

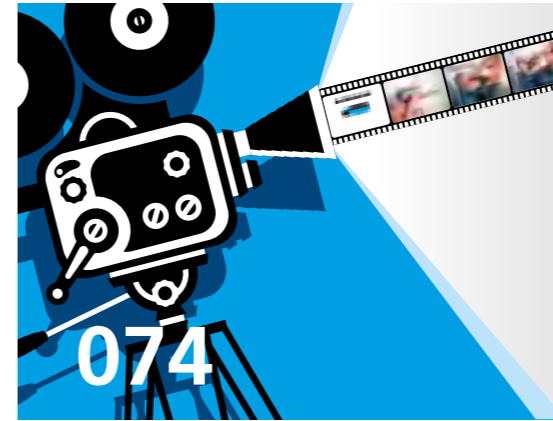
K»MOBIL

THE KIRCHHOFF GROUP MAGAZINE



Premiered at the IAA in Frankfurt: A battery housing in lightweight design for electric vehicles developed by KIRCHHOFF Automotive. Chancellor Angela Merkel shows great interest in this innovation for the vehicles of the future. More to come from page 26. »

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Dr. Johannes F. Kirchhoff

Our mobility in the future

— In recent times, the media has adopted a predominantly negative view towards the German automotive industry. The press seems intent on giving drivers a guilty conscience, and this discourse of negativity persists in spite of – or perhaps precisely because of – the insatiable appetite for individual freedom and mobility from the billions of people served by the German automotive sector across the world! »

Cars produce emissions in gas and particulate form; they generate noise, and the roads they require take up too much valuable space. We also consume valuable resources in vehicle production. In this context diesel vehicles are to be banned from city centers with immediate effect and combustion engines completely after 2030.

» Of course, these kinds of allegations – and the preventative bans that stem from them – could be extended to other goods or services in our society at any time. We welcome such moves when they fuel the drive to develop ideas and innovate; they help make the products and processes we use in our day-to-day lives and the products that we are passionate about more efficient. «

However, the wholly unjust defamation of highly efficient drive technologies in pursuit of a more efficient, better functioning society is counter-productive. It makes no environmental sense to ban highly efficient diesel and petrol drives, or coal and gas-fired power generation facilities, without first ensuring that a more efficient solution for energy consumption and power generation is in place to protect individual mobility. All politicians, judges and experts involved in these kinds of decisions must re-orientate their thought processes to the basic laws of nature that govern our existence on this planet. If we base our approach on scientific principles, we see that we can only enhance our society and protect our environment by holistically increasing the efficiency of entire processes.

In the future, if we can generate electricity directly and/or indirectly from gas, store energy from wind, solar or hydro sources and distribute this energy in an economical way, there is no

environmental reason why we cannot deliver individual electrical mobility to the masses; consumers will make their own choices based on price, comfort and everyday use.

We must all ensure that we do not write off the mobility of the future before it has even gained a foothold due to unnecessary bans, interventions and regulations that could actually damage our society.

We welcome measures – untainted by ideology – that promote further research into and the development of energy generation and consumption technologies for the good of society. This is a future that is worth standing up for, and it is the future that our family company and our team of employees strive for day after day.

For the 2017 business year, the KIRCHHOFF Group is set to continue on its established course of growth. All divisions have helped to boost revenue to 2,1 million euros, an increase of 6.5% on the previous year's figure thanks to the hard work of our 12,300 employees.

Our Automotive and Ecotec divisions for municipal vehicles worked with dedication and commitment to develop the future growth market of electrical drives, and are well-equipped for the future.

To great acclaim from customers, the **Automotive** division used the opportunity of the IAA to present a hybrid steel/aluminium battery housing that can be scaled to suit a diverse range of electric vehicles. This innovative and lightweight concept designed to safely house high-voltage battery modules is characterised by its cost-optimised design, slimline structure, passive safety and, thermo-management features, electromagnetic compatibility and a high-quality seal and corrosion protection system. We have invested heavily not only in the development of innovative products, but also in increasing our production capacity worldwide. Over the past year, we have completed major expansion works in Gliwice (Poland) and Querétaro (Mexico). In Gniezno, Poland, we also commissioned a new assembly plant which was built within a record-breaking time frame of just one year. This plant will supply the VW plant in Września with a number of complex components for the body of the new VW Crafter. Many of the core components of the underbody – a total of 67 welded assemblies – and the dashboard supports developed by KIRCHHOFF Automotive are produced in Gniezno. Overall, the division can look back on a successful year. KIRCHHOFF Automotive achieved global revenue growth of 3.5 % in 2017; it achieved growth of 14.5 % in Europe, and 9,8 % in Germany. »

ECOTEC

FAUN, ZOELLER and HIDRO-MAK, the companies of the Ecotec division, impressed with their electrically powered superstructures, air pollution control technologies designed for the rear of waste disposal vehicles, and hybrid refuse collection vehicles. The first symposium on the topic of hydrogen fuel cells was well received, and the first run of waste disposal vehicles and sweepers to be fitted with this technology will be exhibited at IFAT in May 2018. Having increased revenue by a total of 6% compared to the previous business year, the Ecotec division is continuing on its course of strong growth. The division is investing in establishing the online training portal initiated by FAUN, and has also launched a major service campaign for ZOELLER. The founding of the new company KOCO solutions AG, based in Zug, Switzerland, will boost the competitiveness of the entire business unit by bringing introducing IoT (Internet of Things)-based fleet management solutions to the portfolio. KOCO connect is a modular, individually configurable software system, which offers customers multiple features to optimise waste logistics. At next year's IFAT, the company will be showcasing its alternative drive technologies alongside its new series of lifters and enhanced Clean Option technology.

The **Mobility** division clocked up multiple successful trade fair appearances this year, including events in Fulda, Karlsruhe, Bremen and Düsseldorf, as well as an in-house fair at the Hilden site, with the NIVO NewLine rear entry vehicle – which is new to the market – taking centre-stage at each event. This modification to the Volkswagen Caddy and Caddy Maxi models is a robust and high-quality conversion for disabled passengers, offered with a range of easy-to-use accessories, that can be fitted without significantly altering the standard design of the vehicle. The division has also developed a manually operated gas braking system. With “EasySpeed Track”, the primary functions of acceleration and braking can be operated directly, without needing to take your hands off the controls or the wheel. In June 2017, Holger Pape took over as the head of the sales organisation. Under his leadership, KIRCHHOFF Mobility will continue to strengthen its strategic market position. The division has got off to a good start by obtaining QVM status with OEM partner Ford, positioning the company as a premium partner for all leading OEMs in the mobility segment.

MOBILITY

WITTE

The positive developments in the German economy also made an impact at the historic **WITTE Tools**. The manufacturer of high-quality screw tools continues to enjoy high levels of utilisation, but price pressure in the manual tools market remains high. To stay competitive, WITTE Tools has further optimised its production sequences and integrated processes. These activities are complemented by an extended marketing and sales strategy that is already showing signs of success: The redesign of some WITTE and private label product lines has been well received by customers. The company successfully hosted stands at trade fairs in North and South America and Eastern Europe, and is also planning to develop online tutorials for the social media channels YouTube and Vimeo. All of these efforts place WITTE Tools in an excellent position to continue its solid growth in 2018.

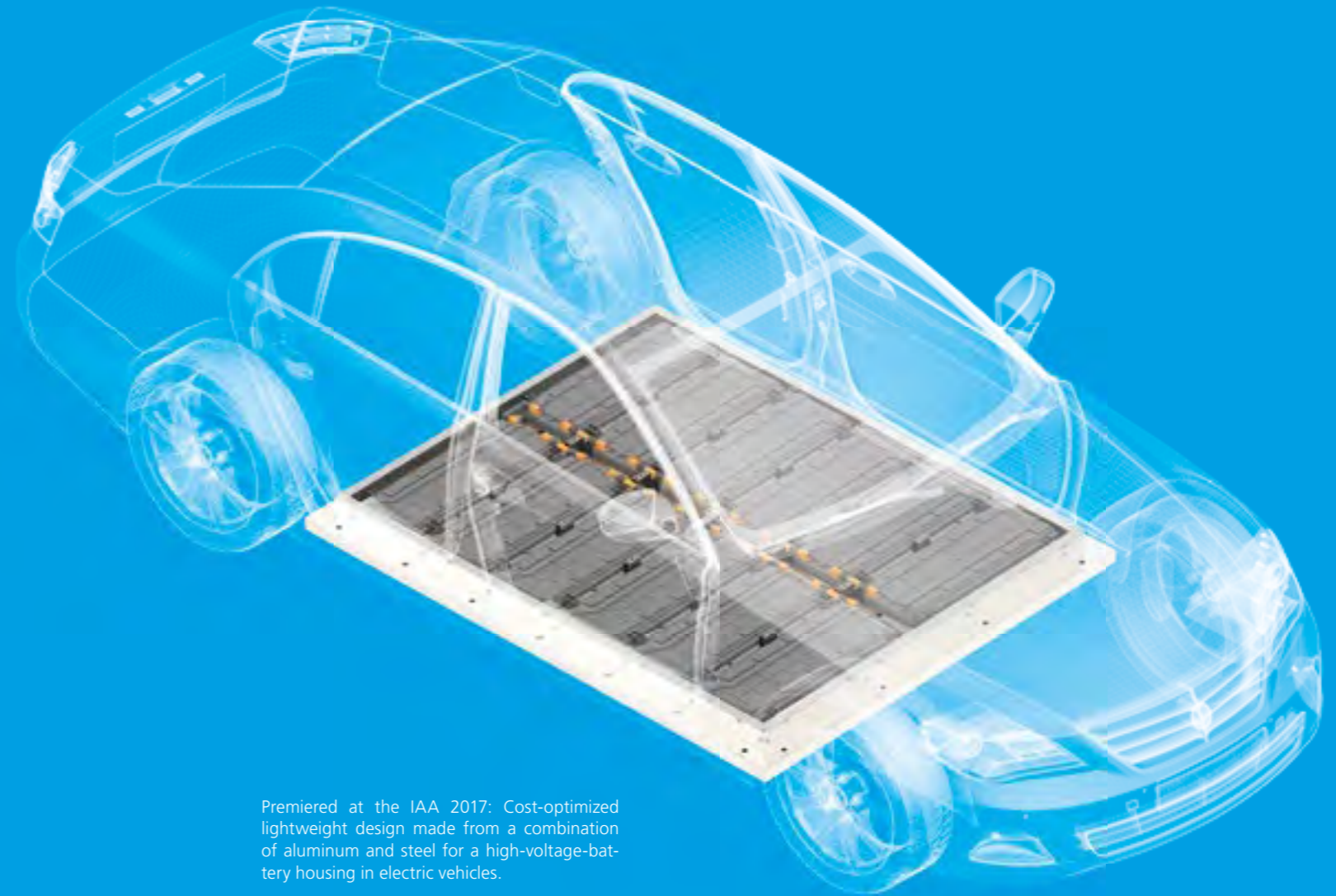
Dear readers, my family and our employees will continue to build on the positive trends in all of our divisions with unwavering dedication and passion. We thank you, our customers, for placing your trust in us and for choosing us as your partner, and we thank you, our employees, for your loyalty and commitment.

Together with my father and my brothers, I would like to wish you all a very happy festive season and all the very best for the new year.

Yours,
Dr. Johannes F. Kirchhoff

Into an electric future

— One of the most important challenges facing the automotive industry is the reduction of vehicle emissions to protect the environment. Vehicle drives that do not generate any harmful emissions during operation are one possible solution. In this context, alternative drive systems for the vehicles of the future focus particularly on electric mobility. KIRCHHOFF Automotive is supporting this trend by developing a crash-relevant, high-voltage-battery housing for electric vehicles.



Premiered at the IAA 2017: Cost-optimized lightweight design made from a combination of aluminum and steel for a high-voltage-battery housing in electric vehicles.



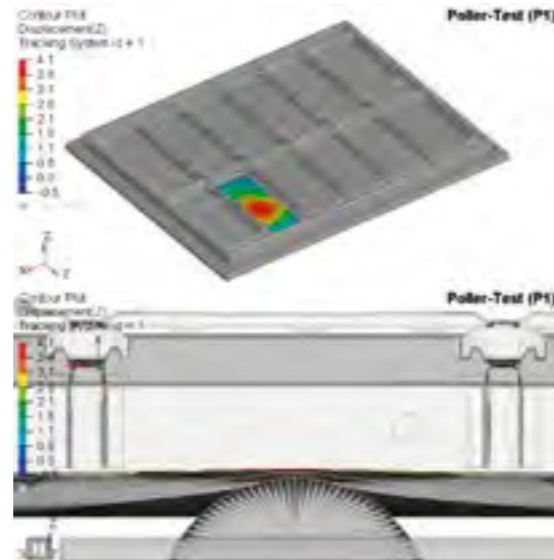
100% ELECTRIC

KIRCHHOFF Automotive is able to draw on its many years of experience in the development and production of crash-proof, hybrid steel-aluminium structures for automobiles in order to develop a battery housing in-house, using an economical lightweight construction. The objective was to develop a housing that fulfilled the requirements specific to this application, such as passive safety, a flat design, thermal management, electromagnetic compatibility, impermeability, and corrosion protection. There were also additional requirements such as a cost-optimized design and a possible universal usability for different vehicle models and range derivatives. »

Alongside the virtual development, the battery housing was also built as a prototype. This highlights innovative solutions in the real component that fulfil the specific requirements of high-voltage storage. The prototype also provides answers to production-specific questions, as it was assembled using near-series methods.

The lightweight construction was created using a hybrid housing concept made of steel and aluminum, which was selected on the basis of the results of preliminary analysis. In the process, particular importance was given to crash performance and underbody protection, with a number of specifications derived from legal requirements. The fulfilment of these requirements were validated by means of FEA simulation. Aluminum extrusion profiles are used for the crash frame, which ensures that the battery modules are housed safely and also provides cost advantages in terms of corrosion protection in the exposed wet area in the vehicle underbody. The underbody protection made of aluminum sheets protects the battery modules from below and also takes into account aerodynamic requirements.

In contrast, the battery modules are housed in a trough and interior structure made of steel. This means that well-established, and therefore cost-effective, joining methods can be used. The selected trough concept allows a great deal of freedom in the scalability of the housing dimensions. In addition, the concept allows the specific flatness requirements in the interior to be achieved with a high degree of precision. The trough concept even helps to increase the vehicle's range, as the interior volume offers better utilization of the installation space compared to a deep-drawn trough. A preliminary study confirms that the trough concept and selected joining methods also fulfil the impermeability requirements. The



assembly is designed for large-scale production processes, in which, among other things, the aluminum and steel subassemblies are joined by means of structural bonding, which also galvanically isolates the components from each other.

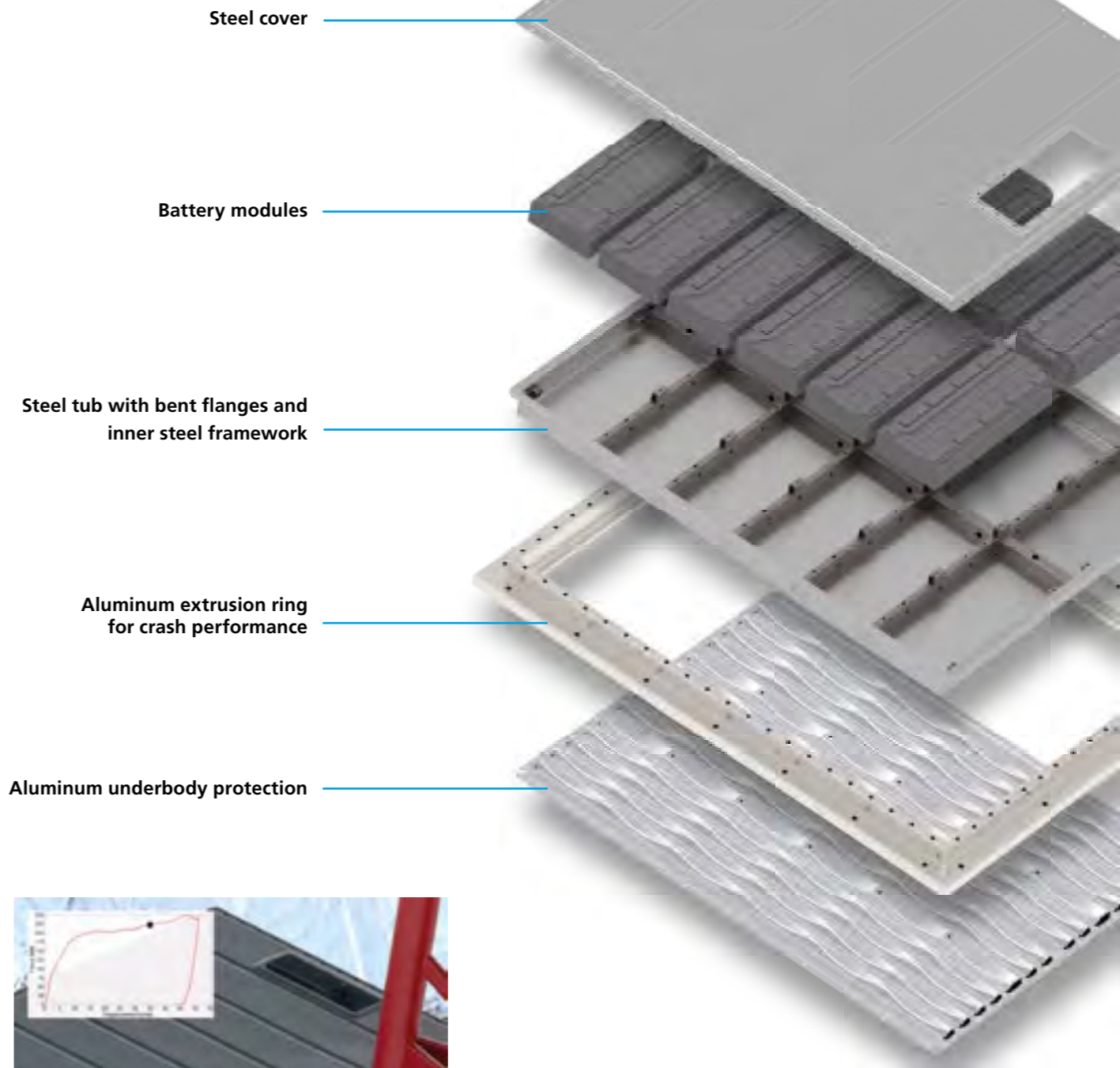
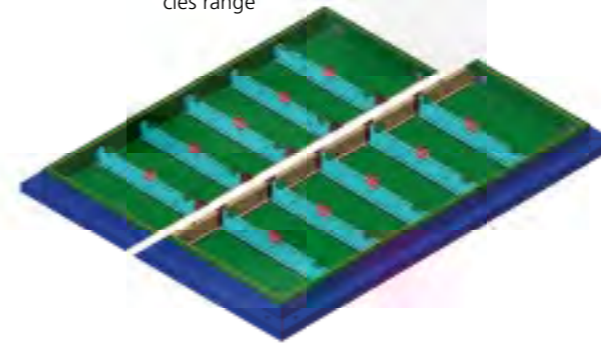
The thermal management of the battery cells are an additional challenge. Ideally, the batteries should work within a relatively constant temperature window, as this has a positive effect on the lifetime of the cells and the range of the vehicles. KIRCHHOFF Automotive has developed two proposed solutions for this with an external and an integrated cooling system. The external concepts can be replaced separately in the event of a repair, whereas integrated cooling systems offer greater heat dissipation efficiency.

As the installed high-voltage components should not interfere with the on-board electronics, for instance, the battery housing must shield the live components from the environment. These requirements relating to electromagnetic compatibility (EMC) have also been taken into account in the KIRCHHOFF Automotive design.

The high-voltage-battery housing with a lightweight construction was presented to a broad professional audience for the first time at the IAA 2017 in Frankfurt, and attracted a great deal of attention. With this in-house development, KIRCHHOFF Automotive is offering its customers a concept that already shows a high degree of maturity thanks to solutions that meet product-specific requirements.

Author: Alexander Schauerte

Housing design meets scalable requirements for different vehicles range



Commitment to education, culture, sports, and social causes



Once again, the Dr Kirchhoff Foundation was involved in a large number of activities for the region in 2017. This year, the Foundation spent around EUR 55,000 in connection with its statutory purposes, supporting projects in the areas of education, art, culture, and charitable activities.



01 Circus project at Burgschule Iserlohn primary school

The municipal primary school currently has 163 pupils. Many of these children come from families with a migrant or refugee background. The educational circus project takes place separately from the school context and helps to increase the sense of self-worth in every child.

02 Redesign of the outdoor area at the Protestant nursery school in Iserlohn Hennen

The Protestant nursery school in Iserlohn Hennen currently looks after 65 children aged between two and six. The existing climbing frame was outdated and had been unusable since autumn 2014. In cooperation with the responsible school authority and the nature and adventure school, the outdoor area was redesigned in a natural style, and the children are now able to play there again.



03 String instrument lessons at Kilian - primary school in Letmathe

In cooperation with the music school Iserlohn, children from the third year onwards are given the opportunity to take part in "string classes". The aim of these lessons is to familiarise the children with a string instrument and introduce them to the joy of music making.

04 Otmar Alt exhibition as part of the Luther year at the Reformed Church in Iserlohn

The artist Otmar Alt produces works that arouse curiosity about Luther. An exhibition of his art exploring the life and works of the reformer was held in June at the Reformed Church in Iserlohn.

The educational authority of the Protestant parish also created materials for the exhibition so that interested schools could work with the exhibited pictures.

05 Bach cantatas

The Märkische Motettenkreis choir interpreted the cantatas of Johann Sebastian Bach under the leadership of Dr Wolfgang Besler at a concert of church music in a packed St. John's Church in Nußberg.

06 Schuke organ in the Oberste Town Church

The Schuke organ, constructed in 1972, was given an extensive technical upgrade in spring, with a Zimbelstern stop—a typical feature of northern German Baroque-inspired organs—as the crowning touch.

Author: Kerstin Garmatter



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KIRCHHOFF
AUTOMOTIVE

WE.MOVE.FUTURE.

New Products on the Road

Authors: Nadine Bartzik, Vanessa Wilkniß

— Also for the latest vehicle models that are being introduced to the market by OEMs KIRCHHOFF Automotive has produced a wide range of innovative components.



Mercedes-Benz E-Class Longitudinal Member

Technologies:

Forming, Spot welding, Projection welding, Riveting, Adhesion, Clip-assembly, Attachment of foam models

Production plants:

Attendorn, Iserlohn/Germany

Capacity/Year:

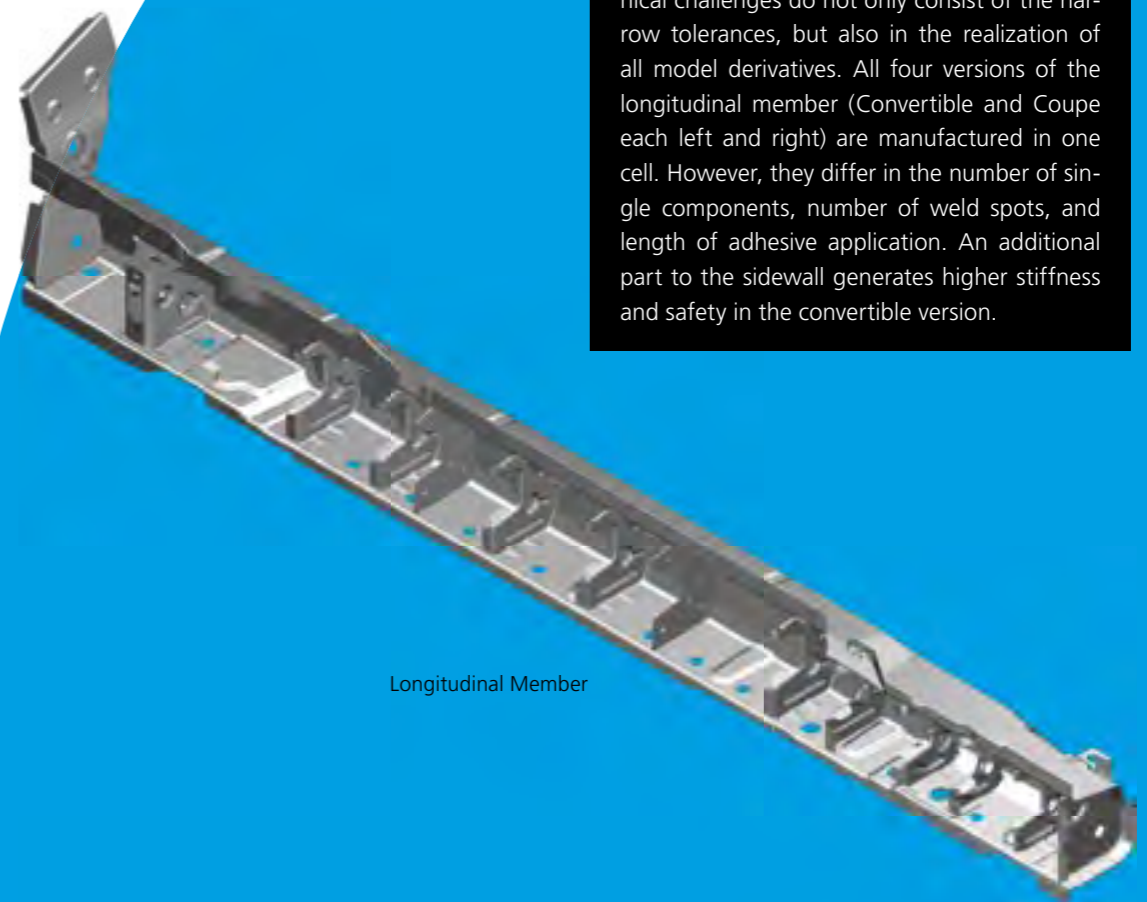
50,000

Customer/Model:

Mercedes-Benz E-Class Coupé and Cabrio

Important structural part for the Mercedes-Benz E-Class

With a length of more than two meters and a weight of over 20 kg, the longitudinal member is one of the biggest parts KIRCHHOFF Automotive produces for the passenger car segment. For the assembly, the plant in Iserlohn has invested in a new welding system. The main part of the product with high material strengths will be pressed on a 2 x 2,500 t tandem press. As a structure part with geometric and crash relevance, the technical challenges do not only consist of the narrow tolerances, but also in the realization of all model derivatives. All four versions of the longitudinal member (Convertible and Coupe each left and right) are manufactured in one cell. However, they differ in the number of single components, number of weld spots, and length of adhesive application. An additional part to the sidewall generates higher stiffness and safety in the convertible version.



Longitudinal Member



Audi A8 Forming Parts

Technologies:

Forming

Production plants:

Attendorn/Germany, Mielec/Poland

Capacity/Year:

57,000

Customer/Model:

Audi A8



Challenging forming parts for the Audi A8

At the end of the year, the new Audi A8 models will be delivered. With an especially demanding part package made of aluminum and mainly high-strength steels, we contribute to the lightweight concept of the Audi A8 car body. The high degrees of deformation and narrow tolerances are special challenges for the production of these components.



BMW 7 Series Structural Part for the Reinforcement of the Front Vehicle

Technologies:

Forming, CDP-coating

Production plants:

Mielec, Gliwice/Poland

Capacity/Year:

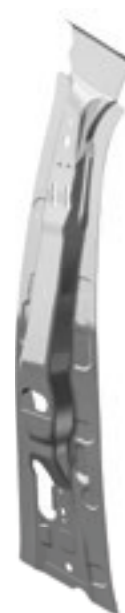
1,800

Customer/Model:

BMW 7er with 12-cylinder-motor

Stability for the BMW 7 Series

With the Cross Connection Front Panel Rear KIRCHHOFF Automotive not only contributes to the lightweight design of the BMW 7 Series 12-cylinder car body, but also significantly supports the reinforcement of the front section with this structural part. An additional increase in strength of the product is achieved by a subsequent heat input at our Polish plant in Mielec. That way an optimal stability with low weight is achieved.



Locking part B-pillar



A-pillar lower outer



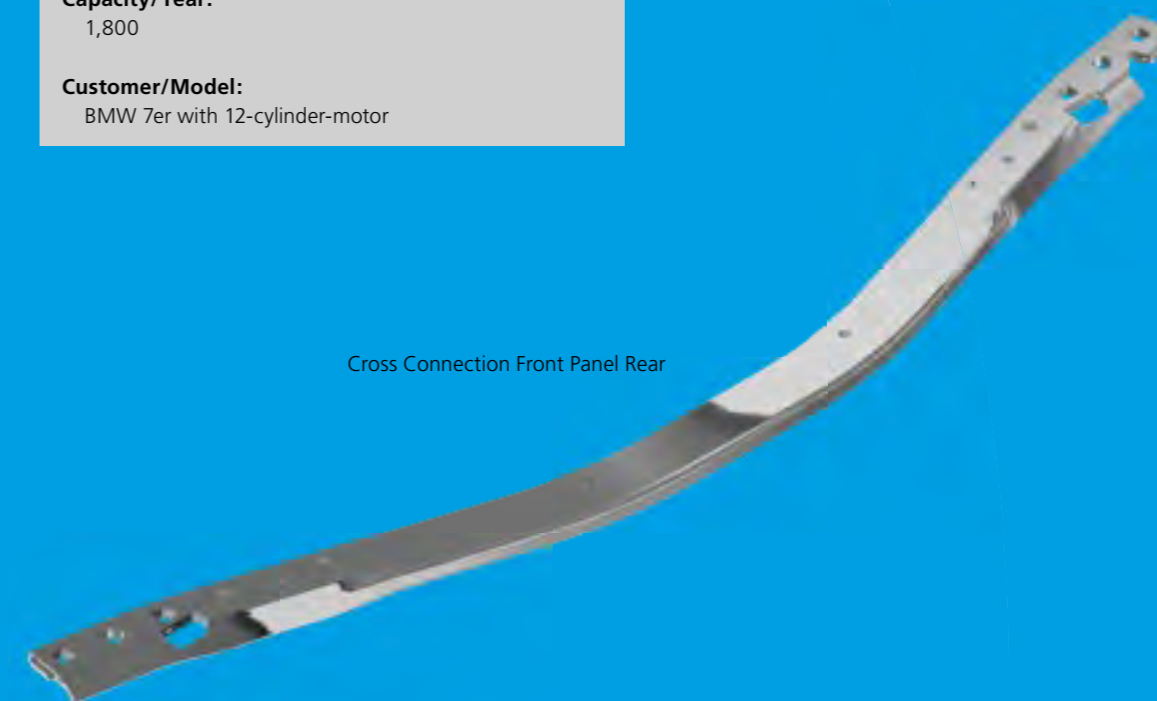
A-pillar lower inner



Side panel frame rear inner



Support C-pillar



Cross Connection Front Panel Rear



Crossmember Floor Inner for Škoda Karoq and VW T-Roc

Technologies:

Forming, laser welding, resistance projection welding, resistance spot welding

Production plants:

Gliwice/Poland, Ovar/Portugal

Capacities/Year:

350,000 (all models)

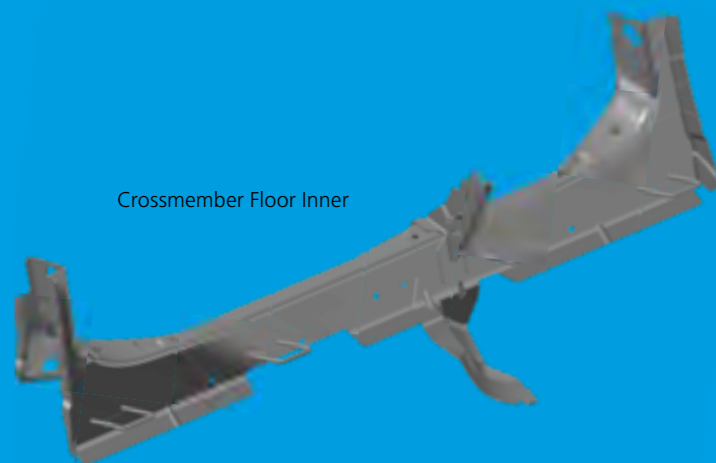
Customer/Model:

VW T-Roc, Škoda Karoq, Seat Ateca, Audi Q2

VW T-Roc and Škoda Karoq complete the SUV platform

The Inner Floor Crossmember of the four MQB platform VW models has been produced at KIRCHHOFF Automotive in Gliwice since 2016 with the start of production on the Seat Ateca and Audi Q2. VW T-Roc and Škoda Karoq now complete the platform with their recent successful market launch. As the successor of the popular Škoda Yeti, the Karoq is produced on the same line of the Škoda plant in Kvasiny, Czech Republic as its twin car, the Seat Ateca. Due to the proximity of the VW plant in Setubal, the crossmember for the VW T-Roc is manufactured in Ovar, Portugal. Technically the crossmember is the basis in the car body for the assembly of the rear seat bank. In the daily use it ensures the easy and save installation of child seats in the car with aid of the Isofix hooks. For the first time laser welded Isofix hooks were used which were developed in a joint pre-development and prototyping project with VW.

Crossmember Floor Inner



BMW X3/X4 Front-end

Technologies:

Forming, Cutting, Punching, Bending, Punching, Automated Spot, MAG and Projection Welding, CDP-Coating, Automated Assembly with blind rivet nuts

Production plants:

Manchester, Tennessee/USA, Shenyang/China

Capacities/Year:

415,000

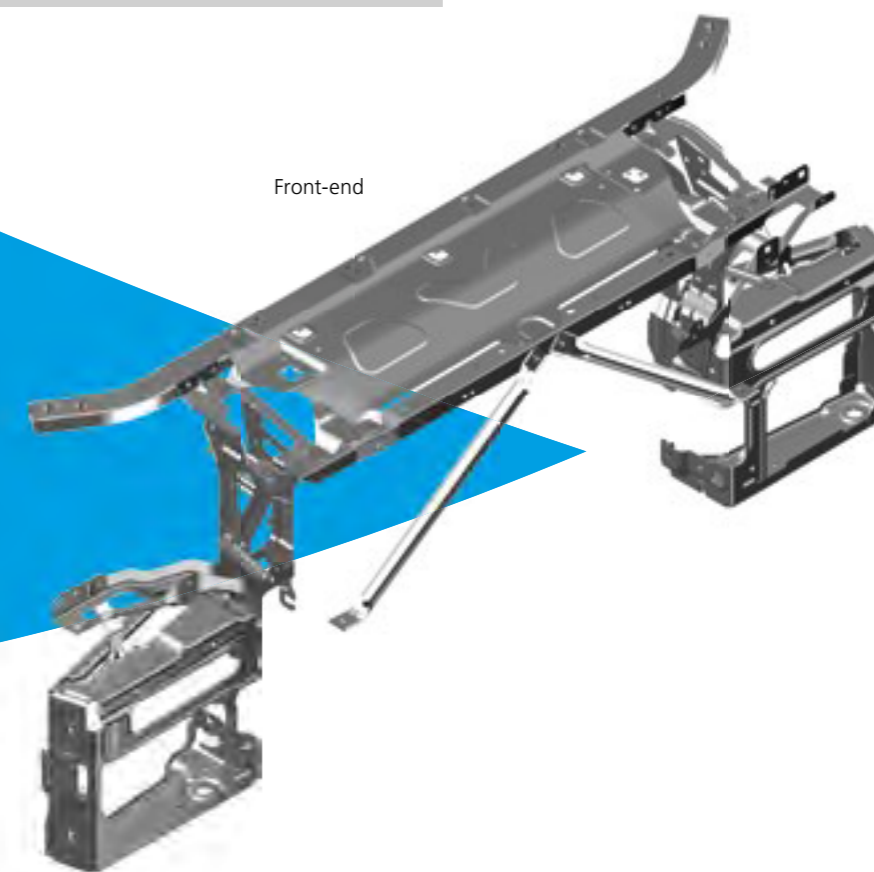
Customer/Model:

BMW X3 und X4

Addition to the BMW front-end family

We already manufacture the front-end for many BMW models, such as the 5, 6 and 7 Series. Now, the X3 and X4 are also equipped with our assemblies. The hybrid front-end was successfully developed in Germany with BMW and then coordinated with the American project team for the X3 in the USA. For this, they had to work with a challenging system with regards to weight, costs and tolerance requirements. The reinforcement lock, connection upper front and the SO (small overlap) frame of the complex assembly are all made of steel, and the rest is made of aluminum. In this concept, the bending and piercing of aluminum profiles as well as the welding of zinc coated material was technically challenging. Using the same part concept, the series production of the X3 will also be carried out in our plant in Shenyang, China in spring 2018.

Front-end





Cross Car Beam



Honda Accord Cross Car Beam and Fuel Door

Technologies:
Forming, MIG Welding, Projection Welding, Assembly

Production plant CCB:
Waverly, Ohio/USA

Production plant Fuel door:
North York/Canada

Capacity/Year:
409,000 each

Customer/Model:
Honda Accord

Crash relevant structural part for the Honda Accord

The recent plant wide re-organization in Waverly's WIP (Work-In-Process) and BIP (Bought-In-Parts) storage area has led to general improvements in material storage and material flow. This optimization also contributed to a successful start of production of the cross car beam for the Honda Accord. Complimentary to this crash-relevant structural part, the plant in North York manufactures the fuel door for the tenth generation of the middle class car. After assembling, the parts are shipped to the Honda Marysville Auto Plant.



Fuel door



Ford Transit Oil Pan

Technologies:
Forming, Projection Welding, CDP, leakage test

Production plants:
Mielec, Gliwice/Poland

Capacities/Year:
80,000

Customer/Model:
Customer/Model: Ford Transit with Panther engine

Modular production process for the oil pan of the Ford Transit

Several processes were combined to produce the oil pan for the Ford Transit with Panther engine. These include a complex deep-drawing process with materials of 1.20 mm strength, resistance welding, screw mounting, as well as leakage testing. These interrelated process steps ensure a high quality process. The oil pan is equipped with special noise and vibration performances and is used for all Ford Transit models with Panther engine. With the special product design a high component stability is realized. A modular process allows for a multiple use of screwing and leakage test equipment.



Oil Pan

Innovations for the vehicles of the future

“Future now”—many car enthusiasts followed that call to this year’s IAA Cars in Frankfurt and were not disappointed. Besides futuristically designed Concept Cars, there were many events held regarding the topics of autonomous driving and E-mobility. The IAA—a showcase of the mobility of tomorrow, where not only the OEMs exhibited a lot to marvel at. The suppliers, among them KIRCHHOFF Automotive, also had many new displays. »



01



Top: Mobility of the future—the IAA showed many facets. The Mercedes-AMG Project ONE, a two-seated super sports show car with a Formula 1 hybrid technology consisting of a hybrid-turbo-combustion engine with four electric machines in total. **01** Chancellor Angela Merkel was especially interested in the battery housing for E-mobility developed by KIRCHHOFF Automotive.



01



02



03

01 Dr. Klaus Zehender, Member of the Board of Mercedes-Benz Cars (2nd f. l.) with our Managing Partners of the KIRCHHOFF Group. **02** In her function as Federal Minister for Economy and Energy, Brigitte Zypries visited our booth. **03** During the tour of the Ford Executives Birgit A. Behrendt, Vice President, Global Programs & Purchasing Operations, Ford (left) was excited to see our innovative lightweight concepts. **04** The KIRCHHOFF Automotive booth in hall 5.1 on IAA in Frankfurt/Main. **05** In her new function as Vice President Purchasing and member of the Executive Committees of the Opel Automobile GmbH, Michelle Wen was welcomed by Arndt G. Kirchhoff. **06** Andreas Müllender, Executive Director Strategic Material Performance Opel Automobile in conversation with Silvia Rauterkus, Director Sales PSA/Opel at KIRCHHOFF Automotive.



04



Lightweight design and car body structures designed specifically for E-mobility were in the spotlight during KIRCHHOFF Automotive's trade fair appearance at the 67th IAA, which is considered the leading fair for mobility. "The 67th IAA Cars show the whole range of mobility innovations, from digitalization to E-mobility and new mobility concepts in cities", emphasized the German Association of the Automotive Industry (VDA) during the last IAA fair day.

With the presentation of its latest development project, KIRCHHOFF Automotive met the current trend: a battery housing with lightweight design (a combination of steel and aluminum) for electric vehicles. The main features and benefits of this battery housing are a cost effective design, corrosion and underbody protection, an integrated cooling system and crash-optimized behavior. The innovative lightweight concept ensures the safe housing of high voltage battery modules in electric vehicles. The housing design is scalable and can be applied in various vehicle models (read also on pages 10 to 13). >>



05



06

Facts and figures about the IAA 2017:

About 810,000 visitors came to this year's IAA to Frankfurt. Through social media, the IAA received tremendous support—here, the biggest European automotive fair reached more than 45 Million contacts. With about 1,000 exhibitors from 39 countries, 363 innovations and 228 world premieres—both new records—the IAA has expanded its position as the international leading trade fair for mobility. Besides the digitalization, E-mobility has shaped this IAA, emphasized Matthias Wissmann, President of the German Association of the Automotive Industry (VDA). More than 400 exhibitors are supplier companies, they have presented 166 world premieres.

The next IAA Cars will take place from September 12th to 22nd 2019 in Frankfurt/Main. The press days will be held beforehand, on September 10th and 11th, 2019.



01



02



03



04



05

01 Highlight on the KIRCHHOFF Automotive booth: A hybridized battery housing made of steel/aluminum, which is scalable in size to match the different E-vehicles. Cost-optimized design, flat construction, passive security, thermal Management, electromagnetic compatibility, tightness and corrosion protection are the main features of this innovative lightweight-concept for the secure storage of high-voltage batteries. **02** They showed great interest in our lightweight design solutions: Hans-Joachim Hayn, VW Department Director Cockpit and Frank Rosen, VW Sub-Department Director Tryout Instrument Panel. **03** A rallye, booth tour and many more impressions awaited the KIRCHHOFF Automotive apprentices from Iserlohn and Attendorn. **04** Steve Kiefer, GM Vice President Global Purchasing and Supply Chain (2nd f. r.) was very interested in our Research and development projects for E-mobility. **05** Alan Draper, Director Purchasing Ford of Europe (middle) in conversation with Dr. Thorsten Gaitzsch, CTO KIRCHHOFF Automotive (l.) and Arndt G. Kirchhoff, CEO KIRCHHOFF Automotive Holding (r.).

“As a supplier, we are also ready to contribute to E-mobility”, said Arndt G. Kirchhoff (CEO KIRCHHOFF Automotive Holding) to Chancellor Angela Merkel who showed interest in the high voltage battery housing during her visit to our booth.

KIRCHHOFF Automotive can rely on its lengthy experience in the development of structural parts for E-mobility. In 2009, the Company participated in a benchmark project for urban E-mobility. In a pioneering cooperation project the automobile supplier developed the E-mobile StreetScooter in conjunction with the Technical College Aachen, as an example for affordable E-mobility. At that time, KIRCHHOFF Automotive developed the lightweight structure for this vehicle which is scalable in size. Today the German Post uses the StreetScooter in many cities as an environmentally friendly delivery vehicle.

The topic of lightweight was also crucial for further fair exhibits: In addition to weight optimization due to the use of a combination of steel and aluminum, a hybrid frontend with profile and shell design offers tight tolerances for a reduction of chassis differences and minimized assembly time at the OEM. »



01



KIRCHHOFF Automotive showed a weight-optimized front axle carrier in aluminum shell design, which represents an economic lightweight solution for the series production of assembly components

Visitors at the innovation area were particularly interested in the selected research projects concerning weight reduction, cost reduction, best possible material utilization and a simplified production process. The example of a floor panel presents a lightweight concept that efficiently applies material combinations for lightweight vehicle bodies. In an integral manufacturing process, several MF semi-finished products and thermoplastic molding compounds are processed in combination with one another.

A weight-optimized front axle carrier in aluminum shell design, which represents an economic lightweight solution for the series production of assembly components, offered another opportunity for further discussions. Reduced weight, as well as the

application of production processes that are suitable for large-scale production, such as deep drawing and inert-gas welding, are advantages of this product.

“The positive feedback from our customers regarding our developments for E-mobility shows that we, as a partner to automotive manufacturers, can make important contribution to the automotive future”, said J. Wolfgang Kirchhoff, CEO KIRCHHOFF Automotive, happily.

Many visitors from economy and politics took a closer look at the innovations presented, such as the Governor of the US state of Michigan, Rick Snyder; Brigitte Zypries, Federal Minister for Economy and Energy, as well as a delegate of the Institute



02



03

01 and 02 During the visit of the Basketball professionals from the Second Federal League all the sports enthusiasts could throw some hoops. According to the motto "A heart for sports" Dr. Johannes F. Kirchhoff, Managing Partner of the KIRCHHOFF Group (r.) and Max Edelhoff (middle) offered some exclusive insights into the life at 24-hour races. With the Audi R8 sponsored by the KIRCHHOFF Group they have already won many races. During the visit of the Basketball professionals from the Second Federal League, the Iserlohn Kangaroos, all the sports enthusiasts could throw some hoops. **03** Christoph Wagener, Vice President Research & Development (l.) answered all of the questions regarding lightweight design and E-mobility the students from the University Darmstadt had.

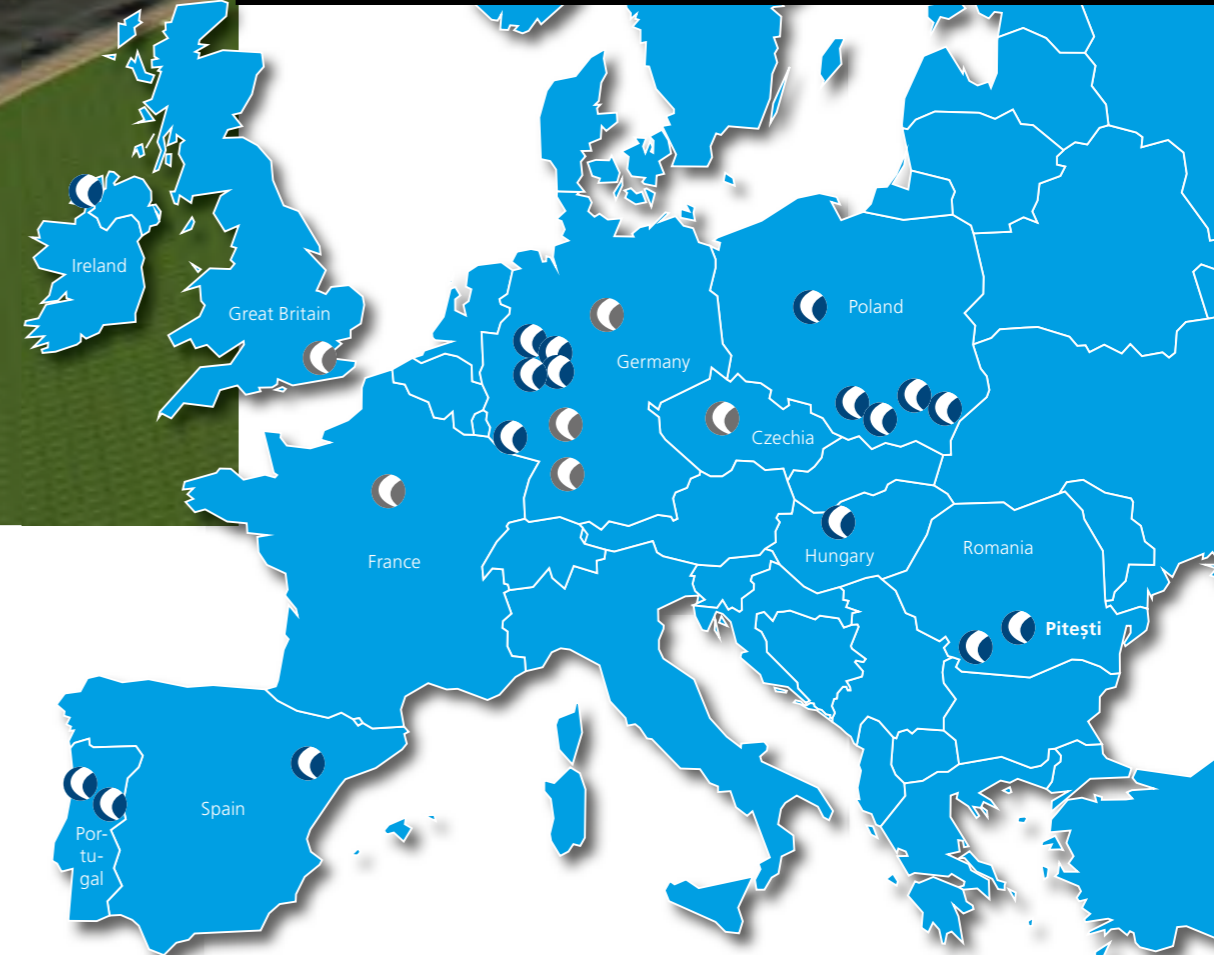
for German Economic Research. With Axel Müller, Manager of Group Procurement Volkswagen; Dr. Klaus Zehender, Member of the Mercedes-Benz Cars Divisional Board; Andreas Müllender, Executive Director of Strategic Material Performance Opel Group; Steve Kiefer, GM Vice President Global Purchasing and Supply Chain and Birgit A. Behrendt, Vice President, Global Programs & Purchasing Operations Ford, KIRCHHOFF Automotive could have welcomed representatives of top management of their customers at the booth.

“We experience how the mobility industry married the digitalization sector. Facebook, Google and SAP show, with the automobile manufacturers, what driving will look like tomorrow. There is one word for that: CASE—Connected, Autonomous, Shared and Electrified. KIRCHHOFF Automotive is already well-positioned in the area ‘Electrified’”, concludes Arndt G. Kirchhoff, CEO KIRCHHOFF Automotive Holding.

Author: Sabine Boehle



— The second KIRCHHOFF Automotive plant in Romania is being built near the town of Pitești. Its unique location allows us to guarantee quick deliveries to our customers in Eastern Europe.



Central and close to customers—the 31st plant is under construction

Roughly 10 million Euro KIRCHHOFF Automotive is investing in the plant measuring 3,100 sqm, which will be situated on a plot of 32,000 sqm. It is set to be equipped with up to four automatic presses providing pressing forces of up to 550 t. These will be delivered in September 2018, by which time the new press shop should also be completed. In addition, there will be a welding workshop with a maximum capacity of six welding presses. Series production is scheduled to start in January 2019.

What makes the new plant special is that it will supply stampings to both, our own KIRCHHOFF Automotive plants in Europe, and also to our customers in Eastern Europe. Thereby, the strategically important location of the plant plays a crucial role: it is just 25 km away from the Dacia plant, and 130 km from the Ford plant in Craiova. The plant will also be close to a newly planned motorway that will link Romania and Hungary. As such, the plant perfectly fulfils several logistical requirements.

Author: Gabriel Porojan

Man and Machine in Einklang in harmony

— The plant in Letterkenny, Ireland has developed the first push nut cell for Cross Car Beams with a collaborative robot. Since the end of 2017, this new machine is used at our production plant in Craiova, Romania.

With this joint project the plants in Letterkenny and Craiova have helped play a part in innovation and improvement. This is a first for KIRCHHOFF Automotive where collaborative robots are being used, working in unison with the operator. A sophisticated sensor system prevents either a collision between human and robot or, in the event of a collision, reduces the acceleration and speed of the robot until it completely stops.

Collaborative robots are quickly becoming a leading player in best in class processes for both quality and cost saving initiatives with endless

applications. "It is great that our Company can say they are at the forefront of this pioneer technology with their customers," explains Barry Roe, Engineering Manager in Letterkenny.

The push nut cell is used in Craiova for mounting screwing elements, the push nuts, to sheet metal constructions. In that case no thermal influence, or the need to weld is necessary. Push nuts are mainly used for the production of Cross Car Beams.

The rework station which is necessary for this project is meant to be combined with the

The push nut cell in Craiova mainly mounts joining elements, the push nuts, onto metal sheets. Thereby, no thermal influence is needed.

push nut cell. For this, there cannot be any sensors in the fixture of the push nut cell, as they have the potential to be damaged by heat and welding spatters which occur during the rework process. Therefore, the plant in Letterkenny has installed a camera system. This camera must be positioned above every joint of the push nuts for the correct control. A collaborating robot attached to the camera enables a stroke neutral control as far as possible.

Author: Sean McDermott

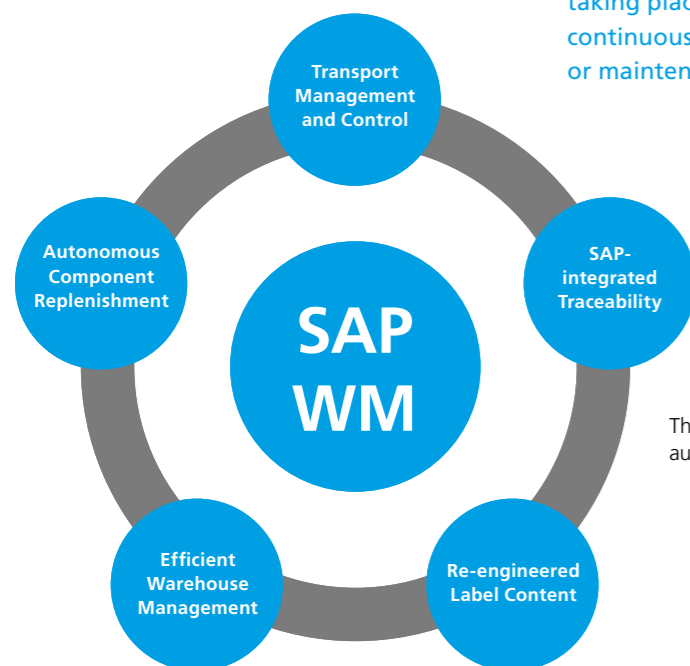
Digital change — a great chance

— This was the context in which KIRCHHOFF Automotive began its far-reaching, long-term initiative on digital process and information transformation.

This era of change, hailed as the “fourth phase of the Industrial Revolution”, offers many new opportunities for our Company in terms of safeguarding jobs and increasing our competitiveness.

We already make use of the increase in digital possibilities in a variety of ways in our plants, as well as our administrative departments. Terms we often use in this context include big data, the Internet of Things (IoT), real time, and augmented reality (AR). Several projects are already being implemented:

- **SAP Warehouse Management**—currently being rolled out—will ensure that replenishment control, which sends the necessary single-part components to our welding robots, will be fully automated in SAP. A warning when stock levels fall below defined minimum thresholds, as well as alerts regarding stock removal and transport orders, will be generated completely autonomously.
- At our plant in Ovar, Portugal, sensor-controlled maintenance is taking place on one of our transfer presses. Load parameters are continuously recorded and assessed to determine whether repair or maintenance is needed, and then initiated accordingly.



The SAP Warehousemanagement ensures an automated management of the warehouse.

Sensor-controlled maintenance simplifies the work at the transfer presses in Ovar. Repair is automatically initiated.

- A pilot project for intercompany goods deliveries between two locations, making use of RFID tags, will commence shortly with the aim of automating and reducing errors in manual posting activities.
- Our familiar shop floor management system is currently being transformed into digital and interactive monitoring.
- In addition, we have developed certain applications to replace previously paper-based activities—our layered audits—and are already implementing these successfully.

The trend towards digitization is picking up speed. We can see this happening in our personal lives as well, and in both spheres, it's all about speed, increasing flexibility, and openness to different forms of implementation.

The goal is an “intelligent factory” that achieves optimal use of resources thanks to its high level of efficiency, transparency, and real-time visualization.

Therefore, the digital networking of our internal activities, which will be extensive in the future, must also be further optimized in relation to our suppliers and customers. We have already developed numerous ideas to address this in two initial joint workshops. These will now be converted into a road map for potential implementation.

Author: Andreas Denso



A good reason to celebrate



— This year, a new factory hall was built at the KIRCHHOFF Automotive plant in Querétaro, Mexico and officially opened in October. The reason for this expansion is KIRCHHOFF Automotive's largest-ever production start-up for a comprehensive GM project.

In the first half of 2017, we received an extensive order from GM for structural parts for a new customer platform. The high order volume, which also comprises five assemblies, requires an expansion of the plants in Querétaro and Tecumseh, Michigan, USA. Planning activities for a new hall to expand the welding area in Querétaro commenced in May. In addition, the necessary expansion of the press shop in Tecumseh is already under way and expected to be completed in March 2018.

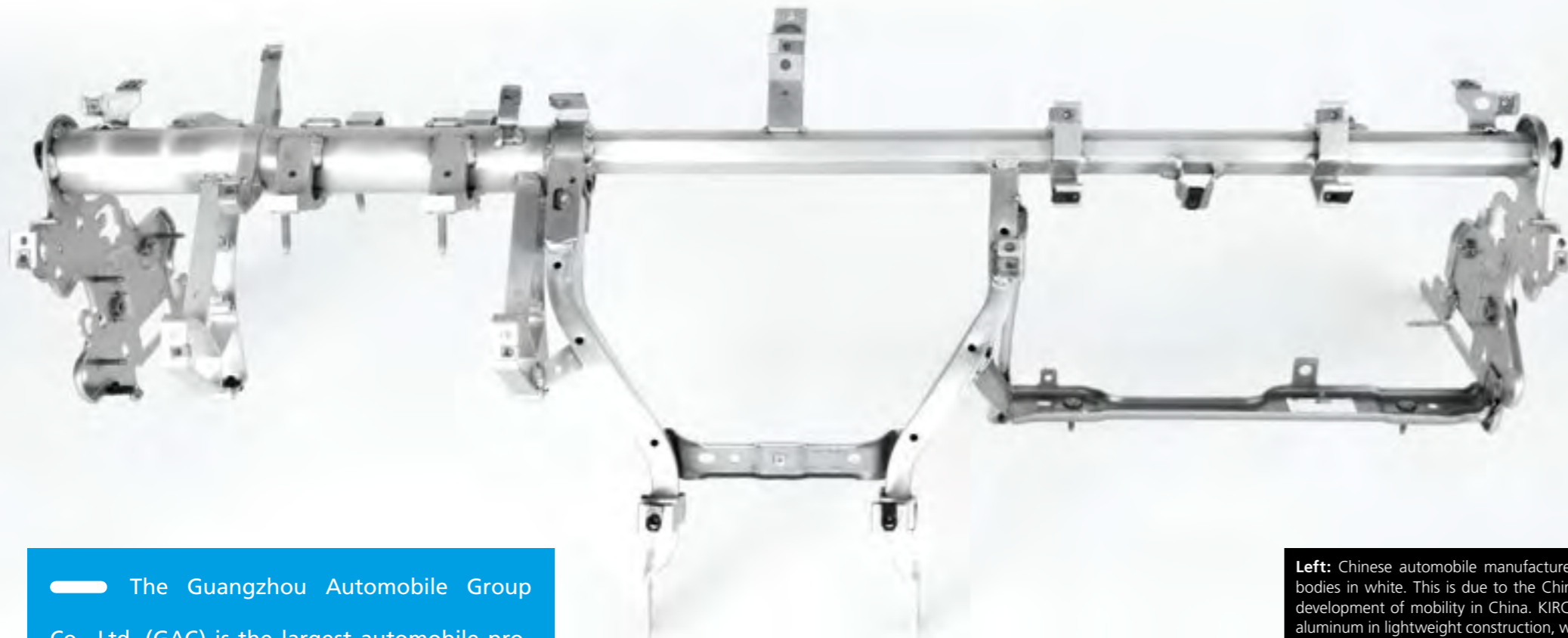
After a construction phase of just five months, the new 3,500 sqm hall in Querétaro—containing new welding equipment that will put together the assemblies for GM—was completed. On October 12th, the plant in Querétaro marked the opening of the new hall. Miguel Ramirez Calzada, GM SQE Structure & Closures, J. Wolfgang Kirchhoff, CEO KIRCHHOFF Automotive, Wolfgang Scholkowski, Director of Operations KIRCHHOFF Automotive in Mexico, German Borja, Head of Sustainable Development in the state of Querétaro, and Hector Delgados, union leader, cut the symbolic red ribbon.

J. Wolfgang Kirchhoff praised the dedication of the Mexican employees: "Each individual has done a fantastic job. Completing the plant expansion in such a short time would otherwise not have been possible." As part of the opening celebrations, the plant was also presented with the Quality Award from GM in recognition of its excellent supply and quality performance.

Author: Nathalia Abreu

A traditional Aztec-inspired dance was one of the highlights of the opening celebrations in Mexico.

Expertise in aluminum at the GAC Tech Show



The Guangzhou Automobile Group Co., Ltd. (GAC) is the largest automobile producer in southern China. At the GAC Tech Show in Guangzhou, KIRCHHOFF Automotive presented its innovative lightweight construction products to Chinese car manufacturers. It was a successful appearance, with GAC Motor showing a great deal of interest in the product portfolio, particularly in the use of aluminum.

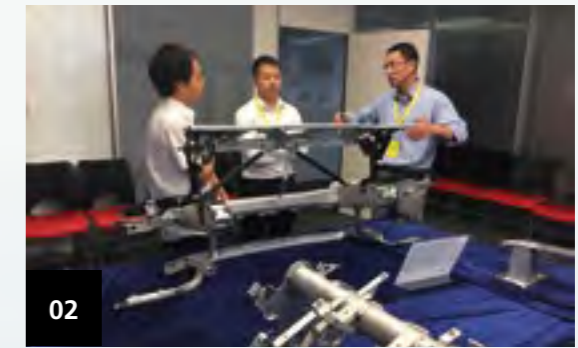
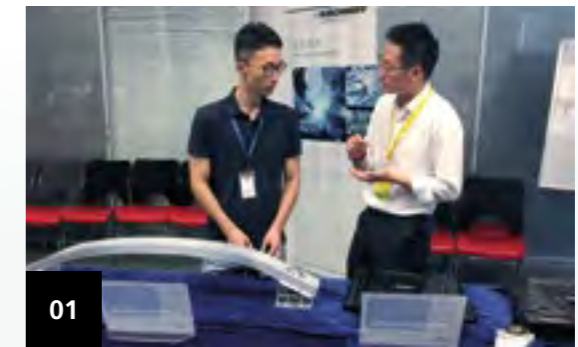
KIRCHHOFF Automotive demonstrated its expertise in aluminum processing by means of an aluminum cross car beam (CCB) for the Cadillac ATS and the Audi Q5. The CCB for the Audi Q5 was developed in close cooperation with Audi's specialist departments. The result was a modular cross member that fulfils all the requirements of the extensive technical specifications. This part is a complex aluminum welded structure and acts as a central interface between the dashboard and the body.

Alongside these products, the Company showcased body-in-white components for Chery Jaguar Land Rover (CJLR) and the front bumper for the Geely GC9. The bumper is an in-house development, which

Left: Chinese automobile manufacturers are increasingly making use of lightweight construction techniques for their bodies in white. This is due to the Chinese government's requirements for the environmentally friendly and sustainable development of mobility in China. KIRCHHOFF Automotive demonstrated possible applications and advantages of using aluminum in lightweight construction, with examples such as the aluminum CCB for the Cadillac ATS, which is 30% lighter than the steel variant. **01** William Zhang, Head of Technical Development at KIRCHHOFF Automotive in China, explains the specifics of the different manufacturing processes for aluminum lightweight components. KIRCHHOFF Automotive's comprehensive expertise in aluminum processing soon became clear. **02** With a hybrid front end made of steel and aluminum and featuring a highly complex modular design, KIRCHHOFF Automotive highlighted its comprehensive expertise in the development and production of aluminum-steel composites. **03** The product developers at GAC Motor showed particular interest in aluminum CCBs, which are manufactured using a variety of aluminum processing technologies.

was designed at the Suzhou plant in China for the premium vehicle division of Geely. The design phase took into account collision at high speeds, pendulum impact at low speeds, and tensile strength. Its production primarily involved technologies such as aluminum extrusion, cutting, and folding, as well as bolt, nut, and self-pierce riveting.

With a hybrid front end made of steel and aluminum and featuring a highly complex modular design, KIRCHHOFF Automotive highlighted its comprehensive expertise in the development and production of aluminum-steel composites. The technologies used



included the stamping of various aluminum alloys, riveting in of six different nuts, aluminum MIG welding, and precise blind riveting of the lamp holder. Li Dongqiang, Head of Product Development at GAC Motor, was visibly impressed by the extensive expertise in lightweight construction: "We are very interested in the development and application of lightweight components and look forward to a cooperation with KIRCHHOFF Automotive for the manufacturing of aluminum products."

Authors: Veronica Gao, Sabine Boehle

Integration has many faces

— Since 2015, refugees have come to Germany and KIRCHHOFF Automotive has been organizing various projects to help these people and to facilitate their integration into our society.

Many refugees were able to participate in internships at our locations Attendorn, Hagen and Iserlohn. "Everyone deserves a chance. We look at it as our moral and human responsibility", says Kuno Jakob, Human Resources Manager in Iserlohn. Many employees at KIRCHHOFF Automotive agree. "I think it is very positive that we try to integrate people with these initiatives. Of course, I want to help them and support them in their work here at our Company", says Meinolf Schulte, Foreman in the Forming area at our Attendorn facility. At one time, he took care of our intern Wisdom Obasogie from Nigeria.

Due to his great commitment and his quick integration, Majid Dehsangi from Iran was able to start his apprenticeship as an Industrial Clerk in Attendorn after he finished his internship in the Purchasing department. At the beginning of his internship the language barrier was the biggest obstacle. Today, however, he speaks German fluently. Knowledge of German is extremely important. "The key to integration is learning the language", says Daniel Kramer, Human Resources Manager at KIRCHHOFF Automotive in Attendorn.

This is the reason for the Company's latest project in the area of refugee aid: a language and alphabetization course for women who have fled—with integrated childcare. "The city and county already offer

many language courses. However, the problem is that women with especially small children are not able to participate in the course offerings", says Daniel Kramer. As such, two teachers are taking care of up to ten children between the ages of seven months and six years, while their mothers are studying German in the repurposed showroom.

Those that have fled are thankful for these opportunities. "My colleagues have integrated me quickly into their community. I feel welcomed", says Mahmoud Alawi from Syria. He takes part in an entry qualification for Industrial Mechanic Production Technology at WITTE Tools in Hagen. Majid Dehsangi is also very happy about the opportunity to complete an apprenticeship. "That is a big step for me. I hope that I can build a good future in Germany after my training. The people here have supported me a lot and I wish to give something back one day."

Authors: Jürgen Dröge, Kuno Jakob



01

Top: "The supervisors and colleagues are very nice. Whenever we do not understand something, they take their time to explain it", said Wisdom Obasogie (left) during his internship in Attendorn, pictured here with Trainer Martin Kleine. **01** Started in October 2017: Heidi Kerstin uses cards with pictures to teach refugee women German: "You can really tell that the women are eager to learn speaking, reading and writing German", she says. **02** "It was a great surprise for me when HR Manager Daniel Kramer told me that I was actually accepted for the apprenticeship", says Majid Dehsangi who now does his apprenticeship as an Industrial Clerk at KIRCHHOFF Automotive in Attendorn. **03** Jessica Becker takes care of the women's children during the language course.



02



03

New heating saves up to 140,000 Euro per year ...

... and also produces electricity! The plant in Iserlohn is the first in our Company Group to use a cogeneration unit to generate both heat and electricity.

Reconstruction for the new heating system began in July and was finalized in November. To date, three large boilers with a power of 2.33 MW, and a smaller boiler with a power of 0.465 MW, have generated heat for the plant since 1979. The new heating system only consists of two boilers with a power of 1.2 MW and 0.8 MW. "This saves space. In addition, the new boilers consume less gas and are based on the latest technology. The projected savings amount to 140,000 Euro per year", explains Plant Manager Frank Buchholzki.

However, the biggest advantage of the new system is the cogeneration unit. An engine generates mechanical energy which is then transformed by a generator into electricity. This electricity can be used in the plant. "We will be generating about 10% of our electricity demand on our own. During gas combustion for the engine power, heat develops. This heat is inserted into the heating circuit, and is then used to heat the plant in winter months. In the summer, we can heat the CDP tanks. By doing so, the plant can take advantage of 375 kW electrical power and 240 kW thermal power," says Frank Buchholzki.

During the course of reconstruction, the drinking water treatment system was also renewed. Built according to the latest technologies, it fulfills the strict hygiene requirements.

Author: Frank Buchholzki



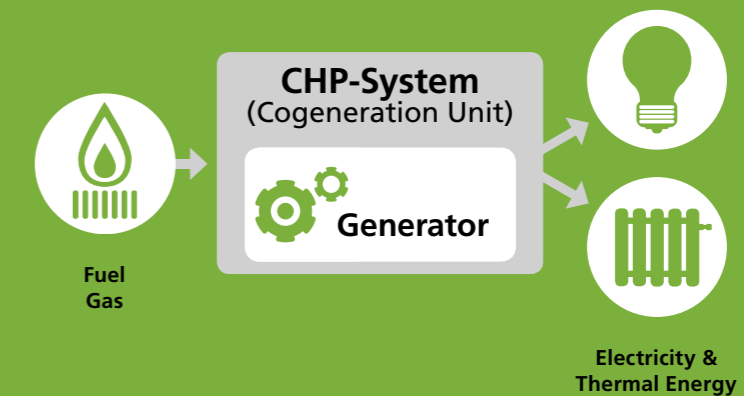
The core of the new system: the cogeneration unit.



Fresh water modules for drinking water heating using the instantaneous water heater principle with cascade control.



A **cogeneration unit** is a modular system for the generation of electrical energy and heat, which is preferably operated at the place of heat consumption. The unit works according to the principle of cogeneration. At the same time, mechanical energy, which is generally converted into electrical current, and heat for heating purposes or for production processes, are obtained in a common thermodynamic process.



New heating system with two boilers with a power of 1.2 MW and 0.8 MW.

Everyone can save a life


Why does a facility keep expensive First Aid devices, such as a portable defibrillator, onsite when the chances of ever using them are minimal? Because of an event such as the one that occurred in our Waverly, Ohio/USA facility on June 27, 2017.




+

Instruction

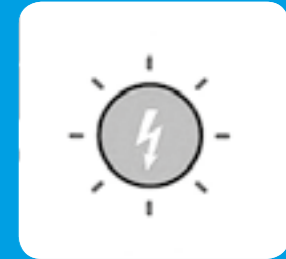
If the patient does not react or breath anymore



1. PULL



2. POSITION



3. PRESS



Peter Smith (name changed by the editorial team), a die setter working the afternoon shift started work at 3:00 pm as he does each day. When he wanted to set a die roughly an hour later, his heart suddenly stopped. His Team Leader saw him fainting and was able to catch him. He laid Peter on the floor and called for assistance. Two Maintenance employees came over, and one of them started CPR immediately as the other contacted the second Shift Supervisor. He took Peter’s vitals but neither found a heartbeat nor outward signs of breathing. That was when another employee got the defibrillator from the first aid room while someone simultaneously called 911 for assistance.

The team cut Peter’s shirt off and set up the defibrillator: They shocked Peter once, and then a second time before his heart started, but stopped again. While the team was preparing for another use of the defibrillator, two members of the Waverly Police Department arrived. They took over CPR efforts and used the defibrillator a third time—successfully. Peter’s heart started again and he was breathing on his own, though it was labored.

Shortly thereafter, an ambulance arrived and took Peter to the Adena/Pike Community Hospital. From there, he was transferred to the Chillicothe Hospital

where he successfully underwent cardiac surgery. The Environment, Health and Safety Coordinator in Waverly followed the ambulance to the Chillicothe Hospital. There, the emergency physician told him that whoever used the defibrillator on Peter saved his life. He would possibly not have made it to any hospital without the use of the defibrillator on the production floor in the plant. Peter made a quick recovery after his cardiac surgery, and returned to work shortly thereafter.

Thanks to the determined intervention of his colleagues and the defibrillator, Peter was gifted a second life.

Author: Bruce Martin

We are one big family

— “Show your families your place of work!” That was the Plant Management’s call to the KIRCHHOFF Automotive plants in Germany, Poland, Hungary and Romania this year. The start of the summery Family Days began at the youngest KIRCHHOFF Automotive plant in Gniezno, Poland this August.



In September, the Family Days continued in Attendorf/Germany, Gliwice/Poland, Esztergom/Hungary and Craiova/Romania. In addition to a plant tour, the versatile program offered something for every visitor. Great atmosphere, interesting attractions, dancing, games and competitions made these Family Days a great event for everyone, young and old.

Author: Eva Rademacher





**Experience, feel good,
listen, participate!**



With KIRCHHOFF Culture Life (KCL) our Company has started a new cultural initiative which is supposed to contribute to a feeling of belonging for KIRCHHOFF Automotive staff; family members are also welcome.

KIRCHHOFF CULTURE LIFE

Aside from ongoing cultural initiatives and activities, special event afternoons will be held at various locations starting next year: 2018 in Attendorn/Germany, Esztergom/Hungary and Gliwice/Poland in 2019 in Ovar, Cucujães/Portugal, Mielec/Poland as well as Iserlohn/Germany will follow. It is planned to offer this cultural program at all locations worldwide in the future. "In addition to the promotion of internal sports activities and the sponsorship of local sports clubs in the area—basketball, ice hockey and soccer—we would also like to offer very special cultural events to our employees and their families", says CEO KIRCHHOFF Automotive J. Wolfgang Kirchhoff.

The first two events of KIRCHHOFF Culture Life were both a great success. On August 27th, twenty employees visited the "documenta 14" in Kassel,

Germany—the world's most important exhibition for modern art—with members of the Kirchhoff family. In September, thirty tickets to the concert of the German hip-hop band "Die Fantastischen 4" in Hemer, Germany were raffled off; 240 employees took part in the lucky draw.

On Sunday, January 28th, 2018, the first KIRCHHOFF Culture event afternoon, entitled "Culture Attack", will take place in Attendorn. The afternoon will be full of music, exhibitions, drinks, snacks and much more.

Author: Prof. Thomas-F. Kirchhoff

Top: 9,000 visitors celebrated the popular German Hip Hop band "Fanta 4" during the sold-out concert in the Sauerlandpark, Hemer. Our employees as well have been amazed by the concert—another great start of KIRCHHOFF Culture Life. **01** The lucky winners of the 30 tickets which were raffled for the concert of "Die Fantastischen 4". **02** The first event of KIRCHHOFF Culture Life was a great success: On August 27th, 20 employees visited the documenta in Kassel, Germany—the world's most important exhibition for modern art—together with some members of the Kirchhoff family. **03** The visit of the documenta provided surprising impressions. One participant concludes: "It was an extraordinary exhibition I would have never visited on my own."



01



02



03

We made it again!

After 2013 and 2015, our apprentices assessed our Company that well again in 2017, that KIRCHHOFF Automotive is still allowed to call itself "Excellent Apprenticing Company".



“I was not surprised at all that KIRCHHOFF Automotive received the Apprentice Award. Every apprentice is offered many opportunities to develop professionally as well as personally”, says Francesco Fidone, Tool Mechanic apprentice in Iserlohn, Germany. Lisa Schaulandt, Industrial Clerk apprentice in Iserlohn is also happy about this award: “I always feel supported by my trainers and I feel like I can rely on a contact person at any time.”

The company-based training is one of the top priorities at KIRCHHOFF Automotive; we try to create the best possible framework for our apprentices as this represents our values such as trust and respect. The award “Excellent Apprenticing Company” gives us our apprentices' confirmation that we are actually doing a good job.

The award is based on an anonymous survey answered by apprentices which is carried out and evaluated by an external supplier. It stands for high commitment in professional training, satisfied apprentices and a positive evaluation of the apprenticeship itself. The label is supposed to provide companies the opportunity to present themselves as a good apprenticeship placement.

Despite the positive evaluation, we consistently have to keep working on this area in order to keep the apprenticeship level as high as it is, and subsequently even improve in some areas.

Author: Tim Klieve

Offering hope



Left: After major earthquakes shook Mexico and especially Puebla in September our plant there started a fundraising campaign—with great success. **Right:** To get the donations directly to the crisis areas some employees also helped with the delivery.

— The earth is shaking, buildings fall into pieces, families lose their homes. Only after a few days, the aftershocks cause further destruction in Mexico. More than ever, our Mexican employees had to stick together.

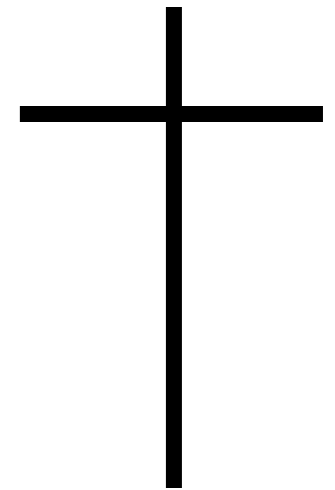
When major earthquakes shook Mexico in September, Mexico City and Puebla were hit particularly hard. Several buildings collapsed, leaving many dead and injured. "The house of one of our employees also collapsed. Fortunately, the family and all of our employees are safe", reported Wolfgang Scholkowski, Director Operations. Another employee's house was strongly damaged. Our Company hired a contractor to assess the structure of the home. The all-clear signal: The house did not need to be torn down. All repairs have been completed by now, so he and his family were able to return to their home safely.

During this difficult time, our colleagues in Mexico closed their ranks. The plant in Puebla started a fundraising campaign for affected families. This way the purchase of tools could be financed to assist in repairing employees' damaged properties.

Moreover, many donations in kind such as food, hygiene products, baby products and medicine were collected. These donations went directly to the Mexican crisis areas. Also in this case some employees committed themselves, such as Martin Muriel from our plant in Puebla. As part of a Red Cross volunteer group he drove to the State Morelos where he was able to directly pass on the aid packages to those most in need.

A big thank you goes out to all employees for their efforts, time and donations!

Author: Nathalia Abreu



We mourn Volker Tofall

"Things happen that we cannot understand, and we stand helplessly and silently."



The news of the sudden and unexpected death of our valued employee and colleague Volker Tofall has devastated us.

Volker Tofall joined the company in November 2012 as Key Account Manager. As of last year, he was responsible for Sales in Europe and Asia as Vice President Sales.

With tireless dedication and a high sense of responsibility, he put his full resources at the service of the company. His friendly and positive nature made him popular with superiors, colleagues and business partners alike. He motivated younger colleagues, encouraging them to take new challenges.

With his death, we not only lost a valuable and dear colleague, but also a good friend. We are grateful that we could accompany him on a part of his journey. Gladly, we remember the many moments shared.

We offer our deepest sympathies to his family.

In mourning and thankfulness,

Management, Works Council and the staff of KIRCHHOFF Automotive

News in brief

Author: The editors

New cut and etch laboratory in Waverly

In the plant in Waverly twelve instrument panels are cut and etched according to the customer requirements each week. In order to optimize this manufacturing process the whole area in question was reorganized according to the latest standards. With the support of the Corporate Quality Team the reorganization and modernization was completed according to the sister factory in Tecumseh, Michigan/USA being the design role model, within a short period of time. New machinery was bought, among those a band saw, a polishing machine, cutting tools and a plasma cutter. Through the establishment of optimal working conditions in this area the productivity as well as the general quality of the cut and etch work could have been increased.

Green light from BMW

Red, yellow or green? That was the question when a delegation from BMW visited the Shenyang plant in September, to proceed an audit on the BMW frontend. This audit is to check if the customer requirements are fulfilled accordingly. For the evaluations a traffic light system is used. Red means a supplier is ineligible, yellow shows potential for improvements in some areas and green classifies a supplier as 100% suitable. For the audit a total number of 300 pieces of each part number have been produced. The BMW team consisting of members from Quality Management, Logistic Quality System and Purchasing then assessed the products in terms of quality, cycle times, packaging, production layout and further aspects. Apart from minor improvement potential for poka-yoke and the planning for a volume increase of the project, the audit was successful.

Premium quality + excellent service = JLRQ Award

This formula was successfully implemented in the KIRCHHOFF Automotive plant in Suzhou. In the middle of the year, they were awarded the JLRQ (Jaguar Land Rover Quality) Award. The Chinese Managing Directors Wen Leyendecker and Dr. Shiqing Fang received the award. During the award ceremony John Setchell (Supplier Technical Assistance Director Chery Jaguar Land Rover) handed over the award with the words: "With the great collaboration and effort of your departments Production, Quality, and Logistics, you truly deserve the JLRQ Award." JLRQ is a supplier performance management system of our customer Chery Jaguar Land Rover Automotive Ltd. With the help of several key performance indicators, Jaguar Land Rover evaluates its suppliers in the context of product quality and service.



Improved product quality, high customer satisfaction and an optimized management were crucial factors for receiving the QSB quality certification from our customer SGM (Saic General Motors). The plant in Shenyang was awarded this certificate in 2017 and can now apply for additional orders for further products. "A functioning quality system is essential for every customer project", explains Plant Manager Tom Bi. That is why the plant has created a development plan and internal training modules. In this course, the teams from production, logistics, and quality departments implemented Kanban and poka-yoke, mechanisms for a flexible production controlling and error prevention.

Support for mini racing cars

After the qualification during the German Championship the Celerity Team started with their miniature racing car at the World Championship of "Formula 1 in School" in Kuala Lumpur/Malaysia. After some exciting days the four-person team reached place 15. A very strong international competition—in total 51 teams from 26 nations competed against each other—did not make it easy for the Celerity Team. "The assembly of the team box, presentations, interviews and of course the race itself challenged us. We did not win, however we gained more experience than we had ever expected!" said the students at the end. KIRCHHOFF Automotive supported the Celerity Team of Larissa Pirello, Bine Blechmann, Jonas Trettin and Paul Trettin as a sponsor. "Formula 1 in School" is a multidisciplinary, international technology competition where pupils develop and produce little Formula 1 racing cars and then compete against other teams.





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KIRCHHOFF
MOBILITY

Custom-made cars



At the facilities in Hilden, customers and interested visitors were able to find out about new mobility solutions and even test the vehicles for themselves.

Open Day

On a gloriously sunny day in July 2017, KIRCHHOFF Mobility held an Open Day at its location in Hilden, Germany. More than 200 visitors took a close look at some recent vehicle conversions and enjoyed the visit of the wheelchair basketballers of the Hot Rolling Bears team from Essen.



KIRCHHOFF Mobility's Hilden team

The visitors took the opportunity to test individual conversion solutions and the latest products in person, in a relaxed atmosphere. The team from Hilden was on hand to offer advice and had even organised a number of exclusive conversions, such as a Dodge Challenger with an extended steering column. This vehicle had been specially converted for a thalidomide victim. The employees also demonstrated the wealth of possibilities in the world of conversions using the new Volkswagen Caddy NewLine with a taxi ramp and the Volkswagen Multivan Colorado with a lowered floor in the driver and passenger seat area. In addition, selected vehicle dealers from the region presented vehicles specifically suited to conversions.

A colourful programme of events provided the perfect entertainment. A tombola to raise money for the Regenbogenland Children's and Young People's Hospice in Düsseldorf allowed visitors to donate to a worthy cause and win some great prizes at the same time.

The star attraction was the visit of the Hot Rolling Bears, sponsored by KIRCHHOFF Mobility. The successful wheelchair basketball team from Essen appeared with their new recruit, Hannfrieder Briel, who has returned to the Bears after a spell in the German premier league. In a fast-paced game, the team demonstrated how wheelchair basketball works. Visitors and employees were then given an opportunity to show off their own skills.

We would like to thank everyone involved in making this day so successful and are already looking forward to the next open day.

Author: Souscha Nettekoven-Verlinda



The entertainment at the open day included a visit from the Hot Rolling Bears, a wheelchair basketball team from Essen, which is sponsored by KIRCHHOFF Mobility. Rolf Mättig, sales employee at KIRCHHOFF Mobility in Hilden, pictured together with Hot Rolling Bears Centre Hannfrieder Briel and Bears President Ronny Berger (f.l.t.r.).

In 2017, KIRCHHOFF Mobility presented its latest mobility solutions at various trade fairs in the DACH region (Germany, Austria, and Switzerland). The vehicle converter was also represented once again at the REHACARE International Trade Fair in Düsseldorf held October 4th to 7th.

REHACARE and more—hands-on mobility



Well-attended once again: the KIRCHHOFF Mobility stand at REHACARE 2017 in Düsseldorf.

The leading trade fair for rehabilitation and care celebrated its 40th anniversary this year and attracted around 39,000 visitors from 70 countries. In this anniversary year, KIRCHHOFF Mobility presented its new, interactive stand concept. Instead of converted vehicles, visitors had the opportunity to examine the respective conversion solutions in detail. Industry specialists and interested visitors enthusiastically accepted the invitation to test EasySpeed or RolliButler for themselves in an enjoyable atmosphere and compare the various products directly with one another.

In the outdoor area, KIRCHHOFF Mobility used the new rear-entry Volkswagen Caddy NIVO NewLine and a converted Volkswagen T6 Colorado with lowered floor to demonstrate its versatility in the conversion of user-friendly and individually adapted mobility aids in series vehicles.

In addition to REHACARE in Düsseldorf, KIRCHHOFF Mobility also presented its products at REHAB in Karlsruhe, RETTMobil in Fulda, and IRMA in Bremen. The Volkswagen Caddy NIVO NewLine had its public premiere at these trade fairs. Since March 2017, KIRCHHOFF Mobility has offered an innovative conversion for passengers, with its new rear-entry NIVO NewLine for converting Volkswagen's Caddy and Caddy Maxi models. Flexibility and individuality—that's what KIRCHHOFF's conversions are all about. Trade fair visitors were impressed by the NIVO NewLine's solid, high-quality, close-to-factory basic conversion and optional accessories.

Author: Souscha Nettekoven-Verlinde



Volkswagen Caddy Maxi with lowered folding ramp and optional accessories (head and back supports and folding seat, right).



A piece of freedom



01 Subsidiary Manager Helmut Hofmann (left) shows Minister Al-Wazir (middle) and Wolfgang Kirchhoff, Managing Partner of the KIRCHHOFF Group a vehicle, modified to the needs of a handicapped person. **02** Minister Al-Wazir is surprised about the variety of modification solutions available to people with limited mobility.

— With their vehicle modifications, KIRCHHOFF Mobility proves again and again that the mobility of tomorrow is not only about alternative drive technologies. The Hessian Minister of Economics, Energy, Transportation and Regional Development, Tarek Al-Wazir, was able to see that for himself during his visit at the branch in Schlitz, near Fulda.

During his Summer 2017 tour, the Minister visited companies that work towards solutions for mobility. J. Wolfgang Kirchhoff, Managing Partner of the KIRCHHOFF Group, and Subsidiary Manager Helmut Hofmann welcomed the Minister and presented the different individualized modification possibilities for people who are limited in their mobility due to an illness, their age or an accident. For Helmut Hofmann, giving back individualized mobility is a matter dear to his heart: “Many customers wait for a long time until they regain their mobility with their modified vehicle. When they finally leave our place with a smile on their face, it really makes me very happy.”

Minister Al-Wazir stressed that the question of mobility becomes more and more important, especially in an aging society. “Especially in rural areas—where the public transportation infrastructure is not as well developed as in the urban areas—the car will still play a big role for visiting the doctor or going shopping. This is why it is particularly pleasing if mobility can be re-gained through the modification of a vehicle”, he concluded.

Author: Dominik Schiller



Head of Sales



— Since the start of June 2017, Holger Pape has held the newly created role of Head of Sales for the KIRCHHOFF Mobility business unit. In spring 2018, he will assume full responsibility for all of the company’s marketing, sales, and service activities in the DACH region.

With Holger Pape as the new Head of Sales, KIRCHHOFF Mobility—one of the leading suppliers of vehicle conversions in Germany, Austria, and Switzerland (DACH region)—aims to remain on course for growth and strengthen its strategic position in the market.

“Mr Pape has in-depth knowledge of the automotive industry and many years of experience in leading sales positions. His expertise and experience as a qualified mechanical engineer with a focus on vehicle technology will help us to further optimise our service and product portfolio and establish new strategic partnerships”, stated the head of the business unit and Managing Director of KIRCHHOFF Mobility GmbH & Co. KG, Dr.-Ing. Axel Panne.

As Head of Sales, Holger Pape will be responsible for the Sales and Service departments of all 11 KIRCHHOFF Mobility locations in Germany, Austria, and Switzerland.

Author: Souscha Nettekoven-Verlinde



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072 "Made in Germany" at Argentinian Hardware Trade Show

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WITTE
TOOLS

When function and
effect are in line.

“Made in Germany” at Argentinian Hardware Trade Show



From August 30th to September 2nd, the international ExpoFerretera took place in Buenos Aires, Argentina. Since 1990, the leading trade fair for hardware, tools and handicraft supplies in South America opens its doors every two years; for the first time, WITTE Tools participated as well.

Along with the Wuppertal pliers manufacturer Knipex, WITTE Tools presented its products to the interested attendees.

For the first time at ExpoFerretera, WITTE presented its wide range of tools to an audience of dealers, multipliers and decision-makers from the South American hardware industry. Attendees were mainly from Argentina but also from Chile, Paraguay, Uruguay and Brazil. With the support of our Argentinian representative, Germantools S. L., the focus was on brand presentation, testing, and handling of WITTE products. Last but not least, the mobile WITTE Torque App attracted numerous visitors to the stand, convincing them of the premium quality of WITTE products.

The positive visitor response during the first fair appearance of WITTE Tools at the ExpoFerretera exceeded expectations. New contacts with domestic distributors, foreign importers and wholesalers were established, which have partly led to first sales activities. The start in a new but old market was a success: “So far we had a commercial agency in Argentina, but this trade fair appearance has been a milestone for us in order to settle down in the Latin American market”, said Martina Hagebölling, Sales and Marketing Manager WITTE Tools happily.

Author: Martina Hagebölling



Top: As always, the torque meter was very well received by the visitors. **Bottom:** Martina Hagebölling, Sales & Marketing Manager of WITTE Tools, together with our Argentinian representative of Germantools S. L., David Alcaraz, advised the visitors of the fair.



WITTE Tools at the International Hardware Fair Cologne in March 2018

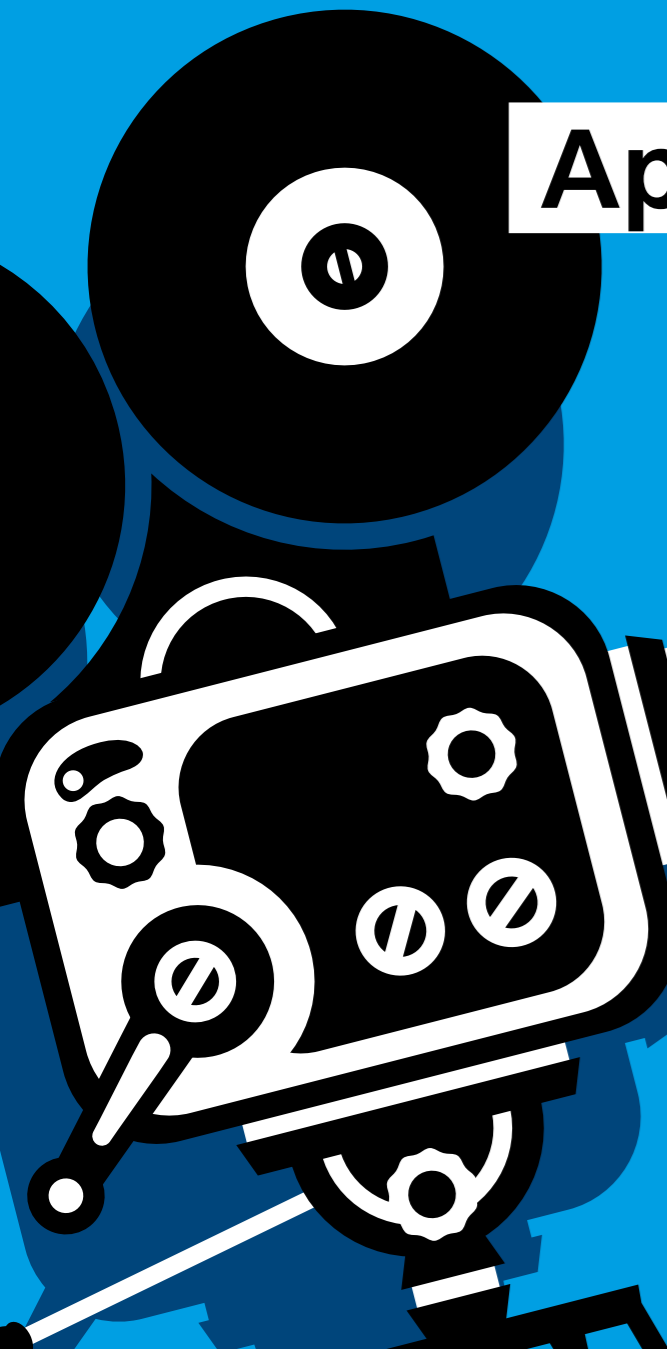


WORK HARD! ROCK HARD!
INTERNATIONAL HARDWARE FAIR COLOGNE
4 - 7 MARCH 2018

WITTE Tools will exhibit from March 4th to 17th, 2018 at the International Hardware Fair in Cologne. For four days, the world's most important decision-makers, manufacturers and trade visitors will meet in the exhibition halls of the Koelnmesse to experience innovations and trends in the international hardware industry.

WITTEtorials

Application tips online



WITTE, known for its high quality tool products, now offers all fans of WITTE tools and those with the ambition to join them, a new online feature in the form of short application videos.



WITTEtorials

With short application videos—the WITTEtorials—WITTE Tools now illustrates the features and advantages of WITTE products. WITTE fans, and those with the ambition to join them, can convince themselves of the high quality tool products by seeing them in action. Many questions about the product and its application are answered for viewers, and offer an enhanced visual supplement to product descriptions.

The WITTEtorials and additional videos that inform, explain and convince, can be found on YouTube and Vimeo. As Social Media platforms, they offer the advantage of interacting with the audience through “Likes” and comments. A valuable exchange with the user is indeed sought after: “We are excited about every ‘like,’ and every comment helps us to learn more about the wishes and requirements of our customers. That is the only way we can optimally adjust our products according to our customer’s needs”, says Alexander Hingst, Sales Director at WITTE Tools.

In the future, WITTE Tools also wants to learn from the community and reach both existing and new customer groups even more effectively. Thus, the tools manufacturer will continue to add additional features and platforms to its online presence.

We invite you to visit WITTE Tools online!

Author: Martina Hageböling



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KIRCHHOFF
ECOTEC

FAUN
KIRCHHOFF GROUP

RELIABLE
PROGRESSIVE

ZOELLER
KIRCHHOFF GROUP

Technik entscheidet

HIDRO-MAK
KIRCHHOFF GROUP

SMART
PRICE
SMART
CHOICE

BIG DATA

It's something we're all aware of. Digital platforms like Facebook, Twitter, Instagram and the like are part of our working and private lives 24/7. We're all part of this inter-connected world, where information, knowledge, events and emotions are all quickly shared - unfortunately, often unfiltered. And with big data, it's inevitable. Smart data distribution systems are already here to stay. Data will be borrowed, shared and handled in a very big way.

This kind of knowledge power will soon be second nature to primary school pupils. But knowing how to use this knowledge intelligently we last saw from Captain James T. Kirk. People will teleport and exchange information at warp speed. Exchanging data is important and can be enormously advantageous. In a digitalised world, data - whether from the internet, industry and the economy, or social media - will be networked, processed and analysed by intelligent assistance devices or surveillance cameras, just as vehicle data will be handled by specialist solutions. One such specialised solution is KOCO connect, an IoT-system for municipal vehicles. KOCO connect is an individually configurable system with a modular structure that offers multiple features serving to optimise waste logistics. The software can be integrated into any IT infrastructure without issue, regardless of the developer. The system is based on the decades of experience of well-known Swiss IoT and weighing specialist Garage Kolly SA, along with the know-how of Swiss vehicle specialist Contena-Ochsner AG. KOCO connect's goal is to increase efficiency and conserve resources.

In June, Contena-Ochsner AG, KIRCHHOFF Ecotec and Garage G. Kolly SA signed contracts to found the jointly-owned company, KOCO solutions AG. KOCO solutions specialises in efficient IoT-based fleet management solutions. The Swiss start-up will be led by Renato Heiniger.

Initially, KOCO connect is bringing four products to the market: with **KOCO tracking**, **KOCO data**, **KOCO weighing** and **KOCO fleet** – waste disposal companies can increase the efficiency of their fleet in a targeted way. All of the functions can be simply retrieved using the KOCO connect website. Dispatchers can optimise timings, plan routes optimally depending on requirements, avoid malfunctions and compare measurement values as well as having recourse to integrated reporting. Vehicles can be equipped with online tour navigation, weighing and tour data gathering. All KOCO connect options can be retro-fitted and can be installed in all municipal vehicles. It can also be integrated via the client's own existing IT systems. All four KOCO products can be implemented either on our own servers in the client area or they can also be web-based (location-independent).

Get to know KOCO: IFAT in Munich from 14th - 18th May 2018

Author: Claudia Schae



KOCO tracking



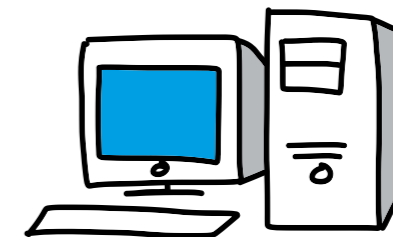
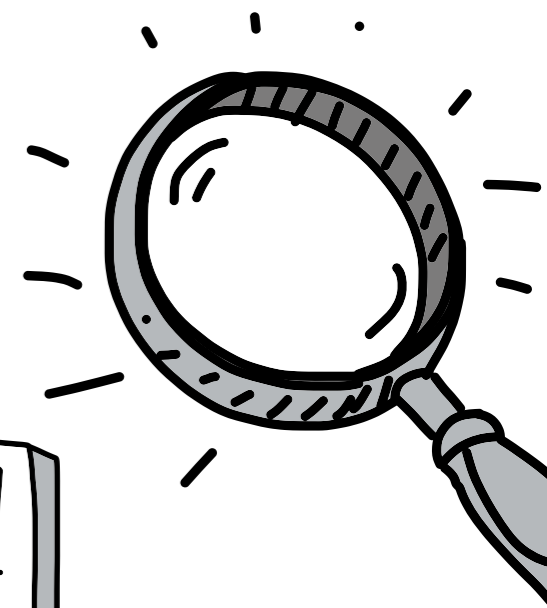
KOCO data



KOCO weighing



KOCO fleet



KOCO

connect

Sweeping angels

As a major city, Frankfurt has a high amount of traffic, noise and nitrogen oxide to deal with. So to provide residents and visitors with a modern, healthy and environmentally-friendly place to be, the FES (Frankfurter Entsorgungs- und Service GmbH) called upon their newly eco-label designated 'blue angel' sweepers to reduce vehicle noise pollution and particle emissions. FAUN was awarded the contract for four of these sweeping angels.

Frankfurt's goal was to generate fewer exhaust and particle emissions in residential areas, at the same time as reducing noise from urban transport. FAUN Viatic in Grimma included a patented air circulation system aimed at reducing fine particle matter and a single-engine concept when designing and manufacturing their road sweeper.

The FAUN air circulation system continuously transports the extracted air from the debris container to the blowing nozzle behind the suction shaft. When loaded with new debris, the moistened and heated air is sucked back into the suction shaft for recirculation. Only the relatively small proportion of air that is not recirculated flows out in a controlled manner from beneath the machine. The system reduces fine dust emissions by around 50% compared with standard suction sweepers. For the drive type, the team in Grimma decided on a single-engine concept. That means, by building the sweeper around the vehicle's engine, it's driven hydraulically on the engine side independent of the transmission. Consequently, an auxiliary engine is not

required and the machine runs significantly quieter. Sound tests were carried out in sweeping mode, so chassis noise emissions could be measured. In the testing process, FAUN achieved an outstanding result of 98 dB. As a comparison, conventional vehicles reach 106 dB, or the volume equivalent to a chainsaw.

Since the end of October, the four quiet VIAJET 6 type sweepers have been in operation in and around the Frankfurt area. Though not strictly blue, with their snazzy design they're certainly cleaner sweeping angels.

Author: Claudia Schae

VIAJET 6 features:

- patented FAUN air circulation system to reduce fine particle matter;
- 'blue angel' eco-label status (www.blauer-engel.de);
- very short and manoeuvrable chassis with 3,260 mm wheelbase;
- single-engine concept an less fuel consumption
- modern Euro 6-chassis Mercedes Benz Atego 1323 LKO.

For a cleaner Frankfurt: Burkard Oppmann (FAUN Managing Director), Michael Steiner, (FES Sanitation Manager) and Julian Neuhaus (FAUN Sales Representative)



Ready for take off

— With the TERRAJET, airport runways are so clean that they sparkle like diamonds. Korea's second largest airport Incheon in Seoul has chosen two of these special sweepers to ensure the cleanliness of its site.

SPECIAL FEATURES:

- Auxiliary engine stage 3A, output 205 KW
- large disc broom with a diameter of 1,000 mm
- 360° side blower nozzles, manually swivelling - large-area cleaning performance of up to 600,000 m² per hour possible
- Manual suction system at the rear of the emptying flap
- Permanent magnet for metal parts that are lying around



Incheon Airport is the second largest international airport in Korea and part of the KAC (Korean Airports Corporation), the operator of a total of 14 airports country-wide. Our local partner, MS Trading Company, led by Managing Director Sangwon Lee, has been a very vocal proponent of introducing FAUN's sweeper technology at KAC. In future, MS Trading will also be responsible for customer service for the TERRAJET 9. MS Trading has many years of experience in the supply and maintenance of aviation or snow ploughing equipment. Its product range will now be completed by the TERRAJET airfield sweeper.

An important aspect of flight safety is the cleanliness of the runways. FAUN is putting its special sweeper TERRAJET on the right track in this market segment. The superstructure sweeper for 15 to 19 tonne chassis is available in two body sizes with a container volume of 7 m³ or 9 m³. Now the operating company KAC has chosen two TERRAJET 9 for cleaning the site.

At airports, everything must be done quickly and extremely efficiently. Therefore equipment must also work quickly and reliably.

Equipped with two suction and three blower hoses, the TERRAJET reliably picks up dirt particles at a speed of up to 40 km/h. The high-performance blower supplies around 30,000 m³ of

air per hour and in pure suction mode cleans up to 84,000 m² areas per hour. The container emptying is uncomplicated in its functioning thanks to the large tilting angle of the container, and no extra filters are needed to clean the vehicle container. The vehicles are able to quickly resume work on the airfield. The TERRAJET works with HS 2000 or HS 3000 high performance hydrostatic drives. The hydrostatic drive range at FAUN Viatic GmbH has been fully revamped in the last two years, and all models have been upgraded with the latest components. The focus of these enhancements was to achieve consistently high performance while minimising consumption.

Author: Claudia Schae



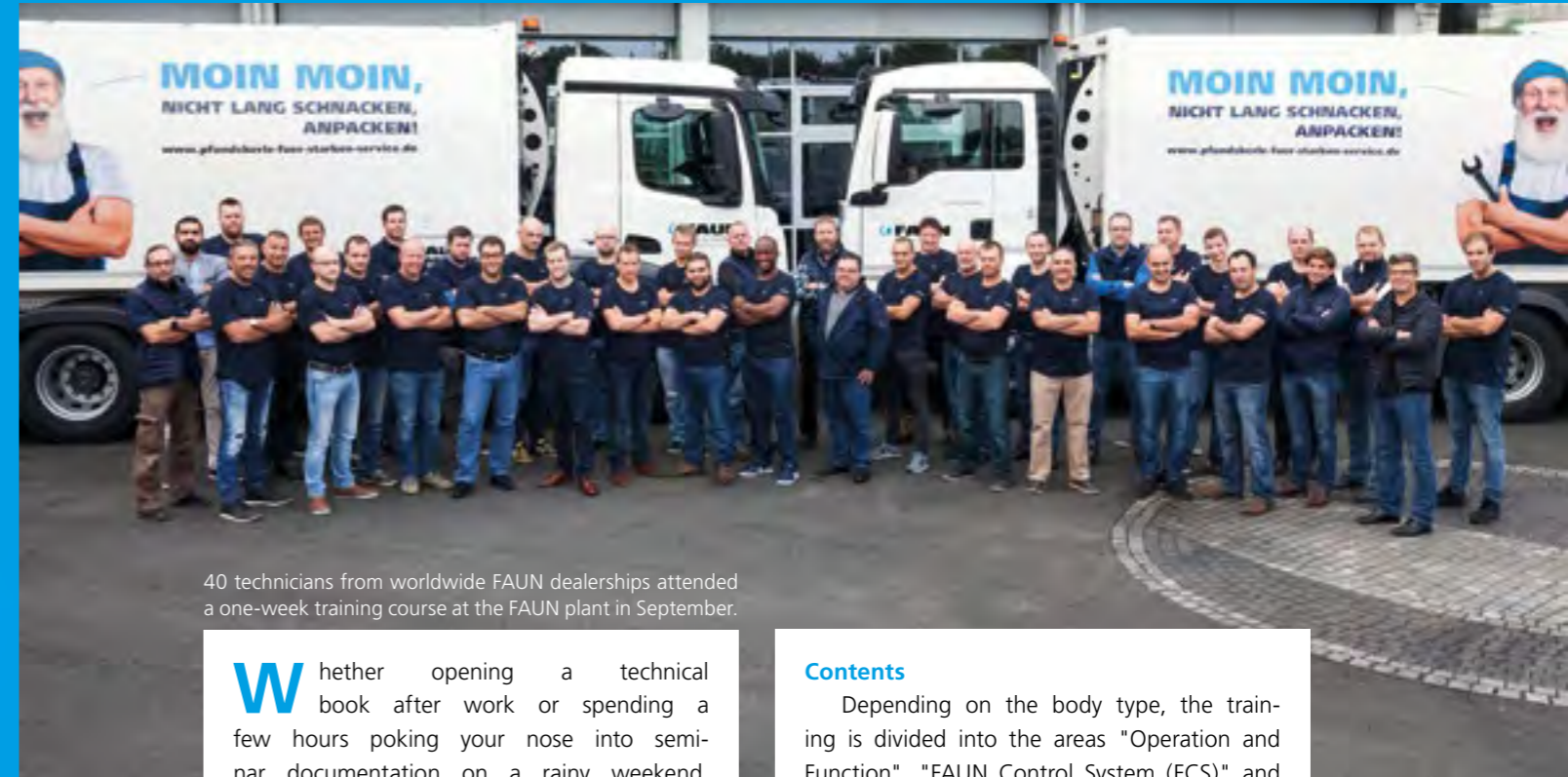
The structural work was approved at a meeting between Lee, Sang-Geon (Deputy General Manager), Jeong, Min-Soo (Manager) of Seoul Airport, FAUN Export Manager Nicolas Malaplate, Sangwon Lee (FAUN representative in Korea MS Trading) at the Grimma factory, and was supervised by Andreas Becker (FAUN Sweeper Demo Driver Team.)

elearning with FAUN

You never stop learning



Whether in everyday life or off the beaten track - We want our customers to have the best information at all times wherever they are. Therefore, FAUN has expanded its training programme, and since December seminars about the FAUN vehicles have been available online.



40 technicians from worldwide FAUN dealerships attended a one-week training course at the FAUN plant in September.

Whether opening a technical book after work or spending a few hours poking your nose into seminar documentation on a rainy weekend, our individual learning methods are just as individual as refuse collection vehicles! Furthermore, the waste disposal vehicles are in use all over the world. The international service support team is in contact with the waste disposal companies, but both sides are confronted with travel-related, cultural and also linguistic challenges.

To tackle these demands, FAUN has developed an online training portal. No matter when or where, since the beginning of the month it has been possible to access information about FAUN vehicles online at elearning.faun.com, and learn about special topics. Seminars on the rear loaders VARIOPRESS and POWERPRESS are available. These are followed in the second step by the ROTOPRESS body type. The seminars are available in German and English and additional languages as Spanish and Portuguese will be added.

Individual learning

During the creation of the training portal, special attention was paid to time flexibility, ease of use and testing the learning objectives of the distance learning course. The training results can be saved at any time and continued at any chosen time. Each participant can adapt the online course to their individual learning pace.

Contents

Depending on the body type, the training is divided into the areas "Operation and Function", "FAUN Control System (FCS)" and "Hydraulics and Maintenance". Verbose explanations have been done away with, and instead the focus has been on illustrative animations, drawings and videos to convey the learning content in a targeted and exciting manner. The final learning objective test provides insight into the achievements that have been reached.

Participants can share their experiences and ask the trainers questions in a forum. Up-to-date content for the training is provided in a download portal. Next year there will also be a module "Work safety for refuse collection vehicles", in order to train not only the workshop staff, but also the drivers and loading staff in the best possible way and in one which is adapted to their needs.

I want to try it!
Then please register via elearning.faun.com

Direct Contact:

Maik Groß, maikgroß@FAUN.com or
Phone +49 4795 955-283

Author: Claudia Schae

Vision 2020

They have passed the workshop successful: from left: Jens Schnaars (Manager steel works), Stefan Gatz (Manager surface technology), Jermaine Rodriguez (Logistics), Marcel Nöppert (Manager chassis preparation), Nils Speckmann (Manager assembling VARIOPRESS & POWERPRESS) and Sven Paul (Manager assembly SIDEPRESS). Congratulations came from Plant Manager Behnam Balooty (centre), Stefan Jobs (Production Manager) (4.v.r.) and Marc Grube (HR Manager) (r.).

For the past 24 months, the production plant Osterholz-Scharmbeck has been working hard on realising its vision of being the quality leader of the Ecotec Group. With this goal in mind, common goals and projects have been decided upon in the departments and rendered into a project map. Alongside this, numerous training courses have been carried out.

Things were started with department and team leaders, meaning that over time a knowledge advantage at this level emerged. This is one of the greatest challenges in an entrepreneurial context, engaging and informing all employees, and inspiring them with the common goal so that they work in a target-orientated way towards it. Bringing this across to the team is the task of the FAPS team (FAUN Process System).

In theory, this can be interpreted as follows: The "gap" is best bridged with comprehensive training to ensure the often-mentioned organisational penetration into literature. Organisational penetration means a broad knowledge base within the company that ensures that the defined goals can be understood and achieved. It is the basic building block for setting up a learning organisation and a cornerstone for future success. That was the theory.

In practice, FAPS head Sven Hechemer observed the following principle with two key steps. Selecting a suitable company which is able to convey the content in theoretical and practical units in an easily

understandable way. The course is concluded by an examination of the participants. The Lean Management Institute (LMI) from Mülheim was able to win the selection process in this regard. Their several years of expertise and the fact that the LMI is one of the pioneers of lean management in Germany speak for themselves. The second step was the integration of the managers closely involved with production and the responsible parties from the administrative departments. Both departments must be taken into consideration, since knowledge should always be evenly shared. It is particularly important to bridge the gap between these two departments, since the focus in administrative departments often in the analysis of processes and in production lies primarily in manufacturing processes, and the goal of lean management is to create value with as little waste as possible. It is therefore important for synergies to be effective in the specified areas.

The main focuses of the administrative training of the FAUN employees were the organisation and order structure analysis, as well as the activity and information structure analysis. For a holistic view,



The successful participants of the first round (from left to right): Hendrik Wulff (In-House Sales), Inga Reschke (Documentation), Michaela Kurk (Construction), Tanja John (Procurement), Nicole Grams (Production Planning), Nicole-Patrizia Höling (Production Control), Behnam Balooty (Plant Manager) and Marc Grube (HR Manager).

value stream mapping and value stream design were taught. The elements of continuous improvement, shop floor management, continuous flow and set-up time optimisation were added for the production department. After five days of training, the staff had to take a written exam, and all passed it on the first attempt.

However, training alone does not effect implementation. Therefore, together with LMI the FAUN plant management and the FAPS team defined a role description for employees from which the function and task can be clearly deduced.

Since the successful training course, regular communication takes place every 14 days between the FAPS management and the trained executives from production. Their aim is to work together on sustainable problem solutions from day-to-day business.

What's next: In 2018, a cross-departmental project will be started with all administrative staff so that everyone can work together on the vision and increase the efficiency of the company. Furthermore, 18 more employees will be trained in organisational penetration next year. This strategy is the cornerstone of our vision for 2020, and in the long term will give rise to a versatile, customer-focused organisation. In the age of digitalisation, this is an essential step to prepare us for future challenges.

Author: Sven Hechemer

In Brussels, not everything is about Lace, Chocolate and Europe!

— The city waste management service Brussels Net has chosen FAUN and the ROTOPRESS.





At the Brussels International Exposition in 1959, the prototype for the photo from 2017 emerged: three, at that time revolutionary, three-wheeled FAUN AK3 sweepers swept the grounds in front of the expo and the Atomium. This picture is recreated with the new ROTOPRESS.



Tired but smiling faces after the night time photo shoot upon the handover of the first of the 35 ROTOPRESSES: from left to right: Sales Manager Thomas Hoffmann (FAUN), Johan Laureys and André DeWilde (Brussels Net), Filip Chanterie (FAUN dealer DeKegel), Tim Collet (FAUN)

Modern FAUN sweepers are sweeping Europe's capital city in 2017 too. The city waste management has now also chosen FAUN's rotating solution for their refuse collection tasks: 35 ROTOPRESS with Mercedes Benz Econic chassis will be added to the Brussels Net fleet. Following from intensive tests over several years, the longevity of the ROTOPRESS and its high degree of reliability were arguments that proved convincing for decision-makers André DeWilde and Johan Laureys. Together with FAUN export manager Thomas Hoffmann and FAUN dealer Filip Chanterie, the two refined the customised design for the Belgian metropolis. Its outstanding manoeuvrability, high load capacity and loading speed now result in satisfied drivers and loading staff when used in the numerous side streets of Brussels. The vehicles are used in all fractions and alternately load paper, packaging, residual waste or organic waste. Thanks to continuous compaction, the ROTOPRESS is far superior to conventional techniques in terms of the load capacity achieved, especially for packaging and paper. In the case of organic materials, the ROTOPRESS, which cleans itself during the emptying process, has an additional advantage. A great solution all-round!

Author: Tim Collet

On the move

— An all-round service with satisfaction guaranteed. Long-established company Schäf Städtereinigung GmbH, with Managing Director Christine Schäf and her father Edgar Schäf at the helm, has committed to the full service package from FAUN and its fantastic staff since 2017.



FULL SERVICE PREMIUM PACKAGE:

- Mobility guarantee
- Overhauled structural components
- Verified E-system functionality
- Hydraulic and central lubrication system
- Lifters
- Wear
- Accident prevention regulation testing
- Fleet checks and inspections

For even more offers and services, visit www.pfunds-kerle-fuer-starken-service.de

For over 70 years now, waste disposal company Schäf has been operating in Rems-Murr-Kreis and its neighbouring areas. With a team of 152 employees and 90 vehicles, Schäf Städtereinigung looks after some 170,000 households. They collect household and biowaste, as well as bulky items, paper, lightweight packaging, green waste and other refuse.

FAUN Full Service supports the company's in-house workshop by taking over routine jobs and allowing the team there to concentrate on the fundamentals. FAUN has put ten fleet vehicles into full service. "With the comprehensive service that we provide the residents of Rems-Murr-Kreis, we simply cannot afford any downtime. We need to be able to respond quickly. So in an emergency, we can fall back on FAUN's replacement vehicles", explains Edgar Schäf on their decision to opt for the full service. FAUN Managing Director Burkard Oppmann is delighted about how well this service package was received.

Author: Claudia Schae

Its all about great service: Christine & Edgar Schäf as well as Burkard Oppmann.





Runways in kit form

FAUN TRACKWAY again exhibited at the Defence and Security Equipment International Exhibition (DSEI) one of the largest defence shows in Europe.

FAUN TRACKWAY were showing some of their latest solutions inside the UK Pavilion at DSEI exhibiting both Land Zone & UK Pavilion this raised considerable interest from the delegates. VIP visits from seven countries with hundreds of delegates from all over the world stopped by taking the opportunity to discuss our unique solutions to the defence industry. Our leading products during the exhibition were the Helicopter and Aircraft Landing Mats which are expedient runways in kit form that create temporary landing areas. Three large screens displaying rolling videos showed FAUN TRACKWAY solutions in action. The videos demonstrated just how versatile the FAUN TRACKWAY products are when in real life situations. Alun Cairns' Secretary of State for Wales was one of the VIP's interested in the current activities in Welsh development and business support, who dropped by for a chat with the team. All in all the DSEI Exhibition 2017 was a tremendous success and FAUN look forward to



Back in October, the TRACKWAY team joined AUSA show in Washington DC. From left: Richard Horton (CFO FAUN ZOELLER UK), Tanja Dreilich (CFO KIRCHHOFF Group), Chris Kendall (CEO TRACKWAY), Mike Holdcraft (Vice President TRACKWAY USA) and Rob Jennings (Financial Controller).

returning when this prestigious show comes back in 2019. Chris Kendall, FAUN CEO commented: 'DSEI this year enabled us to build on existing relations and form some very strong contacts from a wide range of countries, enabling us to open up new opportunities for FAUN TRACKWAY.'

Author: Rosalind Hopewell

On Hadrians wall

Carlisle is the county City of Cumbria, just 10 miles south of the Scottish border. Originally established by the Romans to serve the forts on Hadrians Wall as time passed Carlisle, due to its close proximity to Scotland, became an important military stronghold and much of the castle still stands today.



Carlisle City Council not only have a large population of the city itself to look, home to just under 109,000 people but they are also responsible for an area of just under 42 square miles including the towns of Brampton and Longtown. Carlisle City Council is actually the largest council in England by area although much of the area is rural. In 2012 it was also voted 'Britain's Happiest City!'

Stephen Rickerby, Fleet Manager at the Council said 'When we were looking to replace the fleet we were particularly impressed with both the manoeuvrability and payload of the ROTOPRESS. This was particularly important to us as we are building many new properties in the area and access is vital without increasing either the vehicle or fleet size'. During the tender process FAUN ZOELLER arranged multiple demonstrations of the vehicles so that Carlisle City Council were comfortable with the products and could specify exactly what they needed for their detailed requirements. The initial order was for 2 x 20 m³ ROTOPRESS, 2 x 18 m³ ROTOPRESS all fitted with ZOELLER Delta Lifters on Mercedes Econic 6 x 2 rear steer chassis. Carlisle City Council is currently focussed on waste and recycling with an extended kerbside recycling service and they have also arranged a number of roadshows to demonstrate how the new system will work.

Ben Lord, Regional Account Manager, was as always on hand to guide Stephen through the process and also to ensure that the vehicles met their specification. 'I have worked with the Council and Stephen for many months, I am very pleased to announce that they have just ordered a further three ROTOPRESS for their greenwaste collection and I think that faith in our product speaks for itself.'

Author: Deborah Hinckesman

Home of Premier League

Liverpool is a city in North West England and has been described as having "the most splendid setting of any English city". With an estimated population of just under 479,000 in the city itself and with its surrounding areas it is the fifth largest metropolitan area in the UK with over 2.24 million people.

Liverpool City Council are responsible for ensuring the cleanliness of the streets with the city limits and the fleet team there do a great job with a large fleet of vehicles used for mainly urban routes. In order to get the best from their fleet they specifically needed a vehicle that could easily collect wheeled bins and bulky/stroke side waste. The ZOELLER Rotary XL lifter offers a full width hopper aperture which gives the operator maximum flexibility. Following a competitive tender exercise, FAUN ZOELLER were awarded the vehicles after demonstrating the best overall value. The order was for 20 x VARIOPRESS with ZOELLER Rotary 3 XL lifters mounted on Mercedes Eonic 6 x 2 rear steer chassis. The vehicles are being delivered in summer.

Ben Lord, Regional Account Manager, was on hand to guide the fleet team through the process and also to ensure that the vehicles met their specification. 'I have had a long relationship with the council over a number of years and we have worked closely together in order to create the best specification for their operational requirements', said Ben. Joseph Gibiliru Contract Manager at Liverpool Street Scene said: 'From the tender process to the delivery of the vehicles, Ben has been outstanding both with his product knowledge and information which he has shared with Liverpool Street Scene, this information gave us the confidence to make the right choice of vehicle we required'.

Author: Simon Hyde



Left to right – Mark Swindells, Ben Lord, Joseph Gibiliru, Glyn Benson, Paul Mullacrane and David Edwards.



Liverpool sits on the eastern side of the Mersey Estuary and historically lay within the ancient hundred of West Derby in the southwest of the county of Lancashire. Its growth as a major port was paralleled by the expansion of the city throughout the Industrial Revolution. Liverpool was home to both the Cunard and White Star Line and was the port of registry of the ocean liners RMS Titanic, the RMS Lusitania, Queen Mary and Olympic. The popularity of The Beatles and other groups from the Mersey beat era contributes to Liverpool's status as a tourist destination. Home of two Premier League football clubs, Liverpool and Everton and also the world-famous Grand National horse race which takes place annually at Aintree Racecourse on the outskirts of the city. The city celebrated its 800th anniversary in 2007 and was awarded the European Capital of Culture in 2008. Several areas of the city centre have also been granted World Heritage Site status by UNESCO. Natives of the city of Liverpool are referred to as Liverpudlians and colloquially as "Scousers", a reference to "scouse", a form of stew. The word "Scouse" has also become synonymous with the Liverpool accent and dialect.

All things new

In July 2016, the French FAUN subsidiary, FAUN Environnement, acquired the company PB Environnement. The aim of this merger was to expand the product range with smaller vehicles with aluminium bodies. Now, over a year later, it can be said that a veritable metamorphosis has resulted from this symbiosis.

The small and somewhat dusty plant near to Aix-en-Provence is turning out to be a modern workplace. In an initial construction phase, complex excavations were carried out. The previously stony and dusty terrain was straightened and the majority of it was tarred. A rocky slope in the south offset the sloping terrain in the north. The torrential rains in the region are collected in a 150 m³ water tank, thus complying with legislation. The storage area was relocated and the place of destination rearranged. This means that manoeuvring the large trucks is no longer a problem. In addition to this, a new visitor and employee parking lot was created. The entire site is now completely fenced and secured with infra-red photoelectric sensors and cameras. Furthermore, the gateway was relocated and equipped with a new gate. Chassis and products are parked in a closed vehicle fleet. In the next construction phase, the sanitary facilities, canteen and offices will be renovated. Everything will be finished in June 2018 and after this metamorphosis, PB Environnement will shine in a new light. Managing Director Etienne Blaise is pleased with this progress and his aim is that this FAUN representative also meets FAUN's standards.

Author: Helen Campens



During the excavations, 9000 m³, equivalent to 200 truckloads, of earth and stones were evacuated or relocated.



Always in focus



'Our philosophy is built on rapid decisions, short paths and – most importantly – personal communication. We give customers what they really need.'

(Stefan Senftleben – Head of Service Consulting & Parts Sales)

'Stay safe in every condition.'
Yours ZOELLi



— A service team that understands the customer, knows what they need and when, and always gives competent and honest advice. This is what you will get with ZOELLi and the ZOELLER service technicians.

'The customer comes first!' says Jürgen Kowalke (Head of Sales and Service in Germany), succinctly summing up the company's philosophy. Jürgen and his team communicate honestly and openly with disposal companies, refusing to sugar coat or gloss over any details. 'Here at ZOELLER, we understand the vehicles and lifters and know which action is needed and when.' And to give customers the power to track the situation too, the ZOELLER service heads have got together to create a short and sweet overview of everything they have to offer, which they have compiled in a comprehensive portfolio of services. This enables disposal companies to choose the best solution for their company, vehicles and lifters.

ZOELLER is a trusted partner that waste disposal companies can count on. With its very own friendly mascot ZOELLi, a cute and lively dog, ZOELLER has brought to life a faithful companion who always keeps a watchful eye on what's going on. ZOELLi loves to give handy tips and information that you can always rely on.

What ZOELLi has to offer:

ZOELLER repairs

Repairs to vehicle fleets so that customers can get back to work without having to deal with long downtimes.

ZOELLER inspections and service checks

Routine, regular inspections are vital for ensuring that vehicles continue to operate correctly. After all, forewarned is forearmed. Here at ZOELLER, we tell our customers exactly what we find in our inspections and checks so that small problems don't turn into major damage further down the line.

ZOELLER training and briefing

We want to make sure that our customers are fully equipped to handle their vehicles, so that all their operations can run smoothly.

ZOELLER genuine parts

Our expert tip: when choosing spare parts and wear parts, getting the best quality is essential for ensuring the safety and longevity of vehicles and preserving their value.

ZOELLER inspection kits

Our inspection kits are handy packages that have been specially tailored to provide an optimal cost/benefit ratio. An entire refuse collection vehicle or lifter can be serviced with a single kit – giving customers the best prices and genuine, top-quality ZOELLER parts. Where needed, customers can also order an individually customised inspection kit.

ZOELLER service agreements

Time is limited and our customers carry a great deal of responsibility. With our perfectly adapted service agreements, we can alleviate their burden.

For even more great tips from ZOELLi and the team, visit: www.zoeller-kipper.de

Author: Claudia Schaeue



Together with Managing Director Karl-Heinz Wider, Dr. Johannes F. Kirchhoff reflects on the bright future of ZOELLER Systems.

A Story of Courage and Blood

— This summer marked the 25th anniversary of the foundation of ZOELLER Systems. In the presence of the family Kirchhoff and 350 guests, politicians and partners, the business' early days were remembered and celebrated with a lively celebration. An excerpt from the unique history of the Czech plant.



This is what is behind the success of the ZOELLER Systems company. Leading the way Eva Beckerova (at the front) and her husband Horst Becker (not pictured), Jana Bendlová (3rd from the left) and all of the other 240 employees.

25 Years. You might consider it a long time, and yet it often seems like yesterday to Managing Director Karl-Heinz Wider when, after some research, a subsidiary of ZÖLLER-KIPPER GmbH was founded in a neighbouring country still unknown at that time, the Czech Republic.

The memories are very vivid, since at the start of the 1990s, everything was suddenly completely different. A more than 40 year old world order became a thing of the past virtually "overnight". Completely new opportunities opened up virtually overnight. But unprecedented risks also arose, which at the time could not be estimated in any way.

And yet - despite all the question marks about political conditions, obscure social and ownership structures - the shareholders at that time and the management of ZÖLLER-KIPPER GmbH set the course for the future of the entire company with courage, entrepreneurial vision and optimism and invested in the Czech Republic: On 26th June 1992 ZOELLER Systems was founded in Ricany.

This entrepreneurial venture was based not least on the commitment of a single man and his willingness to pioneer completely new territory. Aman from among the ranks of long-standing ZOELLER employees agreed to undergo the risk of venturing into an - until then unknown-foreign country to establish a subsidiary - Horst Becker.

It is thanks to his courage and drive that celebrating the anniversary a quarter of a century later was possible. Horst Becker and his team, with former CFO of ZOELLER Systems, Eva Beckerova leading the way, have succeeded in establishing all the foundations for the successful development of the Czech company. Karl-Heinz Wider thanked both "veterans" for their commitment in his speech, saying the following: 'The

early years were anything but easy. On behalf of the whole team I would like to mention Eva, who had to work very hard over the years to transfer the ownership of the property - thank you, Eva, you did a fantastic job, we cannot overstate this and wholeheartedly appreciate it. If this hadn't been so successful, we definitely wouldn't be here today.'

From the start, the new, young company was guided in the way of the ZOELLER philosophy and developed its own spirit. The benchmark has always been the high quality standard for the products and the commitment of the well-trained team. The fruits of this strategy have been lasting and healthy growth. Today, ZOELLER Systems is one of the most important suppliers for the Ecotec division within the KIRCHHOFF Group and a centre of excellence for the production of parts and assemblies for lifters.

Over these 25 years, the company has grown to 28,000 m² of company premises, more than 10,000 m² of production and storage facilities and 1,300 m² of management and administration. 240 employees work in Ricany just outside Prague. They manufacture around 5,000 different items in-house - from individual parts to finished machines. All steel parts, components and assemblies are produced for around 2,200 lifters a year within the ZOELLER Group. Every year, 1,700 lifters are fully assembled in Ricany and delivered ready-for-use to customers, primarily in Europe. In addition, there are more than 2,000 compaction systems for the companies of the KIRCHHOFF Ecotec Group.

Karl-Heinz Wider is proud of his team, the results achieved and a unique company history.
We would like to extend our congratulations.

Author: Claudia Schau



Growing up in the ZOELLER family

— Three young people started their training at ZÖLLER-KIPPER GmbH in Mainz in the 2017/2018 training year. K>MOBIL spoke to trainer Marion Linke about the new recruits

For four months now, Jana Wieland (office management administrator), Emre Gebes (warehouse logistics specialist) and Steven Kettelhöhn (mechatronics engineer) have been learning the ropes in Mainz. They've had time to get to know their colleagues, get their bearings and discover the world of ZOELLER. After more than ten years of school, it all takes some getting used to. Bringing the young workers into its fold has been a whole new experience for ZOELLER too – until now, the refuse trucks and lifter manufacturer based by the Rhine has focused on more experienced specialists. The shortage of trained staff and employees specialising in the industry spurred the management board on to invest in up-and-coming young trainees.

Marion Linke: 'We are feeling the effects of the skills shortage ever more keenly. It is hard to find good, motivated workers. Right now we are in an era of generation change – colleagues who have been with us for many years are retiring or moving into part-time work. Our industry is highly specialised and the learning period for new staff is long. This is why we made the decision to promote and support young trainees from among our own ranks. ZÖLLER-KIPPER is in a position to provide training in a wide range of vocations in the commercial and industrial sectors. This year, we have trainees in the fields of office management, mechatronics engineering and warehouse logistics.'

K>MOBIL: What is the goal, and what do you hope to teach these young people?

Marion Linke: 'We want to integrate well trained, interested young people into a strong team. We also want to deploy our own staff in new or growing areas, such as warehousing. Service is another area where we want to reinforce and expand our team, as it is playing an increasingly important role. A number of our administrative staff are now reaching retirement. Here, we are looking for replacements – and we even need to increase staffing numbers in certain cases. As a medium-sized enterprise, we offer a wide range of opportunities. The global nature of our company enables our young trainees to work in a wide range of locations and experience different cultures. Our trainees are given the opportunity to rise to all manner of challenges and learn valuable life skills. Of course, we want the work to be fun and to inspire enthusiasm for waste disposal technology too. Once someone joins the industry, they almost always stay there for good. Therefore, by training up young employees, we are targeting our own staffing needs too.'

Author: Claudia Schae



Clean air

For the guys and girls of the refuse disposal business, daily life is demanding, dirty and hands-on. To give refuse collectors greater comfort and a cleaner, more pleasant working environment, ZOELLER has developed the air purification system CLEAN OPTION.



The refuse collectors stationed at the back of the vehicle are particularly exposed to bacteria, mould, dust and unpleasant odours – which doesn't make for the most enjoyable workplace. Now, the technicians of ZOELLER-KIPPER GmbH have tackled this problem and developed a system for active air purification. CLEAN OPTION actively filters and cleans the air in which the refuse collectors work, eliminating unwanted bioaerosols (mould, viruses and fine dust particles).

HOW IT WORKS:

A radial fan blows the outside air across the narrow slots (0.5 - 1 mm) of the fan bars into the back of the refuse collection vehicle at an air pressure of around 600 to 800 pascals. The induction effect accelerates the transportation of air through the fan bars, which creates an air curtain that prevents bioaerosols from flowing out.

The extracted air is passed through a filter element for purification before it is released into the environment. Because particles of various sizes are present, 3-stage filtering is required:

A coarse filter for larger particles, which also serves to protect the subsequent fine filter
 A fine filter for mould, fine dust particles, germs and viruses
 An active carbon filter to trap unpleasant odours

WHAT IT DOES:

- CLEAN OPTION reduces the number of particles that operators are exposed to when emptying the containers by 60 - 80%
- A more pleasant working environment
- Reduction in time off taken by refuse collectors
- Waste disposal companies can meet their requirements in terms of health provisions
- Reduces the amount of dust and unpleasant odours released into the environment

Following its market launch last year, CLEAN OPTION was subjected to a variety of feasibility tests and put through its paces in a simulation using fog machines. This enabled the technicians to fine-tune and improve some of the components. In the coming months, the accident insurance fund Unfallkasse NRW will also be conducting its own tests on the air purification system. In the meantime, CLEAN OPTION has already been deployed for field testing by a number of customers. The empirical data collected from these scenarios will be used to improve the product even further. The ultimate goal is to provide refuse collectors with a clean workplace on a modern vehicle. »

Author: Sascha Wucher

Interview

The German waste disposal company in Norderstedt is using the clean air system CLEAN OPTION in their trucks. K>MOBIL has spoken to Rüdiger Förster (Fleet Manager at Norderstedt) about their experiences.

Why did you choose the clean air system CLEAN OPTION?

Rüdiger Förster: There is no comparable system available or the functionality of the system has convinced us.

What advantages are there when using the CLEAN OPTION?

Rüdiger Förster: The operators exposure to dust, viruses and bacteria is considerably reduced.

Is there any data or statistics showing that illness-related absences of workers who work with the CLEAN OPTION was minimised?

Rüdiger Förster: As the system is so new there are currently no statistics or data available.

What do the operators think of this system?

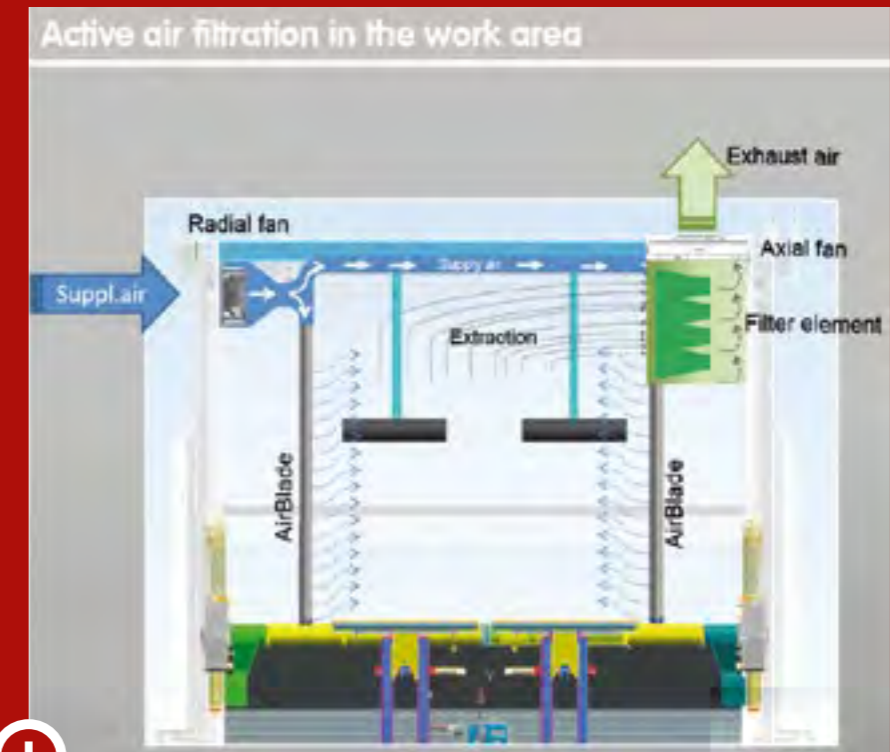
Rüdiger Förster: So far only one vehicle has been in operation with it fully installed but the feedback from the operators was definitely positive, they stated that loading ash was significantly reduced with the Clean Air system CLEAN OPTION and so we have now decided to equip all vehicles (where possible) with it.

Is there a robust health management system in place for operators?

Rüdiger Förster: We have a positive and structured occupational safety system and have been successfully certified according to ISO 18001. As part of the occupational health and safety management system, we introduce, or upgrade, new technology and innovation to protect our employees.

Dear Rüdiger, many thanks for the interview. 😊

CLEAN OPTION



TECHNICAL DATA:

- Filter performance approx. 2500 m³/ hour (150 Pascal)
- AirBlade-performance with approx. 200 m³/hour (650 Pascal)
- Electrical power consumption approx. 550 W
- Replaceable filter element with a scheduled life of approx. 1 year as standard spare part
- Wear control for the filter element via a pressure sensor
- Lifetime of fans approx. 7000 operating hours (approx. 4 years)
- Integration into the existing controller
- Available in new products or as an additional kit
- Filter is a ZOELLER spare part

**We wish you all a very happy
festive season and all the
very best for the new year!**

