BRAKING NEWS

AUTOHAUS RÖHM
Expert service for high-voltage systems

PHOTO STORY
Development of the NG3 EVO Brake Actuator

CLASH OF THE TITANS
Jochen Hahn has his sights on a seventh European title

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CONTRIBUTORS TO THIS ISSUE
Simon Basler, Maximilian Csik, Sabine Duffner-Beck, Thomas Hünseler, Thomas Rosenberger, Georg Weinand, Magdalena Usar

PHOTOS
BPW Aftermarket, Daimler Truck, Designwerk, Dierre, Jochen Hahn Racing Team, HAVI, Richard Kienberger Knorr-Bremse, MAN, Paul Group, Remondis, Thomas Rosenberger, Siemens, Truck helfen Kindern.

GRAPHICS
Knorr-Bremse Services GmbH Corporate Marketing, Anna Lilakewitsch, Cathrin Huber

PUBLISHER
EuroTransportMedia Verlags- und Veranstaltungs-GmbH, Geschäftsbereich ETM corporate publishing, Geschäftsführer: Bert Brandenburg und Oliver Trost, Handwerkstraße 15, 70565 Stuttgart

CONTACT
bremspunkt@knorr-bremse.com

Dear Reader,

ALEXANDER WAGNER,
Head of Aftermarket/TruckServices
at Knorr-Bremse Commercial Vehicle Systems

TruckServices Future Ready Aftermarket Products & Services for today. Solutions for tomorrow. At the Automechanika trade fair this fall, we introduced our new positioning statement. It underlines Knorr-Bremse TruckServices' consistent focus on our customers' present and future needs. Not only do we provide rapid support for your day-to-day operations – we also offer innovative and future-focused products, services and across the board solutions.

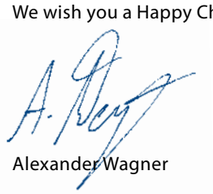
The numerous discussions we had with you at the Frankfurt Trade Fair brought home to us just how happy you are with our overall offer. We are also delighted that the innovations in our partner programs Expert Network for workshops and dealerships – such as the new loyalty program – have been so well received. This makes us confident that in future we will be able to further strengthen and deepen our relationship with our customers. The example of Paderborn-based spare parts supplier Besko described in this edition demonstrates just what a lively professional partnership can look like.

But our title story is also all about positioning – in a different sense. Today's repair shops have to be prepared to service commercial vehicles with electric drives and high-voltage systems. Truck manufacturers such as Iveco or Scania expect their partners to be able to carry out maintenance and repair of electric vehicles. Autohaus Röhm from Wendlingen near Stuttgart is a good example of how a company can meet such requirements. Rapid, on-the-road Megawatt Charging Systems are going to be essential if we are to achieve emission-free international freight transportation. But where should they be installed and how long is this going to take? In our story entitled "400 kilometers in 40 minutes" we examine these issues.

One individual who has been positioning himself – in a friendly but very firm way – is Jochen Hahn. Hahn is determined to win his seventh Truck Race European Championship title in 2025 – overtaking Norbert Kiss, who has been the series winner in recent years.

And, finally, Christmas is just round the corner – time to take a break but also to think of others. Every Christmas, the "Trucker helfen Kindern" convoy of 120 trucks drives through the district of Main-Spessart collecting donations for children with cancer. We describe their activities in this edition of Bremspunkt.

We wish you a Happy Christmas – and much success in 2025!



Alexander Wagner

400 kilometers in 40 minutes

The Megawatt Charging System (MCS) is currently considered the most promising technology for achieving zero-emission international long-distance freight transportation. With charging capacities upwards of 700 kW, it should make it possible to fully recharge a vehicle's battery during the driver's mandatory rest break, thereby achieving a daily range of up to 800 kilometers. Test projects are already underway, and private providers are also interested in launching MCS in 2025. The devil, of course, is in the detail.

CCS (LEFT) AND MCS SOCKETS (BELOW) COMPARED In the future, MCS will enable charging at up to 3.75 megawatts, while CCS is restricted to less than 500 kW.

Without an efficient public charging infrastructure, road freight transport using e-trucks is not possible. The current fast-charging standard CCS (Combined Charging System 2.0) is designed for currents of up to 500 amperes and voltages up to 1,000 volts. This results in a maximum charging capacity of 500 kW, while capacities of between 150 and 400 kW are currently common at public charging stations. This means that CCS offers sufficient capacity to fully charge a heavy truck during a longer period of downtime, but not enough for fast charging during the mandatory 45-minute rest break. To be able to charge a truck in this time, an average of 750 kW is required - with a peak of over one megawatt, since the need to protect the battery against overheating and ageing means the charging curve is not linear.

But to achieve a daily range of 750 kilometers, and therefore compete with diesel trucks, intermediate charging is required. Long-distance e-trucks consume 1.1 to 1.3 kWh per kilometer, which means that some 1,000 kWh of electricity is required to achieve the daily distances that are customary in the sector. Higher-capacity battery packs are not an economic alternative in view of the

extra acquisition costs and weight involved. In addition, their use would result in considerably longer recharging times. Developers of the NEFTON project (Nutzfahrzeugelektrifizierung zur Transportsektoroptimierten Netzanbindung - Commercial Vehicle Electrification for Transport Sector Optimised Grid Connection) calculate that current charging capacity would reduce actual driving time by 40 minutes per day.

The most effective strategy for long-distance transportation is to install higher charging capacity. This is promised by the Megawatt Charging System (MCS), which enables currents up to 3,000 amperes and voltages of 1,250 volts – a charging capacity of up to 3,750 kW or 3.75 megawatts (MW). Currently, though, charging capacities of only 700 to 1,100 kW will be available at the first MCS stations being installed in Germany along the A2 motorway between Dortmund and Berlin. As part of the HoLa project, truck manufacturers Volvo Trucks, Daimler Truck, MAN and Scania plan to collaborate with infrastructure providers to investigate high-power charging in long-distance truck transportation. To do this, twin MCS charging points are to be set up at each of four locations. In the final stage, this number will grow to a total of eight MCS and ten CCS charging points at five locations. Various logistics service providers will test the stations as part of their operations.

»A lack of transparency regarding electricity prices at public charging stations makes it impossible to calculate operating costs.«

Sascha Hähnke,
Managing Director Remondis Sustainable Services

A HoLa mid-term review conducted by the Fraunhofer ISI on the basis of experience gathered during the planning and establishment of the stations has been available since March, even though the stations do not currently offer MCS charging. The review concludes that MCS will only play a role in long-distance transportation, while depot charging with lower charging capacities will be sufficient for a large proportion of the battery-electric truck fleet. By 2030, only around 20 percent of the entire battery-electric (BE) truck fleet will require MCS. The report concludes that MCS charging should therefore be expanded primarily along the most important long-distance routes, with slow charging of 50 kW or well below 350 kW per charging point being installed on private parking spaces. This would enable rapid expansion of the charging infrastructure. The higher the power requirements, the longer the expansion will take. Since CCS and MCS charging stations require considerable connection power, they will usually be linked to the intermediate voltage grid – a costly and complex process that can take several years. In addition, delivery times for

SO FAR, only a very small number of Mercedes eActros 600 trucks have MCS charging capability. An initial test of MCS charging was a success.

BATTERY CAPACITY OF CURRENT E-TRUCKS FOR LONG-DISTANCE TRANSPORTATION

Brand and type	Nominal/usable capacity	Range	Max. charge
DAF XF electric	525/462 kWh	500 km	CCS 325 kW
Designwerk HC Venturo 500 E*	508/432 kWh	360 km	CCS 350 kW
Iveco S-eWay	738/629 kWh	500 km	CCS 350 kW
Mercedes eActros 600	621/600 kWh	500 km	CCS 400 kW, MCS pre-fittable
MAN eTGX	534/480 kWh	400 km	CCS 375 kW, MCS-ready
Renault E-Tech T	500/421 kWh	320 km	CCS 250 kW
Scania 45 R	624/517 kWh	400 km	CCS 375 kW
Volvo FH electric	540/421 kWh	320 km	CCS 250 kW

All figures according to the manufacturer for a 4x2 tractor unit with maximum battery capacity. Range depends largely on operating conditions, tractor unit specification and climatic conditions. *Designwerk offers battery packs up to 1,000 kWh nominal capacity, but in this case in conjunction with a 6x2 tractor unit.

transformers are usually about a year and they can only be ordered for a specific location – that is, only after the site and local conditions have been determined.

The interim report recommends a public network of at least 1,000 MCS charging points by 2030. This is based on the assumption that BE trucks will account for 15 percent of the total fleet by 2030. Half of the charging processes will thus take place at public charging points. The EU's AFIR (Alternative Fuel Infrastructure Regulation) stipulates that a fast-charging infrastructure should be created at least every 100 kilometers. According to the interim report, this would result in a network of 142 charging locations with two to twelve charging points, each serving both directions of travel. The project operators are calling for the planning process to begin immediately, so that expansion of the electricity grid can start at short notice and the necessary parking areas can be created.

Even independently of projects such as NEFTON and HoLa, the private sector is driving the process of transformation. In 2022, the CV Charging Europe consortium was set up by Daimler Truck, the Volvo Group (with the Volvo and Renault brands) and the manufacturers in the Traton

THE MCS HARDWARE IS ALREADY AVAILABLE, but standardization is not yet complete, so all MSC charging stations and vehicles are still prototypes.

SIEMENS HAS ALREADY SUCCESSFULLY implemented megawatt charging with their chargers.

Group, Scania and MAN. This subsequently led to creation of the truck charging provider Milence The aim of this alliance is to establish a European network of 1,700 high-power truck charging points by 2027. These will initially be CCS charging points, but will be retrofitted with MCS in the near future. In the middle of this year, Milence claims to have successfully carried out a test on a Mercedes eActros 600 prototype with a charging capacity of up to 1.1 megawatts. According to MAN, MCS charging has also already been successfully carried out on an eTGX as part of the NEFTON project.

At the IAA Transportation trade fair in 2024, Milence provided further details of its construction plans, which involve setting up a charging network of 70 hubs with a total of more than 570 high-performance chargers along the main European transport routes by the end of 2025. Four of these are already up and running: in the Netherlands (Venlo), France (Seine Eure), Belgium (Antwerp-Bruges) and Sweden (Varberg). More are soon to follow in Germany: initially at Hermsdorfer Kreuz, and later at

CHARGING TIMES FOR A MAN ELECTRIC TRUCK*

Charging current	Estimated charging time	System
200 A (150 kW)	115-230 min	CCS
500 A (375 kW)	45-90 min	CCS
1,000 A (approx. 750 kW)	45-90 min	MCS
1,500 A (approx. 1 MW)	approx. 30 min	MCS

*depending on charging current and battery configuration. MAN eTGX with 480 kWh useable capacity allows a constant charging current for two thirds of the charging time. Source: NEFTON

Vockerode, Himmelkron, Hüttenberg, Kirchberg an der Jagst, Kassel-Lohfelden and Recklinghausen. Because of the country's high volume of transport operations, Germany will see the construction of 24 hubs - the largest number of Milence charging stations. Charging points are currently limited to 400 kW, but Milence intends to expand some of these to MCS with a charging capacity of up to 1.44 MW as soon as technology that is CE-compliant and ready for volume production is available on the market. In the coming months, five locations will initially benefit from this.

One project that could potentially serve as a model involves using the grounds of Munich's Allianz Arena for an MCS charging park. This has already been agreed between FC Bayern Munich and MAN. Large sports stadiums are particularly suitable for such use, because their power requirements, for example for floodlights and catering, mean they have a high-capacity electricity grid that is only used on match days. The Allianz Arena is also located directly at the busy Munich-Nord autobahn intersection, and has its own autobahn access. Construction is scheduled to begin in 2025. According to MAN, a total of 30 charging points is planned, enabling 500 electric commercial vehicles to be charged daily.

Designwerk, a Swiss manufacturer of e-trucks and charging solutions, has developed a mobile solution for MCS charging. The company is offering a containerized station that can be directly connected to the 400-volt grid. The first customer in a demonstration project with the Swiss Federal Office of Energy (SFOE) is Galliker Transport AG. According to Designwerk, it has received a Mega Charger with a capacity of 1.05 MW that offers two CCS and two MCS plugs. The station has its own battery storage, which means the power grid is not subjected to excessive peak loads during the charging process. Designwerk, a Swiss manufacturer of e-trucks and charging solutions, has developed a mobile solution for MCS charging. Its battery-assisted Mega Charger has a capacity of up to 1.4 MW and a battery buffer with a capacity of up to two MWh.

THIS IS WHAT THE MCS CHARGING STATION AT THE ALLIANZ STADIUM SHOULD LOOK LIKE.
Sports stadiums are ideal locations for MCS stations.

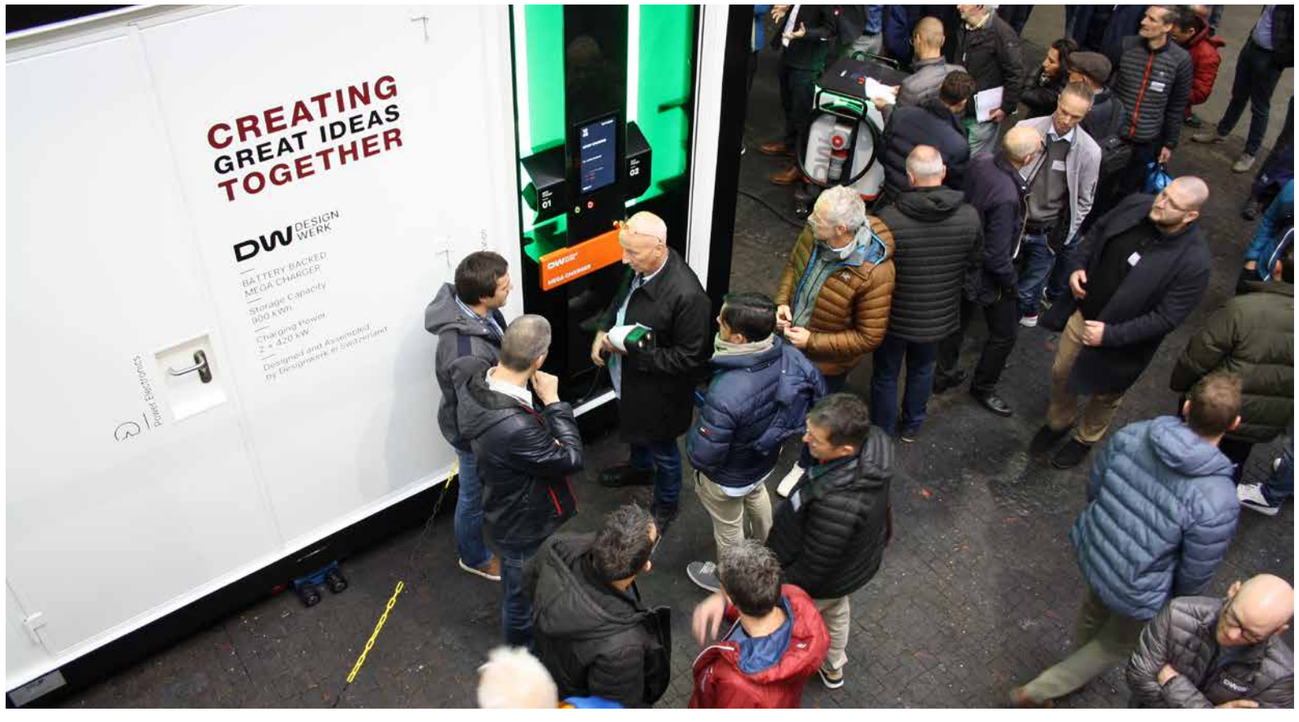
That sounds promising, but the devil is in the detail. The MCS is still in the prototype stage, because standardization of the technology has not yet been completed. "We anticipate that the ISO/IEC standard for MCS will be finalized by mid-2025 at the latest. We also expect the public charging infrastructure with MCS charging points to be rolled out during this period," explains Vinzenz Becke-Stauner, charging system architect at MAN Truck & Bus. The trucks that have MCS charging capability for testing are still prototypes for the same reason. Daimler Truck and MAN currently only offer a retrofit option for their production-ready electric flagships, the eActros and eTGX. "This means the new MAN eTruck can be fitted with MCS in the fourth quarter of 2025," adds Becke-Stauner. Furthermore, there are as yet no DC meters in the megawatt range that comply with German calibration legislation. The law requires electricity meters to be calibrated if electricity is to be billed exactly according to kWh.

For fleet operators, the biggest challenge is likely to be the price of electricity, as Sascha Hähnke, Managing Director of Remondis Sustainable Services, points out. While Hähnke enjoys price security and low prices when charging at his own depot, the situation is different at public charging stations. "Anyone who makes an investment also wants to make money. This leads to high kWh prices, even for CCS charging. In addition, there is no overview of the electricity prices at the various stations, and these can fluctuate greatly in some cases - which makes it difficult to reliably calculate operating costs," he explains. For him, the ideal solution is therefore depot charging at his company's own depot and the customer's premises. Torsten Oldhues, Senior Director Global Operations at the logistics service provider HAVI and one of the participants in the HoLa project, agrees: "MCS is a solution for long-distance transportation. Even so, we would like to gain experience with it and with setting up the appropriate grid connection at our site as soon as the project finally takes off, even though we drive fixed routes in domestic German traffic and need e-trucks with a range that matches each particular route". But companies active in long-distance transportation do not have this choice and have to count on MCS to successfully manage the process of fleet transformation.

»Once HoLa finally gets off the ground, we would be keen to gain experience with MCS charging and setting up the appropriate grid connection.«

Torsten Oldhues,
Managing Director Operations and Supply Chain, HAVI.

GALLIKER WAS THE FIRST COMPANY TO START OPERATING A DESIGNWORK MEGA CHARGER.
A MCS and CCS charging stations with battery buffer.



The NEFTON and HoLa projects

NEFTON

Scheduled to run from 2021 to 2024, this joint project is funded by the Federal Ministry for Economic Affairs and Climate Action. Its purpose is to analyze the MCS value chain in terms of feasibility, economic efficiency and sustainability, as well as the system of electric trucks, charging stations and grid connection. In addition to truck manufacturer MAN, the project includes researchers from the Technical University of Munich, the Technical University of Deggendorf and the Forschungsstelle für Energiewirtschaft e.V. (Research Center for Energy Economics), as well as experts from AVL, a provider of drive systems, and PEA, a specialist in power electronics.

HoLa

This project has been running since September 2021 and is funded by the Federal Ministry of Digital and Transport and the European Union. In March 2024, a report was published covering the first half of the project period from September 2021 to December 2023, before the first charging stations went into operation. It describes the challenges of megawatt charging for trucks and solutions, and makes recommendations for planning and selecting locations. In addition to Volvo Trucks, Daimler Truck, MAN and Scania, the project partners include ABB, EnBW and Heliox, as well as the research partners TU Berlin, Fraunhofer ISI and IAO, P3 automotive, TU Dortmund and the University of Weimar.

Rapid repairs for ECUs

In 2025, Knorr-Bremse TruckServices will be launching its Europe-wide ECU repair network based on Jaltest diagnostic software.

WORKBENCHES SUCH AS THESE are used to examine the ECU and decide whether to repair or replace it.

Faster, cheaper, and more sustainable – Knorr-Bremse's repair service for the central control unit (ECU) of the ESB electronically controlled braking system faces a minor revolution in 2025. A new process combines the capabilities of Cojali's Jaltest diagnostic software with the repair expertise of Knorr-Bremse TruckServices.

In future, after reading out the ECU data using Jaltest, workshop customers will be able by going on a webpage to directly order the necessary repair of the control unit without the need to go to a dealer and send the defective unit with a logistic service provider to a Knorr-Bremse repair center. The ECU will be immediately examined, repaired if possible, and returned to the customer within the space of 36 hours.

The 36-hour time window applies not only to Germany and Austria but also to Portugal, Spain, France, Italy, Central Europe and the Baltic states.

The fact that many defective ECUs will be repaired rather than simply replaced is not just good for the environment – it is also highly cost-effective. Knorr-Bremse estimates savings of up to 20% for workshops, and dealers can also expect significant cost advantages. The Jaltest multi-brand diagnostic system also enables more than 2,500 different types of ECU from a range of truck manufacturers and systems suppliers to be integrated into the repair process.

The first four repair centers in the Czech Republic, France, Spain and Italy are already eagerly awaiting customer orders. Cojali and Knorr-Bremse will continue to expand the network beyond 2025.

Clutch actuator portfolio expanded

TruckServices now offers dealerships and repair shops clutch actuators for Volvo, Renault and Mercedes-Benz trucks.

Modern gearboxes would be virtually unthinkable without pneumatic clutch actuators. Nowadays, trucks leave the production line equipped with automated gearboxes that make the driver's life considerably simpler and more comfortable. A crucial role is played by concentric clutch actuators, which transfer the power from the engine to the drive train and ensure optimal clutch efficiency. Modern clutch actuators are controlled electronically so as to ensure smooth gear-changes. This extends the life of the clutch and reduces fuel consumption.

For this reason Knorr-Bremse Truck Services has expanded its range of pneumatic concentric clutch actuators available to dealerships and repair shops to include the Volvo and Mercedes brands. Now operators of Volvo FE, FH, FL, FM und FMX and Mercedes-Benz Actros, Arocs, Antos and Atego trucks can benefit from the robust, durable and high-quality products. The actuators are also available for Renault's Kerax, Magnum und Premium trucks.

KNORR-BREMSE TRUCKSERVICE SUPPLIES Mercedes-Brenz, Volvo and Renault with clutch actuators.

Performance leap through crimping technology

The new NG3 EVO Brake Actuator series combines years of experience with a fully crimped design that increases quality and lowers the total cost of ownership

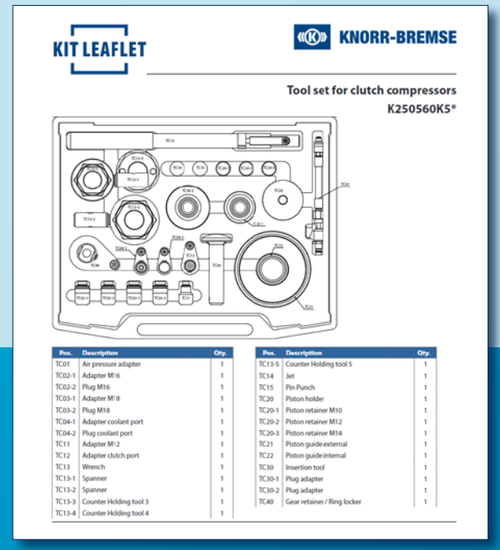
BRAKE ACTUATORS FROM KNORR-BREMSE impress with their quality, perfomance and robustness.

Brake actuators are the key to safe braking: high quality, trustworthy products that reliably bring heavy vehicles such as trucks or trailers to a halt as required. NG3 spring brake actuators from Knorr-Bremse have been offering top quality for many years, and their aluminum housing means they are lighter than comparable competitor products. The latest NG3 EVO generation from Knorr-Bremse, which has recently been introduced by a number of prominent OE customers, continues this tradition seamlessly. With its compact, lightweight design it is ideal for installation in restricted spaces (e.g. front steering axles). In particular for truck and trailer applications equipped with pneumatic disc brakes, NG3 EVO brake actuators represent a further advance in terms of quality, performance and robustness.

One of the secrets behind the performance of the NG3 EVO is the complete absence of any clamp ring. This improves workshop safety (preventing accidental disassembly) and avoids assembly errors (e.g. incorrect assembly of the diaphragm), as the entire unit is simply replaced. The new monoblock design, with uniform diaphragm compression, combines crimping technology and modularity, making the brake actuator light and compact, while at the same time increasing quality, robustness and performance, especially at low temperatures. The improved spring design also enhances performance by ensuring even braking force. The improved coating offers excellent corrosion resistance and extends the life of the product, even in demanding environments. This means fewer replacements and repairs are required. The longer life and lower maintenance requirements for the NG3 EVO ultimately reduce the total cost of ownership for the vehicle operator – and ensure satisfied customers in the workshop.

Important maintenance tools

The TruckServices toolbox for clutch compressors now also offers two special tools for HTC kits.


KIT LEAFLET

KNORR-BREMSE

Tool set for clutch compressors
K250560K5*

Pos.	Description	Qty.
TC01	Air pressure adapter	1
TC02-1	Adapter M16	1
TC02-2	Plug M16	1
TC03-1	Adapter M18	1
TC03-2	Plug M18	1
TC04-1	Adapter coolant port	1
TC04-2	Plug coolant port	1
TC11	Adapter M12	1
TC12	Adapter clutch port	1
TC13	Wrench	1
TC13-1	Spanner	1
TC13-2	Spanner	1
TC13-3	Counter Holding tool 3	1
TC13-4	Counter Holding tool 4	1

Pos.	Description	Qty.
TC13-5	Counter Holding tool 5	1
TC14	Jet	1
TC15	Pin Punch	1
TC20	Piston holder	1
TC20-1	Piston retainer M10	1
TC20-2	Piston retainer M12	1
TC20-3	Piston retainer M14	1
TC21	Piston guide external	1
TC22	Piston guide internal	1
TC30	Insertion tool	1
TC30-1	Plug adapter	1
TC30-2	Plug adapter	1
TC40	Gear retainer / Ring locker	1

THE TRUCKSERVICES TOOLBOX supports employees working on all aspects of the clutch.

To ensure flawless repair and get every vehicle out of the workshop and back on the road as quickly as possible, the part installed and the tools used for the purpose need to be perfectly matched. This applies in particular to maintenance, repair or replacement of complex systems like clutches. Without professional equipment, the work process not only takes longer, but can also result in damage to important parts such as seals or guides.

For this reason, Knorr-Bremse TruckServices is offering two new practical tools in its toolbox for clutch compressors. The special tools are designed to ensure optimum maintenance of the high-torque clutch (HTC) kits. TruckServices customers have the option of either purchasing a complete new tool kit or, alternatively, supplementing their existing kit with four additional tools for HTC maintenance.

The special tools contained in the toolbox not only help workshop employees to dismantle the clutch, but also assist them when replacing the actuating piston and assembling the clutch and drive shaft. The optimum combination of repair kits and special tools enables a safe, fast and cost-effective service that meets the approval not only of customers but also of workshop professionals. The new clutch compressor tool kit and supplementary set, which have been developed in conjunction with a leading manufacturer of special tools, are now available in the TruckServices webshop.

Easy diagnostics with OCT

The cloud-based diagnostic platform OCT simplifies the task of replacing a defective control unit in the iTEBS X® electronic braking system, and also meets the legal requirements of the Management and Cybersecurity software update.

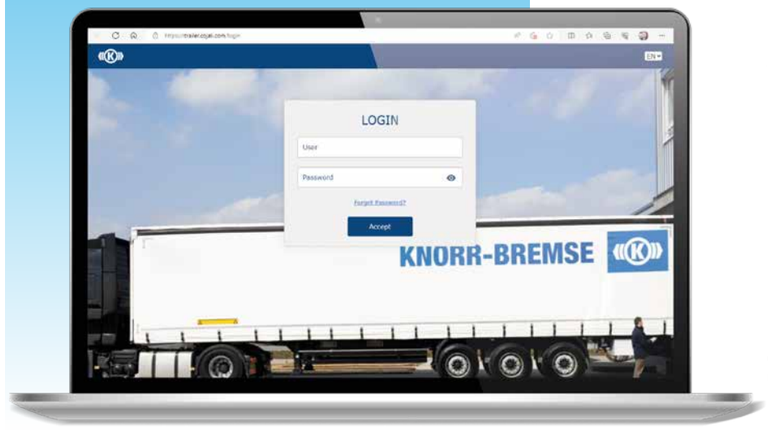
THE iTEBS® X BRAKING system replaces TEBS G2.2.

Knorr-Bremse recently launched the latest version of its electronic braking system for trailers, iTEBS® X, on the European market. Compared to its predecessor, TEBS G2.2, it offers significant improvements in terms of connectivity, diagnostics, stability, safety and efficiency. Extended communication options and internet-based diagnostics make iTEBS® X both future-proof and flexible. For operators of trailers and semi-trailers, this means greater overall safety, better maintenance options and improved integration into modern fleet management systems.

In connection with this product innovation, Knorr-Bremse has developed a cloud-based diagnostic platform for the iTEBS® X in collaboration with Spanish diagnostics specialist Cojali. This service is called OCT (Online Configuration Tool) and meets the requirements for cybersecurity and software update management systems as per UNECE R 155 and R 156. Among other things, OCT enables the user to download from a central storage location complete and encrypted trailer EBS configurations based on the vehicle identity number (VIN). OCT operates in close conjunction with the new KB Diagnostics solution, which is based on the established Cojali Jaltest system.

One important practical improvement for users is the fact that workshops using OCT can in future avoid manual steps that were previously necessary when replacing a defective control unit. For example, there is no longer any need to extract configuration data from the old control unit. Furthermore, if a control unit is no longer repairable, there is no need to communicate this to the trailer manufacturers, because the required configuration data can now be accessed directly from the cloud.

OCT training can now be booked as face-to-face training or as a virtual classroom at https://mytruckservices.knorr-bremse.com under the heading "Training" and category "Trailer". Knorr-Bremse Diagnostics users can register for the OCT via the following link: itrailer.cojali.com/login/jaltest.



OCT (Online Configuration Tool) fulfills all UNECE R 156 requirements.

Knorr-Bremse wins again

WOLFGANG KRINNER (LEFT) receives the award from ETM Managing Director Oliver Trost.

At this year's ETM Awards, Knorr-Bremse won the "Brakes" category for the eighteenth time in a row. Running since 1997, the Stuttgart trade publisher's readers' poll is regarded as a benchmark in the commercial vehicle industry.

Wolfgang Krinner, Member of the Management Board of Knorr-Bremse Systeme für Nutzfahrzeuge, was delighted to accept the award at a ceremony during the IAA Transportation trade fair in Hanover: "Winning the ETM readers' poll for so many years in a row is a wonderful testament to our team's performance. To receive this accolade shows how well we understand our customers' wishes and requirements. We would like to express our heartfelt thanks to our customers and the readers of trans aktuell, FERNFAHRER and eurotransport.de for this eighteenth ETM Award."

The motto for this year's award was "Best of new transportation". Over 3,000 readers of the popular commercial vehicle trade journals "trans aktuell", "Fernfahrer" and eurotransport.de, all published by Euro Transport Media (ETM), voted on the best brands and products in the commercial vehicle industry, with Knorr-Bremse once again coming out on top.

According to Bernd Spies, Member of the Executive Board of Knorr-Bremse AG responsible for the Commercial Vehicle Systems division, the latest triumph in this important category shows that the Company is trusted by its customers and the ETM readership: "With more than 30 years' experience in developing pneumatic disc brakes for commercial vehicles, and with over 50 million units produced, Knorr-Bremse is the global market leader in this field. The modular SYNACT® family of disc brakes for heavy-duty commercial vehicles and buses raises the bar in terms of performance, weight and efficiency. Together with the reduced-weight NexTT® disc brake for trailers, SYNACT® is a key technology in our efforts to achieve accident-free road transportation. That is why we are so proud to win this award once more."

A mobile business card

In 2024, Knorr-Bremse TruckServices launched custom-labeled OSC cartridges for its aftermarket customers. There has already been a very enthusiastic response from several customers. Marco Pallottini from Rome-based Italian spare parts specialists Dierre and the BPW Aftermarket Group's Sebastian Biesel share their experiences.

What do you think of Knorr-Bremse TruckServices' custom-labeled cartridges and what made you choose them?

Pallotini: Labeled cartridges are a great way to set yourself apart from the competition. Our cartridges are now instantly and easily recognizable. The customized labels help companies like Dierre to build an even stronger brand.
Biesel: We were actually quite skeptical to start with, because we didn't want to focus so much attention on such a highly competitive product. But we then realized that Knorr-Bremse cartridges bearing the BPW Aftermarket Group logo could act like a mobile business card. In addition, the fact that the cartridges are remanufactured supports our sustainability messaging – even if, for corporate design reasons, we ultimately opted for blue instead of green-colored cartridges.

What was your first impression of the cartridge when it was delivered to you?

Pallotini: My first impression was genuinely very positive. The cartridge looked exactly like what we'd talked about with Knorr-Bremse. It looked like a carefully designed product with an exceptional visual impact. Just as we'd imagined.
Biesel: We were really looking forward to receiving the product and were actually waiting in the goods-in area to take delivery of the first batch so we could get an immediate impression of how the layout had been implemented. The look and feel were even better than expected – you can't even tell it's a label that has been stuck onto the cartridge.

What was important to you about the label's graphic design? What message did you want to get across?

Pallotini: We wanted a clear, no-frills, professional look that communicates our brand's core values of reliability and quality.
Biesel: The BPW Aftermarket Group has a decentralized structure and we wanted all the individual companies to see themselves included. That's why all the brand names that the group trades with appear on the cartridge. We also wanted our joint slogan "Partner for Quality" to be on there. A high-quality cartridge with the logos of the national spare parts companies in the group matches the market image we want to have.

What benefits do you expect from the sale of your custom-labeled cartridges?

Pallotini: The cartridges' design allows us to visually communicate the core values of our corporate

» The design of the cartridge allows us to visibly communicate the values of our company to all our customers. «

Marco Pallottini,
General Manager Dierre Dimensione Ricambi

THIS DIERRE CARTRIDGE has a clean look and highlights the brand name.

Dierre

Based in Rome, Dierre Dimensione Ricambi (DDR) specializes in spare parts and accessories for commercial vehicles, buses, and trailers. Since it was founded in 1987, the company has grown to become one of Italy's leading suppliers. It now has 17 dealerships in regions including Lazio, Tuscany, and Lombardy. It also maintains its own fleet of 80 delivery vehicles. Dierre's 170 employees serve a large customer network, supplying some 120,000 different items.

philosophy to all our customers. As well as enhancing our product range, we hope the cartridges will give us an even more professional image in our customers' eyes.

Biesel: Our visibility in the market is very important to us. But we didn't want a private-label cartridge – we made a point of also having Knorr-Bremse's name on the cartridge to highlight our quality partnership. We're looking forward to seeing the jointly labeled cartridge again in use on the road.

Has there been an initial response from the market?

Pallotini: We delivered the first cartridges in September. The response from our customers in general and the repair shops in particular has been very positive and complimentary. We've had a lot of good feedback for our attention to detail and the general improvement of the product.

Biesel: We also launched the cartridges in repair shops in September as part of our fall campaign. We had previously asked our country organizations whether they were interested in the product and thought the labels would help them drive sales. The feedback and sales from the pilot project have been really good so far.

Do you intend to continue ordering custom-labeled OSC cartridges from Knorr-Bremse?

Pallotini: Yes, I really hope we will continue to use the cartridges. If the quality and service stay the same, then I've no doubt that we will. We always listen very closely to what the market tells us, so if the demand is there, we'll naturally keep supplying them.

Biesel: The campaign has delivered very positive results so far, so there's every prospect of us continuing and even expanding the project together with our Knorr-Bremse contact, Rainer Behr.

THE BPW AFTERMARKET Group sticker cartridge features all of the company's subsidiaries.

BPW Aftermarket Group

The BPW Aftermarket Group is the BPW Group's spare parts network for trucks and trailers in Europe. More than 120 branches operating in 18 countries ensure a comprehensive service. The product portfolio includes original spare parts from all relevant commercial vehicle manufacturers, as well as current value-oriented solutions for the repair of older vehicles. The group's 1,200 employees generate annual sales of EUR 380 million.

SEBASTIAN BIESEL (RIGHT), Director Category Management & Operations at the BPW Aftermarket Group, and Rainer Behr, Key Account Manager at Knorr-Bremse TruckServices, have driven forward the introduction of the sticker cartridge at BPW.

Clash of the Titans

Norbert Kiss' battle with Jochen Hahn has come to define the current era of the European Truck Racing Championship. In 2025, Jochen Hahn will be targeting his seventh title – an achievement that would put him out on his own as the most successful driver in the history of the championship.

JOCHEN HAHN SURROUNDED by his great rivals Norbert Kiss (right) and his son Lukas.

TRUCK RACING FANS can also look forward to exciting racing scenes like these in the 2025 season.

IN 2025, JOCHEN HAHN is aiming to turn the tables on Norbert Kiss – and take back the European Championship.

CONCENTRATION IS REQUIRED. Jochen Hahn prepares for the start of a race in the European Truck Race Championship.

Many things have changed over the last three seasons of the FIA European Truck Racing Championship, but one seems to have been set in stone: every year, Norbert Kiss wins the title and Jochen Hahn comes second, followed by the rest of the field. However, Hahn isn't the kind of man to settle for second best, and as early as this autumn he put Kiss on (friendly) notice that he'd have a fight on his hands in 2025. "I've really thrown down the gauntlet!", he said. "We're definitely going to be building a new race truck, and with me driving and our well-drilled team, we are going to be a formidable combination."

Jochen Hahn is absolutely determined to turn the championship standings back in his favor in 2025, and with good reason. Currently, he and Kiss jointly head the list of the most successful truck racers of all time, having each won the European title on six occasions. Adding a seventh crown would put Hahn back in front of his Hungarian rival – a position the man from the Black Forest would obviously love to be in.

Hahn's team have already set their course for next season, so it's a good job he has everyone pulling in the same direction. As he says himself, "It makes us feel good to see that our long-term partners all believe in us and are pursuing the same objective, and it gives us motivation to squeeze out that last one or two per cent of extra effort."

That's certainly true of main sponsors Knorr-Bremse, who have had a long and extremely successful relationship with Jochen Hahn for many years. "Thanks to Knorr-Bremse's support, our spare parts are always absolutely top quality. Given the levels of wear and tear in our sport, that's an invaluable asset."

Knorr-Bremse also manages to demonstrate a strong commitment to sustainability – which Hahn very much appreciates: "Sustainability is important to me. In my view, we should all be contributing as much as we can to ensure a sustainable future for our planet." He adds that the products in Knorr-Bremse's EconX® range represent a genuine milestone for sustainability. Indeed, he's been so impressed by them that he uses EconX® parts in his race truck, including brake calipers and air dryer cartridges. For Jochen Hahn, it won't just be the lights that go green when the 2025 season gets underway.

Santa in a truck

The next trucker festival will be held in the yard of Knorr-Transporte's Karlstadt facility on 18.01.25.

In the Bavarian district of Main-Spessart, Santa comes in a truck. It's all part of the "Trucker helfen Kindern" (Truckers For Children) initiative run by a six-strong team headed by Daniel Köhler, a Knorr-Transporte truck driver from the Lower Franconian town of Karlstadt. The charity event came about when a group of friends organized their own trucker festival. "We were a bunch of buddies who used to go to trucker festivals together. In 2019, we thought we'd have our own festival, just for ourselves. But the permits for our 'Stadelhofen truck meet' were so expensive that we soon decided to make it a public event which attracted over 400 visitors", says Köhler. As far as the team was concerned, the festival was never about making money. So they decided to donate their profits to care facilities for children with cancer.

Every Christmas, the "Trucker helfen Kindern" convoy of 120 trucks drives through the district of Main-Spessart collecting donations for children with cancer. Last time round, they raised a grand total of EUR 43,000. Their efforts were recognized with an award at IAA Transportation 2024.

THE EYE-CATCHING VINTAGE FIRE TRUCKS are always popular.

EVERY YEAR, CROWDS OF ONLOOKERS of all ages line the route to witness the spectacle of the decked-out trucks

The next truck convoy departs from Röhrig Logistik in Karbach on 21.12.24.

But then the Covid pandemic came along and ruined the organizers' plans. Forced to cancel the festival, they tried to think of other ways they could help the community. For Christmas 2021, they thought they would at least try and put a truck convoy on the road. This was allowed during lockdown because the drivers were all alone in their cabs. The plan was to tour the district in their decked-out trucks and bring a bit of seasonal cheer to people in retirement homes who were struggling particularly badly with lockdown and loneliness. The team made up around 400 gift bags containing fruit, chocolate and poems and distributed them to three homes along their chosen route through the Main-Spessart district. The donations they collected along the way would go to help sick children again. And with this, "Trucker helfen Kindern" was born. The initiative also supports families in need as a result of illness or road accidents.

Now that Covid and lockdown are behind us, they are allowed to hold the truck festival again. But the Christmas convoy was so popular that the team has decided to make it an annual tradition, too. On December 21st this year, 120 decked out trucks will once again form a four-kilometer convoy along a route taking them through the Spessart hills to Würzburg. And they'll be collecting more donations from the crowds that turn out to watch them. While supplies last, the organizers will be giving away hundreds of soft toys, jigsaws and other gifts for the little ones at the convoy starting point, with cash donations welcome from those who can afford them. They'll be raising money from the sale of food and drink, too. "Trucker helfen Kindern" also collects money throughout the year in collection boxes made from modified model trucks that are placed in gas stations, stores and other central locations in the district.

THE CHRISTMAS CONVOY is formed by 120 festively decked-out trucks. Places in the starting line-up are soon booked up.

The initiative involves a huge amount of work, but Daniel Köhler's helpers are always ready to pitch in. And in return for their efforts, they get some truly memorable experiences. Köhler recalls how a storm threatened to put paid to last year's event before it had even started. Heavy rain showed no sign of abating and it was blowing a gale. "We assumed no-one would turn out to watch us along the route and were on the verge of calling the whole thing off", he says. In the end, they decided to go ahead so as not to waste all their effort. And contrary to expectations, the route was once again lined with crowds of onlookers of all ages, from toddlers to grandparents. "We had more people than ever before, it was incredible!", he marvels.

IN HIS DAY JOB, CHRISTMAS CONVOY ORGANIZER DANIEL KÖHLER drives cement around the country for Knorr-Transporte.

THE TEAM PLACES COLLECTION BOXES made from model trucks in local stores and gas stations.

SUCCESS STORY: The very first Stadelhofen truck meet attracted around 400 visitors.

And it's always a moving moment when they hand over the donations. "We always give the cash we raise to several different organizations. They're all so grateful, regardless of how big or small they are", says Köhler. The growing totals raised are a testament to the organizers' efforts. While the first event raised EUR 8,000, truck driver Köhler proudly states that the grand total in 2023 was EUR 46,000. The causes this money supports include research, accommodation for parents of children requiring long-term hospital stays, and most recently an inclusive playground. "The stress is a small price to pay for all this and for seeing the children's eyes light up with excitement along the route!", he says. Daniel Köhler's community spirit was recognized during IAA Transportation 2024, where he received the public choice award of children's road safety initiative Blicki.

AUTOHAUS RÖHM IS RUN BY MANAGING DIRECTORS PATRIK POHL AND HORST SINNER. Iveco demo driver Boris Bart transferred the e-Sway.

Electric mobility comes to the service business

The market penetration of electric commercial vehicles is growing apace. Experts like the staff at Autohaus Röhm provide professional maintenance and repairs for these vehicles' high-voltage systems. Significant investment is required in equipment – and especially training – and is vital to securing the service business's future.

According to Patrik Pohl and Horst Sinner, the Managing Directors of Autohaus Röhm in the town of Wendlingen am Neckar, maintenance and repair of commercial vehicles with electric drives and high-voltage systems is something today's repair shops have to get to grips with. Located 20 kilometers east of Stuttgart, the business is an official partner of Iveco and Scania. Both truck manufacturers need professional aftermarket support for their battery electric commercial vehicles – which means their partners must be capable of carrying out maintenance on them. Autohaus Röhm is also a service partner of a major postal operator that operates a fleet of 30 Iveco eDailys in the region. So, as the repair shop's technical Managing Director Horst Sinner explains, electric mobility has now become an integral part of Autohaus Röhm's business. "Electric trucks, especially delivery vehicles, are an increasingly regular sight on our roads these days, and they all need maintenance and repairs", says Sinner. "In the Röhm group, we're building our own practical knowledge base for electric trucks, so we know exactly what our customers expect of us", adds Patrik Pohl. Their sister company Röhm Kies operates a 100% electric roll-off tipper in the region.

But there's no getting away from the fact that all this calls for significant investment in equipment and especially staff training. "The

basic equipment will set a service specialist back somewhere between EUR 40,000 and EUR 50,000", says commercial managing director Pohl, who was previously District Manager at Iveco Magirus AG responsible for dealers and service partners. The 40 kW mobile charger stipulated by the vehicle manufacturers accounts for EUR 20,000 of this total. The rest goes on tools and instruments and on staff training – which involves no small amount of time and effort. According to Pohl, the training takes around 20 days a year for every employee involved – time that could otherwise be spent on other duties.

Three of the business's 22 technical staff have now completed their S3 level training, which means they are qualified to work on live HV components and can thus maintain and repair all vehicles with high-voltage systems. All three received their S3 high-voltage training at Iveco and Scania.

MASTER MECHANIC OLIVER MAUSER (LEFT) AND WORKSHOP SUPERVISOR JÜRGEN GAIRING like the variety that comes with having to perform a wider range of tasks.

HARD HATS WITH VISORS, insulating mats and special gloves are among the other required PPE items.

Although courses are also available from several brand-independent academies, if you choose this route you then have to do additional brand-specific training because of the specific characteristics of each manufacturer's vehicles. So Sinner and Pohl decided it made more sense for their staff to undergo all their training with the manufacturers.

One of the high-voltage specialists is mechatronics technician Lorenz Hirsch. "To be honest, I did feel a bit uneasy the first time I had to work on an Iveco eDaily. And I still treat high voltage with a healthy dose of respect. But the nerves

Autohaus Röhm

Established 40 years ago, service specialists Autohaus Röhm are part of the Röhm group, which also includes a gravel and natural stone business and a mobile crane rental business. Over the course of its 134-year history, the group has stayed true to its values as a family business. A close personal relationship with its customers is a key part of this. Including the two Managing Directors, the repair shop employs 40 staff, among them three master mechanics, three S3-level technicians who are qualified to work on high-voltage systems, and five trained gas system technicians. The repair shop is an official Iveco and Scania partner and also carries out work on trailers and bodies. "We hardly ever turn anything down", says Managing Director Horst Sinner. Their service portfolio includes all standard maintenance and repair work, including hydraulic systems, as well as all regular testing and accident and engine repairs. Five double service bays with a test lane are available for trucks, and a further four for vans. There are also workstations with three lifting platforms for light commercial vehicles of up to seven tons. Autohaus Röhm also sells Hyva skip loaders and roll-off tippers and installs them on any make of chassis. In addition, they maintain a rental fleet of Iveco trucks for short- and long-term rentals. They cover a radius of approximately 40 kilometers around the town of Wendlingen am Neckar, including the local stretch of the A8 highway. They also have two breakdown vehicles, and up to EUR 600,000 of spare parts are permanently kept in stock.

go away with experience", he says. He did his S3 training two years ago. The S1 and S2 levels are already covered in a mechatronics technician's vocational training. He likes the variety that comes with having to perform a wider range of tasks, even though it means his work is becoming more complex, as workshop supervisor Oliver Mauser confirms. "The tasks are getting increasingly complex and our customers are getting more and more demanding. The work used to be more relaxed, but now there's more variety", he says. According to Lorenz Hirsch, "Disconnecting the high-voltage system is the most important bit. You can't afford to make any mistakes – but it's actually straightforward enough". To isolate the high-voltage system, he presses the vehicle's "service switch", disconnects the HV battery and carries out vehicle-specific safety precautions to ensure that the high-voltage system isn't accidentally reactivated. He then uses a tester to double-check that the system is definitely not live anymore. Only then does he start the actual work on the vehicle.

Once the vehicle's high-voltage system has been disconnected, less-qualified mechatronics technicians can also work on it. Mandatory warning signs on the vehicle ensure that everyone can easily tell at a glance whether or not it is live. And the area around the vehicle is cordoned off from the rest of the repair shop with a black-and-yellow chain to make sure no unauthorized personnel accidentally approach it. The use of special personal protective equipment (PPE) is also mandatory. The special workwear that must be worn to protect against electric shocks, arc flash and other hazards includes insulating gloves, cloth liner gloves, and a hard hat with a visor to protect against flying sparks. Compliance with EN 1149-5, the standard governing protection against electrostatic discharge, is a minimum requirement for the workwear. The PPE must also comply with the EN 61482-2 standard for protection against arc flash and the EN 11612 standard for protection against heat and flames. Extra protection from an underfoot insulating mat prevents electricity from flowing through the technician's body to the ground while they are working. There are times when it is impossible to avoid working on a vehicle while the HV system is live. In these situations, a second person is always close by the mechatronics technician with a rescue hook that they can use to retrieve their colleague from the danger area in an emergency without receiving an electric shock themselves.

SIGNS SAYING WHETHER OR NOT THE VEHICLE'S HIGH-VOLTAGE SYSTEM has been disconnected are prominently displayed on electric trucks.

Patrik Pohl believes that service specialists who are unwilling to get to grips with these challenges or make the necessary investments could face difficulties in years to come. As fleets switch to alternative drive systems, their work could dry up unless customers continue to use internal combustion engines with zero-carbon fuels, of course. His advice to any service specialist is to be ready to work with all electric drive systems, be it battery electric or fuel cell vehicles. The two Managing Directors add that Autohaus Röhm continues to plan for the future and is keeping a close eye on how the drive system mix evolves. They are looking at expanding their services into the bus and motorhome markets, while hydrogen internal combustion engines are also on their radar. After all, their staff are already used to working with CNG and LNG.

SEVERAL ITEMS OF PERSONAL PROTECTIVE equipment must be worn when working on electric trucks.

THE PERSONAL PROTECTIVE EQUIPMENT includes antistatic and flame-retardant workwear.

Practical relevance counts

Experts at the Paul Academy, a subsidiary of the Paul Group, provide fleets and workshops with the knowledge needed to service commercial vehicles with alternative drive systems. Product trainer Robert Kiessling explains the benefits and advantages of the concept.

PAUL ACADEMY EXPERT ROBERT KIESSLING responds to participants' questions by demonstrating directly on the vehicle.

HOW A WORKSHOP MUST BE SET UP SO THAT IT COMPLIES
with the regulations for working on electric vehicles is also part of the training.

What is so special about the Paul Academy training program?
Our advantage is our realistic, practical approach. Since we are also manufacturers, participants get to work directly on the vehicles. As manufacturers, we also know best how our vehicles function. The Paul Academy always incorporates the Paul Group's workshop DNA, so we also understand this approach.

How great is the potential for training in the commercial vehicle sector?
It's enormous: the change to new drive systems is in full swing. Even if this has not yet been fully taken on board, there is no question that there's going to be a shift towards vehicles that are mainly powered by environmentally friendly systems. Sooner rather than later, this is going to affect everyone who has anything to do with these matters.

What training is particularly in demand?
The greatest interest is in de-energizing and re-energizing the vehicle. After two or three goes, these procedures become second nature. We can see the same effect when it comes to isolating gas systems. Our most popular courses are the S-training courses for service centers; 2S is the classic. While 1S is aimed at all those who only drive the vehicle or carry out mechanical work on it that does not affect the high-voltage system, 2S covers work after the high-voltage system has been de-energized and 3S also enables work such as troubleshooting while the vehicle is energized.

Do you also provide advice on workplace equipment?
Yes - equipping the workshop is an important topic that we deal with in all our training sessions. We provide detailed advice – ideally by visiting the company concerned. We also offer special hydrogen maintenance kits together with appropriate training. These can be hired from us – in order to keep costs down.

What sort of staffing do you recommend for a medium-sized workshop?
Two or three staff members should have 2S qualifications, and one should have 3S – for example in order to be capable of working on vehicles with accident damage. Mind you: these are requirements per shift. We also recommend appointing a responsible specialist for gas and electrically powered vehicles to advise the owner, who may have a business background rather than a technical one.

Quality without compromise

Since spring 2023, the NG3 EVO spring brake actuator has been assembled in Lisieux, France, for delivery to leading commercial vehicle manufacturers. It sets the benchmark for quality, performance and robustness, particularly for truck and trailer applications equipped with pneumatic disc brakes. Knorr-Bremse's Lisieux facility employs two advanced robotic assembly lines comprising manual, semi-automatic and automatic stations to ensure that the NG3 EVO maintains its excellent reputation.

Step 1

Preparing the rear and front parts

Assembled at the Knorr-Bremse plant in Lisieux since spring 2023, the next-generation NG3 EVO spring brake actuator is the successor to the NG3. The assembly process begins with the lubrication of the rear part of the brake actuator at a semi-automatic station. This is followed by the assembly of the rear piston in the intermediate flange and the compression of the spring and locking of the rear housing in the intermediate flange. The rear part is then removed fully automatically from the production line by a robot. The front part is partially assembled at a manual station.

Step 2

Crimping

The Knorr-Bremse NG3 EVO is then crimped to securely and permanently join the front and rear sections to each other. Crimping is a mechanical process in which two materials, usually metal, are joined together by means of deformation. The deformation creates a permanent, gas-tight join that ensures mechanical stability. Crimp joins are also very stable and resistant to vibrations and temperature fluctuations. In Lisieux, crimping takes place at a fully automated station that precisely controls the crimping force. Once the process is complete, the unit is removed by a robot.

Step 3

Hydraulics

A hydraulic crimping press is used to carry out the actual crimping. The components are automatically delivered into an ergonomic position for the operator. The pressurized fluid in the crimping press exerts a precise and even force on the parts being joined. This process enables a high level of repeat accuracy and ensures that the joins are uniform and reliable. A particular advantage of hydraulic crimping is that it enables even larger or more robust components to be joined efficiently and effectively. Control over pressure and deformation ensures a consistently high-quality crimp join, which is essential in safety-critical applications such as those found in the automotive industry.

Step 4

Quality test

In the final quality tests, the NG3 EVO's power spring is tested and all front and rear parts of the actuator are checked for airtightness.

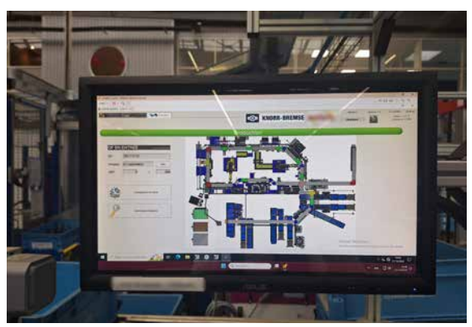
Step 5

Finishing

The production process ends with the individual units being removed by a robot. Before the brake actuator are unloaded from the station and packed for the customer, each NG3 EVO is laser-marked for identification and traceability purposes.

Step 6

Traceability



The NG3 EVO's advanced robot assembly lines employ an automatic inspection system to guarantee that the correct components are used during assembly and that all the assembly and component data are permanently logged. This ensures that the brake actuator produced in Lisieux meets all the product's quality and functionality requirements.

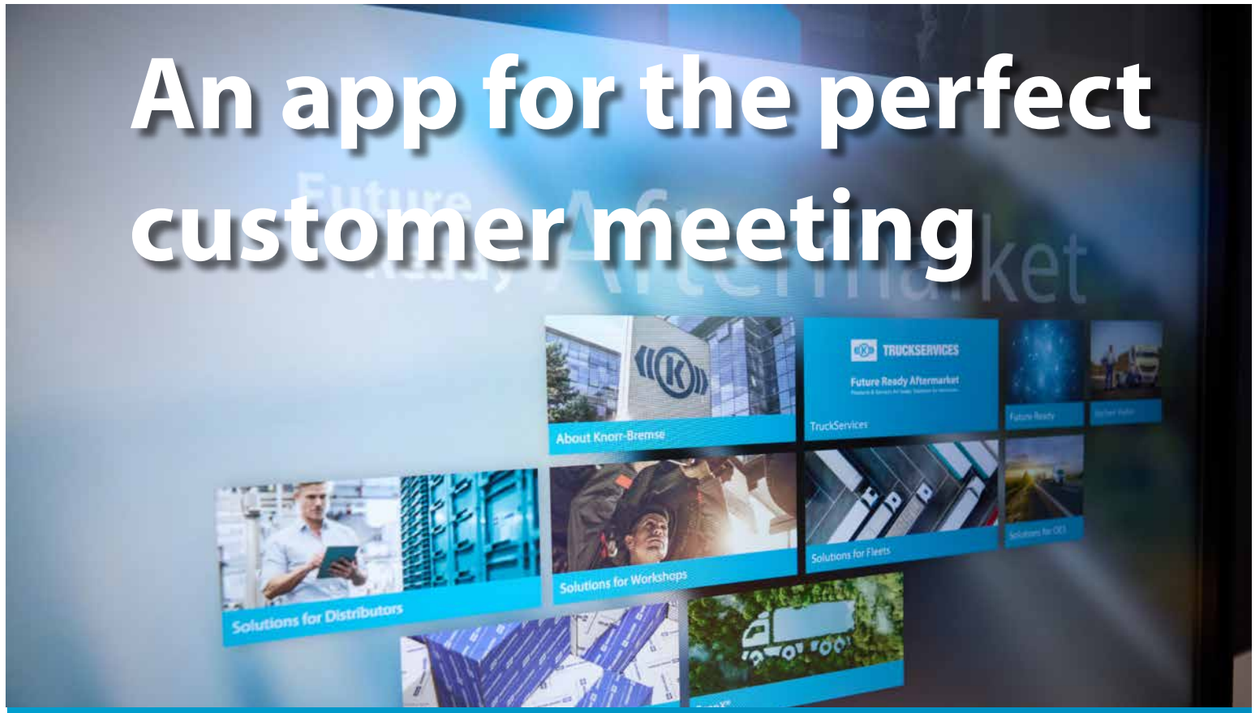
Up2Date

- Knorr-Bremse APR-System® (Active Pad Release) (Y558796)
- New variant of MAN Clutch Compressor 360cc (Y555223)
- Concentric pneumatic clutch actuators (Y555162)
- Redesigned EAC1 (Y503442)
- NEO Green Software - Phase-out (Y559003)
- Further extension of the Knorr-Bremse tool case for clutch compressors (Y282362)
- New Actuator solutions for Disc and S-Cam Brakes (Y555160)
- Online Configuration Tool for Advanced Trailer Diagnostics (Y549420)

The documentation is available for downloading at:

https://mytruckservices.knorr-bremse.com

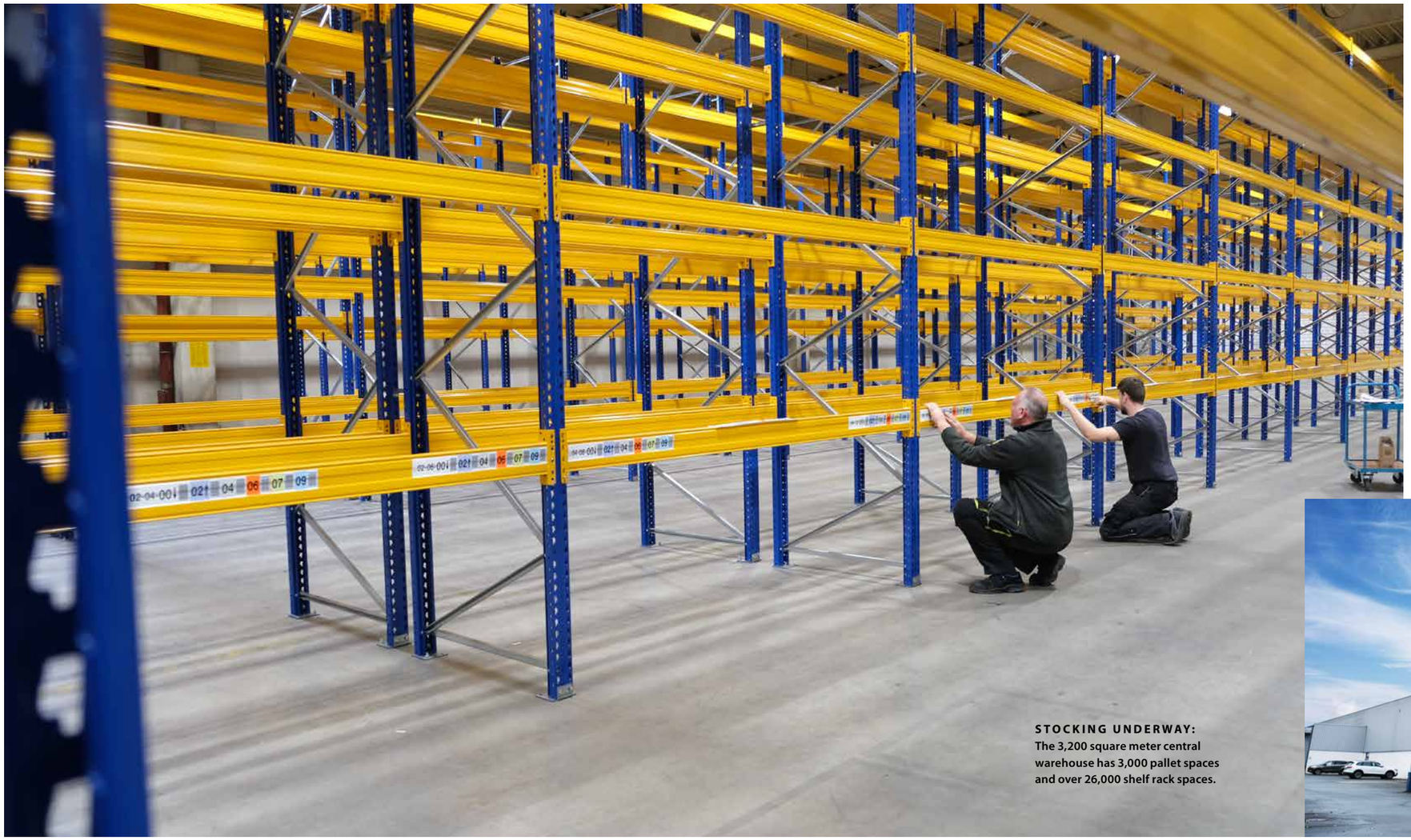
An app for the perfect customer meeting



The latest app from aftermarket specialist TruckServices enables sales representatives to focus on customers' precise requirements and provide them with a clear picture of what is on offer.

Following on from the approach adopted at this year's Automechanika trade fair in Frankfurt am Main, the new TruckServices app seamlessly incorporates digital technology into our day-to-day business. In line with our new slogan: "Future Ready Aftermarket. Products & Services for today. Solutions for tomorrow", it takes Knorr-Bremse TruckServices customers on a digital journey through the current range of products and services, and helps them find solutions to the challenges they face.

The app gives the Knorr-Bremse sales team a state-of-the-art tool for displaying products and services on a laptop or tablet, so they can focus on the products and services that matter most to each individual customer. It features an attractive, interactive design, including rotating 3D animations that enable products to be viewed from every possible angle, and is combined with a treasure trove of information for aftermarket customers covering the full TruckServices portfolio, including all our products, service plans, ranges and trends. It also provides a complete overview of the history of TruckServices, a wealth of data and other useful details, and a preview of the future of the TruckServices range. All this gives TruckServices customers even more reasons to look forward to a visit from their dedicated Knorr-Bremse sales representative!



STOCKING UNDERWAY:
The 3,200 square meter central warehouse has 3,000 pallet spaces and over 26,000 shelf rack spaces.

Part of the BPW Aftermarket Group, distributor BESKO is a specialist full-line supplier for repair shops and fleets in Germany. A new warehouse due to open shortly will be key to ensuring that orders reach the customer promptly. The company also plans to open several new dealerships over the next five years.

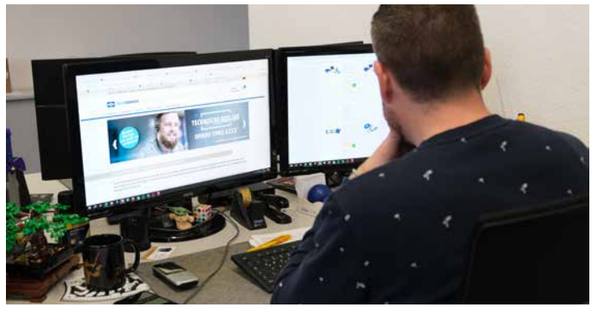
THE PADERBORN
premises already belonged to the BPW Group. BESKO invested EUR 2.3 million to convert them into a central warehouse.

Paderborn: the beating heart of logistics

Part of the BPW Aftermarket Group, BESKO is a specialist supplier of spare parts for trucks, trailers and buses. In Germany, it operates under the motto "Mit uns bleiben Sie mobil" ("Keeping you on the Road"). "We don't want to make empty promises to our fleet and repair shop customers. We aim to provide them with the best possible service", says BESKO Managing Director Marco Fuchs. According to 38-year-old Fuchs, the three keys to achieving this are professional advice, needs-based

solutions and prompt delivery. "Our team is a mix of experienced professional mechanics and younger colleagues who combine service know-how with an excellent grasp of modern technology. It's the perfect blend", he says. Fuchs, who studied business administration, is himself a master mechanic. He comes from a family with its own commercial vehicle repair shop, and has been passionate about commercial vehicle service from an early age.

While customers can of course place orders via the web shop, the parts distributor's staff also advise them on more complex challenges over the phone and help them identify components and choose the right parts. The company's partnership with Knorr-Bremse plays an important role. "Quite apart from anything else, stocking Knorr-Bremse parts is a must for us. The high equipment quota means that repair shops need them on a daily basis, and many of their customers insist on the original product due to its exceptional quality", says Fuchs. He adds that BESKO's close contact with the OEM means that they are always in the picture about the



A PERFECT BLEND:
A team of both experienced and younger staff helps customers identify and choose the right parts.

products and technologies that will be important in the future, not least thanks to the excellent support from the sales team. "So for us, Knorr-Bremse isn't just a supplier – it's an important strategic partner", he explains.

OPERATIONS DEVELOPMENT MANAGER CHRISTIAN MÄKELBURG (L.) AND MANAGING DIRECTOR MARCO FUCHS plan the inventory for the new central warehouse in Paderborn.

Prompt delivery relies on having dealerships and stock close to your customers. BESKO currently has seven dealerships with their own warehouses, mainly in northern, eastern and western Germany. Another will be opening shortly in the Ruhr region. "We listen carefully to our customers, and the new facility was something they were asking for. We're more than happy to oblige", he says. But they won't be stopping there – BESKO has ambitious growth plans. "Our aim is to open five new dealerships in five of the German federal states within the next five years. And if other opportunities crop up in the meantime, we won't let them slip either", he adds.

But the biggest investment for the company is the new central warehouse in Paderborn. BESKO is investing a total of EUR 2.3 million in the facility in Sennelager industrial park. The 3,200 square meter site will have 3,300 pallet spaces and 26,500 shelf rack spaces. "Once the facility is fully operational in January, we will stock 12,500 different parts there", says Operations Development Manager Christian Mäkelburg. As a full-line supplier, BESKO offers a wide range of products, including chassis, pneumatic, electrical and body parts for commercial vehicles, tools and fixtures, repair shop equipment and workwear. They distribute genuine OEM and branded parts as well as their own-brand TRAILERLINE parts for value-based repairs.

In future the Paderborn facility will serve BESKO's regional warehouses, further expanding availability of the company's portfolio. "When a truck goes in for a repair, vehicle operators expect the workshop to get it back on the road within a few hours", explains Managing Director Fuchs. This can only happen if the parts are ready and waiting when the vehicle arrives, or can be delivered promptly. The specialist parts supplier will also use five of its own vehicles to serve regional customers from the Paderborn facility. An overnight courier will deliver urgent orders to repair shops and fleets by 6 a.m. the next day. The central warehouse will also have an on-site store where local customers can directly buy what they need.

In addition, BESKO's "upBoxes" provide a unique service for all service specialists and fleets. These are 40-foot containers that have been converted into computerized consignment stores. BESKO fills them with the requested parts and delivers them to an outdoor or indoor location on the customer's premises. The customer can then simply pick the parts they need from the upBox. The temperature-controlled containers also have an access control system. A digital inventory management system documents which items have been picked and issues the customer with an invoice including commission. According to Fuchs, "This option is mostly used by larger companies whose fleet is all the same make, so they know exactly which parts have a fast turnover. It provides a backup to their own or their service company's warehouse". Just one more way in which the parts specialist ensures that it can provide its customers with the best possible service.

BESKO at a glance

Wholesaler BESKO was established in Denmark in 1987. Acquired by the BPW Group in 1998, it initially operated solely in the Danish market. In 2016, BESKO A/S opened its first BESKO commercial vehicle parts dealership in Germany, in the town of Büdelsdorf. A second followed in the municipality of Seevetal, near Hamburg, in 2018. In 2019, BESKO merged with Herz Nutzfahrzeugteile, an eastern German company that improved BESKO's coverage of the north and east of the country. In 2021, BESKO joined forces with NTV Nutzfahrzeugteile, adding further dealerships in northern, eastern and western Germany to the network. BESKO currently has 130 employees and is headquartered in Bielefeld.

FROHE WEIHNACHTEN
MERRY CHRISTMAS

KNORR-BREMSE