



BÜFFELPOST

Banner THE POWER COMPANY

SHAPING THE FUTURE WITH INNOVATIONS

PORTFOLIO
READY FOR TRENDS
WITH NEW PRODUCTS

FIRST FITTING
AGM & EFB POWER
IN PREMIUM CLASS
VEHICLES

ENVIRONMENTAL
MANAGEMENT
CONSERVING RESOURCES,
FROM RAW MATERIALS
TO RECYCLING

EDITORIAL

EDITORIAL

Dear Partner,

We can look back on a financial year characterised by a wealth of challenges, but happily although the winter was not severe, we were nonetheless able to maintain the high sales level of the previous twelve months. In addition, we obtained a number of new contracts from OEMs and for the current year we anticipate a further rise in deliveries as a first fitter.

Not least for this reason, a great deal has been invested in the modernisation of the Linz/Leonding location. This year will see the completion of production enlargement, which will mean increased capacities, faster availability and easier adjustment to product seasonality. With the expansion of our product portfolio, we have also accounted for the change in market requirements and as a result our customers are already fully equipped to deal with the trends in the vehicle segment.

The Banner brand stands for buffalo power from Austria, reliable quality, innovation and service, and during 2018 it should be beefed up further both locally and globally. The reorganisation of our sales team will enable us to guarantee optimum customer support, especially as all of our measures have the single aim of keeping our clients, employees, suppliers and business friends with us in the fast lane. We therefore relish the prospect of continuing to move forward with you in years to come.



Andreas Bawart
Commercial CEO



Thomas Bawart
Technical CEO



INNOVATIONS

BULL POWER IN THE OVERTAKING LANE

Those looking to get off to a flying start must already think about tomorrow today. With Banner's brand new commercial vehicle batteries, company customers are ideally equipped for the demands of the future.



The powerful products in the Buffalo Bull series are the hardest workers amongst the starter and electrical system batteries. Indeed, Buffalo Bull batteries are always the perfect answer for all commercial vehicles such as trucks, buses, agricultural, forestry and construction machinery, and even snow groomers.

NEW Banner BATTERIES FOR COMMERCIAL VEHICLES.

The electrical system batteries in the commercial vehicle segment must fulfil a growing number of special requirements:

- The hotel function in long-distance trucks (drivers stay overnight in their trucks and use numerous electrical consumers)
- Extreme vibration resistance in the case of the integration of the battery at the rear of the truck

To meet these needs, Banner has launched the new Buffalo Bull EFB onto the market.

NEW: THE BUFFALO BULL EFB
EFB 690 17 (Box B – 190 Ah/1050 A EN)
EFB 740 17 (Box C – 240 Ah/1200 A EN)

BUFFALO BULL EFB PRODUCT/CUSTOMER ADVANTAGES IN BRIEF:

- Offer of batteries with 190 Ah or 240 Ah
- Increased cyclical resistance owing to the active mass recipe and non-woven covers



- Robust design and top vibration resistance due to special set bonding
- Improved mesh corrosion resistance due to the use of the continuous production process
- Calcium technology for minimal water consumption
- Maintenance-free (no topping up with water) under normal operating conditions
- Central degassing with integrated backfire protection
- Add-ons for heightened product safety: short circuit protection, ESD plugs*
- Dimensions in accordance with EN 50342-4:2009

* ESD = electrostatic discharges are disruptive voltage breakdowns caused by major potential differences. These discharges (sometimes visible due to sparks) cause brief, high electrical current and can lead to the ignition of flammable materials. It is precisely this that the ESD plugs prevent with absolute safety.

TAKE VERY CAREFUL NOTE OF THESE TIPS DURING BATTERY CHANGES!

Warning! Under no circumstances install a conventional wet battery in a vehicle with a start/stop function, which in seri-

al production has been fitted with an EFB battery. Should an exchange be necessary, only use an EFB battery with an identical box and in the same performance class.



Expert tip:
Dominik Traxler, Starter
Battery Product Manager

A conventional starter battery can be upgraded to a more powerful and cycle-resistant Buffalo Bull EFB.

Please contact your Banner customer advisor.

Box B

The **Buffalo Bull EFB 690 17** can replace the Buffalo Bull type 680 32/SHD 680 32/SHD PRO 680 08.

Box C

The **Buffalo Bull EFB 740 17** can replace the Buffalo Bull type 725 11/SHD 725 11/SHD PRO 725 03.

EFB = enhanced flooded battery, the cycle-resistant starter battery.

Special machines and vehicles require ever-higher cold start current.

This is due to the high lag loads (e.g. in hydraulic units), which have to be dealt with during starting. The Buffalo Bull high-current battery has been specifically developed to meet these requirements.

NEW: THE BUFFALO BULL HIGH CURRENT

650 11 (Box A – 150 Ah/1150 A EN)

680 11 (Box B – 180 Ah/1400 A EN)

BUFFALO BULL HIGH CURRENT PRODUCT/CUSTOMER ADVANTAGES IN BRIEF:

- Offer of two standard battery sizes (boxes A and B) with 1,150 A Ah or 1,400 A cold start current
- High vibration-resistance
- Calcium technology for minimal water consumption
- Maintenance-free under normal operating conditions
- Central degassing with integrated backfire protection
- Add-ons for heightened product safety: short circuit protection, ESD plugs*
- Dimensions in accordance with EN 50342-4:2009

All EFB and high-current batteries are available from spring 2018 and therefore it is best to note this on your Banner list for future order dispositions.

Leading commercial vehicle manufacturers already rely on the best batteries from the Buffalo Bull series for first fitting.

Mercedes trucks, Liebherr construction machinery, Caterpillar excavators, Wacker/Neuson excavators, BOMAG compactors, Kässbohrer Pistenbully snow groomers, Kubota agricultural and construction machinery, Lindner tractors and Rammax construction machinery.



NEW Banner CAR BATTERIES - THE RANGE HAS BEEN ENLARGED!

THE POWER BULL PRO – THE PRO- LONGATION OF A SUCCESS STORY.

The triumphal progress of the Power Bull PRO starter batteries is set to continue, as the Banner top seller quite literally combines prizewinning product quality with premium performance in a perfect symbiosis. This is simply original part excellence for retrofitting.

Precisely for this reason, the product portfolio has been augmented with the following three battery types in T-boxes:

Power Bull PRO P50 42

(T4/LB1 box – 50 Ah/400 A EN)

PRO P63 42

(T5/LB2 box – 63 Ah/600 A EN)

PRO P77 42

(T6/LB3 box – 77 Ah/680 A EN)

These represent intelligent additions to the range because numerous Ford models (without start/stop function or braking energy recuperation) require original battery replacements with a total height of 175 mm.

In readiness for next season, at the latest the batteries will be available from the spring or summer of 2018.

NEW START/STOP BATTERIES WITH EFB TECHNOLOGY

Banner is enlarging its Running Bull EFB

battery programme to meet the challenges of tomorrow.

ESPECIALLY FOR EUROPEAN CARS

Three new EFB batteries have been added to the range and will be available from this spring.

The two top seller types, which are primarily for Ford models with start/stop function (ECONetic):

EFB 565 12

(T6/LB3 box – 65 Ah/650 A EN)

EFB 575 12

(T7/LB4 box – 75 Ah/730 A EN)

These are combined with a third top seller, which is suitable for numerous start/stop models from a selection of European car-makers:

EFB 580 11

(H7/L4 box – 80 Ah/780 A EN)

ESPECIALLY FOR ASIAN CARS

Banner introduced the Running Bull EFB Asia battery range into its programme in 2014. We were thus among the first European battery producers to meet the specifications required by Asian vehicle manufacturers, which first fit this type of battery in their start/stop models.

Banner has retained this pioneering status and now three new fast selling batteries are to be added to the familiar EFB 565 00 (new 565 15), EFB 565 01 (new 565 16) and EFB 595 00 (new 595 15) types, which

are already available. These all possess EFB technology with a glass non-woven cover on the separator and a friction welded lid with central degassing and integrated backfire protection.

The three new Asia EFB types consist of the:

EFB 538 15

(35NS box – 38 Ah/400 A EN)

EFB 555 15

(45NS box – 55 Ah/460 A EN)

EFB 570 15

(D26 box – 70 Ah/680 A EN)

The batteries will be available from the spring of 2018, or the summer at the latest!

EFB BATTERIES WITH NEW TYPE/ PART NUMBERS.

Besides programme enlargement, the type/part number system in the EFB segment has been subjected to overall optimisation with the aim of excluding any future confusion with other Bull product variations. Therefore, the ideal solution is to immediately cross-reference the old and new type/part numbers in your goods management system in the manner shown in the table below.

The following EFB type/product number changes will apply to orders from 1 April 2018 onwards:

Type/Part number OLD	Type/Part number NEW - from 1 April 2018
EFB 560 00 / 012560000101	EFB 560 11 / 012560110101
EFB 565 00 / 012565000101	EFB 565 15 / 012565150101
EFB 565 01 / 012565010101	EFB 565 16 / 012565160101
EFB 570 00 / 012570000101	EFB 570 11 / 012570110101
EFB 595 00 / 012595000101	EFB 595 15 / 012595150101

The range of types available for European and Asian start/stop vehicles has again been enlarged and is now also ideally suited to Ford (T-battery types), Chevrolet-Daewoo, Daihatsu, Honda, Hyundai, Isuzu, Kia, Mazda, Mitsubishi, Nissan, Proton, Ssangyong, Subaru, Suzuki and Toyota (Asian battery types).



NEW ACCUCHARGER**RELIABILITY HAS A NAME**

As a services supplier one provides customers with reliability on a daily basis. Accordingly, irrespective of whether in a specialist workshop, service centre or emergency vehicle, with an Accucharger one can always rest assured of guaranteed, perfect charging. Moreover, with modern features the new Pro 100A and Pro 25A models make the working day far easier.

The 12V Accucharger100A is a professional device that possesses a flash mode for regular software updates. This extremely efficient charger ensures perfect charging even for extremely large batteries and buyers can choose between fully automatic or manual settings, all of which are shown on the large LED display. This power pack is also

characterised by top class safety features, robustness and simple handling.

THE ACCUCHARGER PRO 25A IS IDEAL FOR EMERGENCY VEHICLES AND WORKSHOPS

The Accucharger Pro 25A is another new addition to the Banner range and its reliability make it not only perfect for use

in workshops, but also in emergency vehicles. Even during the diagnosis phase, buffer operation continues to supply the vehicle with the necessary energy and a large display with clear graphics facilitates straightforward operation. Apart from fully automatic battery charging, the device offers an additional refresh mode (up to 16V) for deep discharged batteries.



Expert tip:
Silvio Steiner, Product Manager,
Accessories

LOCATION EXPANSION**EVEN MORE - EVEN FASTER - EVEN BETTER**

At present, there is no holding the demand for Banner's quality products. Therefore, in order that increased volumes of goods can be delivered with the usual reliability, considerable amounts have been invested in new production capacity. Consequently, Banner customers will profit from faster availability, the very latest technologies and sustainability.

After roughly fifteen months of construction work, the new manufacturing facilities at the Leonding location are gradually becoming operative. Production enlargement will ensure shorter waiting times and flexible adjustment to the seasonality of battery sales. More than ever, this will make Banner a reliable partner that can react quickly to any critical market situations. In addition, should it be necessary, the production facilities can be enlarged still further.

ALWAYS ONE STEP AHEAD

The modern plant also means that Banner's well-trained personnel can

continue to further develop the technologies employed, thus enabling the company to play an active role in designing the mobility of the future.

Furthermore, customers can rest assured that the premium quality on offer corresponds with state of the art technology and research, especially in view of the fact that in the past six years Banner has invested over € 50 million in research, development and production. It is also worthy of note that sustainability was a major priority in all these activities and as a result, the plant in Linz-Leonding is one of the most environment-friendly battery production centres in Europe.

OEMS GO FOR BULL POWER



© BMW AG

Banner HAS STEPPED UP ITS TEAMWORK WITH PREMIUM CLASS CAR-MAKERS

Apart from AGM batteries, since February 2018 Banner has also been supplying EFB batteries for the BMW premium marque.

As a rule, the selection of a suitable battery first fitter is based on the provision of mature technology, a reasonable price/performance ratio, reliable delivery, first class customer service and an optimum level of recycling. In the opinion of the BMW Group decision-makers Banner possesses above-average ratings in all these areas. Moreover, these capabilities have contributed in no small way to the fact that not merely the German premium marque, but also numerous other automotive manufacturers have opted for bull power from Austria as a first fitting.

EFB BATTERIES AS A GENUINE ALTERNATIVE

The BMW Group has been using a variety of Banner AGM models for the past eleven years and now for the first time, the marque has also started to equip its cars with the company's EFB batteries. EFB technology is based on a boosted wet battery and is employed in micro-hybrid drives, which save fuel by means of braking energy recuperation and an automatic start/stop system.



As Commercial CEO, Andreas Bawart explains:

„With our technical innovations we are making a considerable contribution to a reduction in the CO₂ emissions from modern vehicles. Many of our customers have recently started to use our EFB battery as an economic alternative to the AGM.“

Lengthy development work has enabled the EFB battery to emerge as a favourably priced substitute for complex AGM technology in numerous vehicles. Among other factors, this has been achieved due

to the use of special additives, nonwoven electrode sleeves, separators with minimum resistance and optimised, continuous cast mesh.

Years of research, ongoing training and innovative concepts mean that the Banner team has become expert in this highly complex technological field. Moreover, far-sighted planning, carefully conceived logistics and continual plant expansion represent a customer guarantee of prompt delivery. Indeed, should problematic market situations and delivery bottlenecks arise, Banner has always proven itself to be a competent partner.

THE SUSTAINABILITY ERA

With its EFB and AGM technologies, Banner has established a reputation as one of the designers of the mobility of the future. In fact, the company has long taken its responsibilities with regard to resource conservation and sustainability extremely seriously. As a consequence, the new technologies stand out owing to their trendsetting recycling loop, in which 100 per cent of used batteries are recycled.

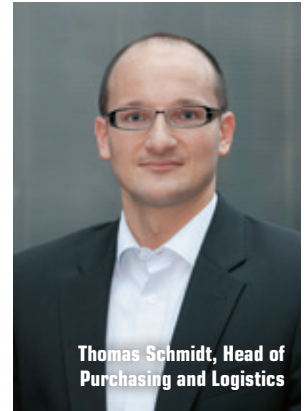
Accordingly, the latest order from the BMW Group also represents pleasing confirmation that Banner's corporate strategy of sustainability and innovation is oriented in precisely the right direction.



E-LOGISTICS

NEW TRANSPORT LOGISTICS FOR IMPROVED CUSTOMER SERVICE

In future, Banner will control the global transport of 4.5 million batteries yearly using a web-based, e-logistics platform. This move is intended to ensure that standard Banner reliability and punctuality with regard to deliveries to every continent will remain secured.



Thomas Schmidt, Head of Purchasing and Logistics

Year for year, Banner commissions the transportation of export deliveries weighing more than 110,000 t (around 9,800 cargoes) and the same amount is imported. Therefore, the continuing increase in production and sales volumes demanded a reorientation of the company's distribution logistics.

A MODERN TRANSPORT MANAGEMENT SYSTEM

The whole of transport distribution (export and import) at the Linz-Leonding location is now running via a single platform, which guarantees a uniform service level for all logistics suppliers. The web-based software "ELOGATE" from Santiamo GmbH, which like Banner is an innovative

Upper Austrian company, was selected as a suitable e-logistics system.

Using "ELOGATE" it is now possible to administer centrally all information about reported transports, prices, delivery performance and requirements per destination. Moreover, communications with every supplier of logistics services takes place using just one system. An evaluation of these suppliers and efficient time window management are planned for 2018.

CUSTOMERS PROFIT FROM IMPROVED LOGISTICS PERFORMANCE

Networked, transparent and efficient processes are a major factor in supply chain success. "ELOGATE" ensures a high de-

gree of process stability, data quality and perfectly coordinated sequences, and the web-based platform is now guiding Banner's transport logistics worldwide.

The main beneficiaries in this regard are the customers, as in spite of the difficult situation in the freight market derived from a shortage of both drivers and cargo capacity, reliable delivery and hence the supply of production can be assured.

ENVIRONMENTAL MANAGEMENT

OUR ENVIRONMENT IS OUR FUTURE

Since the very beginning of Banner's history, environmental protection and the measured use of resources have been a major concern. The company now has an environmental management system with ISO 14001:2004 certification and from raw material sourcing to recycling, sustainability is an integral part of battery life cycle assessment, as illustrated by the examples below.



RAW MATERIAL SOURCING/TRANSPORT/DELIVERY

95-98 per cent of the lead employed comes from recycling and recyclate constitutes 80 per cent of the plastic used for battery boxes. A local company that utilises the waste heat from its production process supplies the required sulphuric acid and in future, transport distances are to be further reduced by means of collective loads or increased in-house production, e.g. of battery boxes.

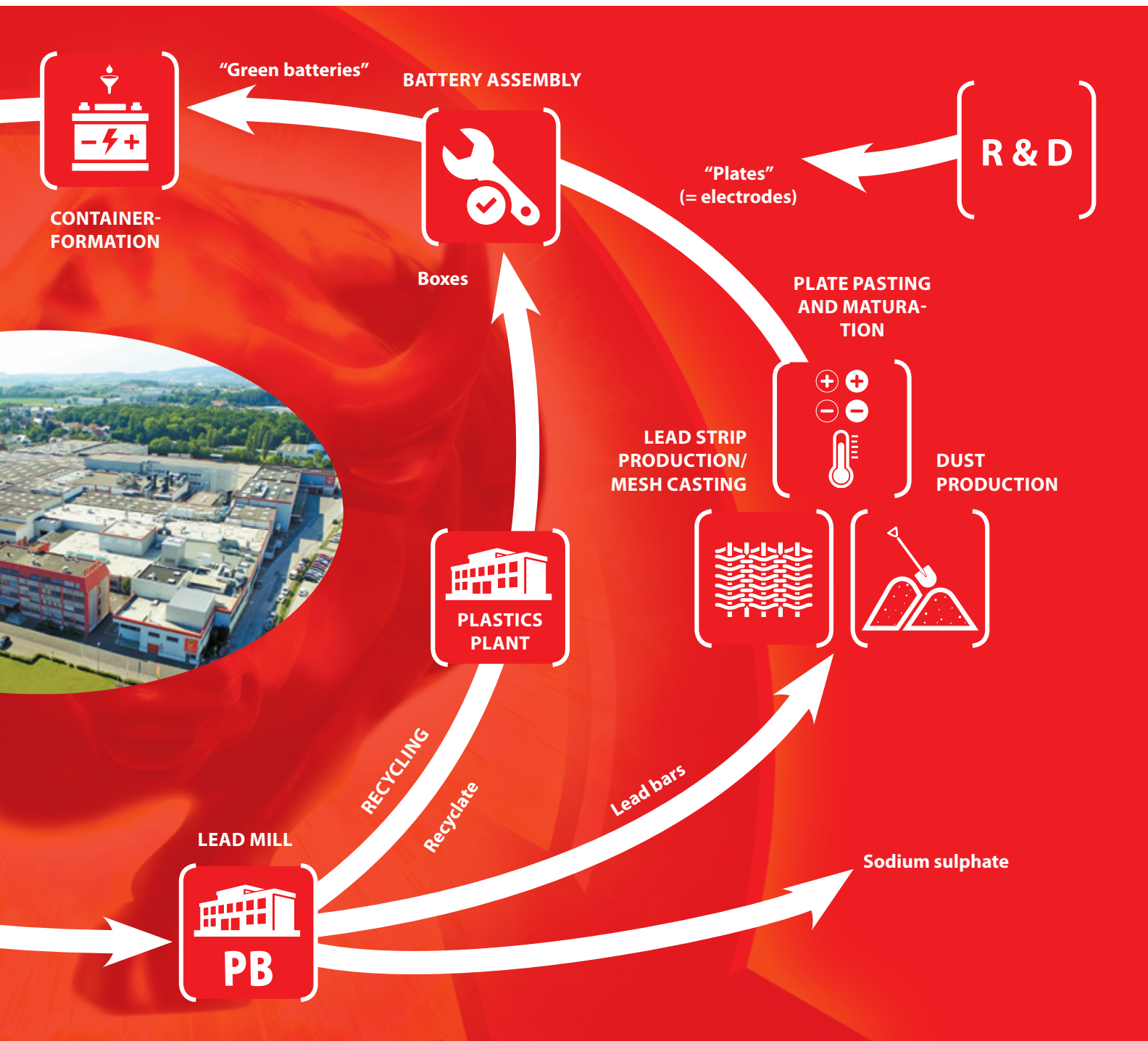
DEVELOPMENT (R&D)

Banner is Austria's only battery specialist and is already working systematically on the next generation of lead-acid power packs. The further development of EFB and AGM batteries for micro-hybrid drives and start/stop systems also means a reduction in customer fuel consumption.

PRODUCTION

During battery manufacture, the strict, mandatory Austrian environmental regulations are not only adhered to, but also surpassed. Value is attached to resource conservation during every phase and lead oxide is either produced in a ball mill or a Barton reactor. Lead strip is manufactured using a continuous casting process and mesh is produced using targeted expanded metal slitting.

Mesh production involves either book or continuous casting. In book casting, the mesh is cast discontinuously, while continuous casting results in a mesh strip. During plate pasting and maturing, lead paste is worked into the lead mesh and then lengthy maturation follows (in 50-60° C and 100 % humidity). This results in a crystalline structure, which guarantees optimum



current absorption and retention. Battery assembly then follows and in the course of container formation, so-called wet batteries are filled with diluted sulphuric acid. Finally, after a number of other working procedures, the finished batteries are supplied to company customers via Banner branches.

BRANCHES

In the Banner branches, sales staff provide customers with optimum advice. In addition, both here and in workshops used batteries are accepted and placed in special containers. These are collected by Banner, which then initiates recycling.

RECYCLING

Lead-acid batteries are entirely recyclable and of all the products marketed that are suitable for recycling have the highest

collection quota (higher than glass and paper).

The used batteries are recycled in the lead mill, whereby lead, polypropylene and sodium sulphate emerge as three recycling products. Lead and the polypropylene recyclate are reemployed in battery production, while sodium sulphate is used as an ingredient in washing powder and glass.

SPONSORING



GREATER DRIVING SAFETY IN WINTER

Banner is supporting the winterfahrtraining.at initiative, which numbers among the pioneering projects in the field of driving safety training on ice and snow on natural tracks in Europe. Company customers can use this opportunity to manoeuvre their own or a rented car under difficult conditions and thus "go to the edge".

PEOPLE

NEW EXPORT MANAGER



Since the beginning of February, Günther Lemmerer has been reinforcing Banner's export management and having previously been in charge of company marketing for many years, he brings profound product and market know-how to this new assignment. Günther has assumed the support of the direct customers in the regions of the Middle and Far East, the CIS states, Scandinavia and parts of both western and southern Europe. Moreover, as he explains: "At the same time, I am also coordinating the acquisition and servicing of special clients and European headquarters in teamwork with our fourteen local sales organisations."

Günther Lemmerer (43) comes from the "Hausruck" region of Upper Austria, has three children and in his leisure-time is an enthusiastic runner.

SimGen: (from l. to r.): Markus Hufnagl, Karin Hufnagl and Emanuel Zeilinger (Oxaion), Christian Ott and Martin Bäck (Banner), Johannes Alexander Karder (Upper Austrian School of Applied Sciences), Reinhard Bauer (Banner), Andreas Beham, Andreas Josef Peirleitner and Klaus Altendorfer (Upper Austrian School of Applied Sciences)

In the Lungau region of Salzburg, Reinhold Sampl, the owner of winterfahrtraining.at furnishes his customers with conditions that would certainly be unwelcome under everyday circumstances. At over 1,000 m above sea level, during the cold months the track is specially prepared every day in order to maximise the winter training learning effect. Special driving safety

coaching can be booked from the end of November to the beginning of March and participants can either use their own cars, or one of the fifteen company vehicles. In the course of a partnership, these have now received a fiery Banner Buffalo design, which is highly appropriate as safety and reliably starting are also primary Banner concerns.

THE SIMGENOPT RESEARCH COOPERATION

Banner RESEARCH INTO THE PLANNING TOOL OF TOMORROW

In its search for innovative planning solutions, in cooperation with IT and scientific experts, Banner has launched the SimGenOpt project.

The aim of this project is the creation of a planning tool or concept that will facilitate shorter reaction times and a simpler adjustment to the demands of both customers and industry. Owing to its innovative nature and the broad range of applications that it offers to other branches, the Austrian Research Promotion Agency (FFG) is supporting the project.

THE Banner TEAM IS COOPERATING WITH IT & SCIENTIFIC EXPERTS

Among other elements, the project incorporates the very latest scientific findings and the possibilities offered by cloud computing. Banner personnel are working closely with specialists from the ERP software supplier Oxaion and the Upper Austrian School of Life Sciences campuses in Steyr (production & logistics) and Hagenberg (computing).



In an initial step, Banner's production (five production phases with over 35 plants) is to be modelled on a computer using data from the ERP system. During the investigation of possible improvements, parameters of planning relevance (e.g. production batch sizes, etc.) will be examined and the effects simulated. Initial findings are anticipated during this autumn.

Banner AT THE LOGIMAT 2018**DIGITAL - NETWORKED
- INNOVATIVE**

March saw the holding of the 16th LogiMat international trade fair for intra-logistics solutions and

process management at the Stuttgart Airport exhibition centre.

With its innovative products and solutions, Banner fitted perfectly into the branch mix at the fair, which consisted of sourcing, warehousing, production and distribution logistics.

The company can point to extensive experience in areas such as the regulation of in-house material flows and IT control from sourcing and production to delivery. This made the Banner experts at the fair sought-after discussion partners and the Banner stand was visited by numerous guests from industrial, retail and services companies, all of whom used this opportunity to gather information about innovative strategies and products.

AUTOMECHANIKA**BULL POWER IN Banner's
"ALPINE LODGE"**

In September, the automotive industry's decision-makers and interested parties will be present in force at the AUTOMECHANIKA in Frankfurt, and our team will be waiting to welcome numerous visitors to Banner's "alpine lodge".

From 11 to 15 September 2018, Banner will be exhibiting at this leading, international automotive industry trade fair for equipment, components, accessories, management and services, and as usual, in the popular Banner "alpine lodge" everything will revolve around batteries with great future promise. Visitors can look forward to receiving information and tips regarding the company's extended product range for car and commercial vehicle technologies, which is fully in line with market requirements.

We look forward to welcoming you to the Banner "alpine lodge" in Hall 4.1. (Stand D51).

TRADE FAIR CALENDAR**CEMAT**

**HANOVER
23 - 27 APRIL 2018**

International
intra-logistics fair

**AUTO-
MECHANIKA**

**FRANKFURT
11 - 15 SEPT. 2018**

Leading international
automotive industry
trade fair

SUMMER GREETINGS**FILL UP WITH
SUNSHINE AND
RECHARGE YOUR
BATTERIES**

We would like to wish all our customers, partners and friends an enjoyable summer and a relaxing break in which to recharge their own batteries to Banner status (100 %)!

Banner *INSIDE*: BMW, VW, AUDI, PORSCHE, MERCEDES, SEAT, ASTON MARTIN, SUZUKI, ...



Banner

THE POWER COMPANY

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