be loaded by robots in future to ensure smooth operation and buffer any short downtimes.

Recycling ratios further increased

Banner has always focussed on the sustainability of its products. For example, the company began using recycled material in box production many years ago. The aim is to continuously increase the proportion of recycled material. With the recycled material for the production of battery boxes needing to fulfil special requirements, the sources of supply are limited. The company is constantly



THE NEW BM6 PRODUCTION LINE

intensifying its efforts to gain new suppliers of recycled materials, and to be able to produce even more sustainably.

Banner tip

Minor upgrade, major outcome!

In electric cars, a technology upgrade from the conventional 12 V on-board electrical system battery to the much more vibration-proof and cycle-resistant Enhanced Flooded Battery or AGM battery is wholly worthwhile - because the large number of additional electrical consumers requires greater power, the highest level of vibration and cycle resistance, and optimum stability of the on-board power supply. Installation in an electric car is highly recommended, because the thermal load on the AGM battery caused by heat is negligible when compared to the combustion engine. Due to their high efficiency, electric drives emit very low heat losses into the environment. If installed, it is important to ensure that the housing is identical and the performance class is similar.

Practical Banner tip: In the all-electric VW ID.3, the conventional 12 V wet battery or Enhanced Flooded Battery can be replaced by an AGM battery in an identical H4/L1 box - in the example case by a Running Bull AGM 550 01.



New power in the Banner Team

Our global team, strong as buffaloes, is getting even stronger! Genuine expertise, experience, service and team spirit are what set us apart. We are delighted to welcome our new employees:

Rainer Pesl

Head of Sales at Banner Austria

My professional experience: I have over two decades of experience in a managerial position in internal and external sales in the paper and packaging industry. From January 2021 to March 2024, I was Head of Internal Sales at Banner Austria.

Applying my power at Banner: Since April 2024, I've been putting my power into my role as a Sales Manager for Banner Austria.

What I appreciate about Banner: I'm proud to work for an Austrian brand.

What's important to me: Very important to me are team spirit, open, transparent communication and cooperation between the two mainstays of "Automotive" and "Energy Solutions".

Important to me personally: Spending time with my family is my top priority. And I really enjoy burning off energy playing football, tennis and going running.



Martina Fuchs-Auer

Head of Marketing at Banner

My professional experience: Throughout my professional career to date, I've gained extensive experience at German and Austrian companies such as Siemens, Siemens VAI, Primetals Technologies and most recently Fronius International.

Applying my power at Banner: As a passionate marketing professional, I put all my power into the company's communication and marketing - and, of course, I'm equally focussed on my amazing team.

What I appreciate about Banner: Banner is a competent mix of tradition, authenticity and expertise.

What's important to me: It's important to me that people listen to and understand each other. That sounds a lot easier than it actually is. Diverse perspectives help me to better understand this world with all its volatility, uncertainty, complexity and ambiguity and enable me to make good decisions with the necessary clarity, transparency and speed.

Important to me personally: I love travelling internationally with my family. I find relaxation in my garden, and through reading, rambling and, above all, baking 😊.

Sandra Hartl

Head of Accounting at Banner

My professional experience: During my professional career I've worked at companies including KPMG, Fröling Heizkessel- und Behälterbau GmbH, AMST Holding GmbH, Wilhelm Schwarzmüller GmbH, Hitzinger Electric Power GmbH.

Applying my power at Banner: I head up accounting here.

What I appreciate about Banner: Banner is an Austrian company with a lengthy tradition and an outstanding product range.

What's important to me: I always take a positive approach to things. Solution-orientated teamwork is just as important to me as a trusting and supportive relationship with my co-workers, it results in far greater transparency.

Important to me personally: My family, my garden and travelling. And sometimes I also enjoy just "doing nothing".





Optimum protection for Banner customers

Banner takes its responsibility for information security very seriously. This is one of the reasons why the company applies the highest standards and ensures customer data protection through an audited system.

The security and protection of sensitive information also play a crucial role for Banner. An information risk management system (IRM) based on the CRISAM® software platform has been in operation since 2012. In 2024, cybersecurity measures will be intensified in line with the relevant laws and guidelines. TISAX (Trusted Information Security Assessment Exchange) is a pioneering procedure for information security based on an information security management system (ISMS) in accordance with ISO 27001. The procedure was specially developed for the protection of data in the automotive industry and its aim is to ensure the integrity, confidentiality and availability of data during the manufacturing process and throughout vehicle operation.

The Banner team of experts

A team of internal and external experts was put together to successfully realise this challenging project. Christian Ott is responsible for the implementation, coordination and monitoring of the entire project, while Marlene Moser also brings valuable expertise to the project as a team member. With his special expertise in the field of TISAX, Martin Rechberger provides us with additional implementation support as an external partner. The preparatory work for implementing TISAX will form the basis for satisfying the EU's new Network and Information Security Directive (NIS2). This means effective protection against misuse not only of our company and employee data, but also of the data belonging to our customers and business partners.

Cybersecurity

Save the date

Automechanika 2024

10-14.09 2024

From 10 to 14 September 2024, the world's leading trade fair Automechanika will once again open its doors in Frankfurt with this year's theme entitled "DRIVING Transformation". Over the course of five days, trade, industry and workshops will meet for

business and networking on topics relating to the automotive aftermarket value chain. Banner Batterien will also be exhibiting its innovative product portfolio at the event. Visit us in Hall 4.1 at Stand D51. We look forward to welcoming you!

automechanika FRANKFURT

10. – 14. 9. 2024 FRANKFURT / MAIN

VISIT US

Banner
THE POWER COMPANY

HALL 4.1
STAND D51

Marketing | 11



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