

ECO

THE DÜRR GROUP MAGAZINE 2025



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EVOLUTION

For billions of years, evolution has been taking place on Earth. The first cells evolved into complex organisms that adapted to their environmental conditions. They passed on traits useful for survival. Over time, nature has created a true masterpiece. The world of work is also changing. In the past, everything was done by hand; then machines took over tasks; and today, artificial intelligence is gaining ground. Highly automated manufacturing processes are the result of many small evolutionary steps. The Dürr Group stands for progress in the world of production — with fascinating products and curious minds.

A country reinvents itself

The Group's CEO Dr. Jochen Weyrauch traveled to China — and encountered a lot of enthusiasm for technology

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Quite the type!

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Faster, further, stronger, more precise

In this issue, you will learn what
hummingbirds, dromedaries, and
other animal friends have to do
with different types of automation.



ECO MAGAZINE DIGITAL

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THE YEAR OF THE SNAKE

In the Chinese zodiac calendar, 2025 is the Year of the Snake. It is a symbol of wisdom and curiosity.

TRAVELING THROUGH *SHANGHAI* IN A MINIBUS

The border officials at Pudong Airport check Jochen Weyrauch's passport and smile at him. Then the CEO steps through the doors into the open air. In Shanghai, the sun pushes through the haze. A fresh November breeze blows; it is 16 degrees Celsius. Great weather for a city trip.

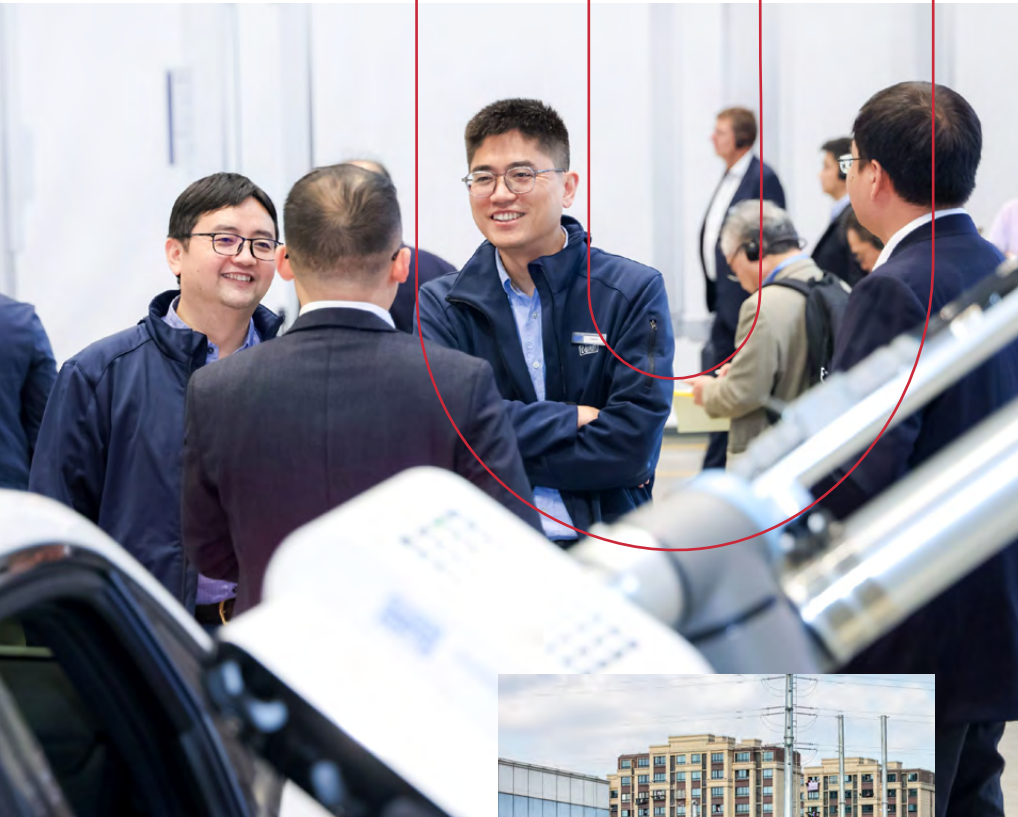
But the CEO has no time for sightseeing along the colonial promenade or shopping on the bustling Nanjing Road. His schedule is tightly packed from morning to evening for nearly two weeks. Together with nine members of the Group management team and the managing directors of the Chinese companies, he will visit the sites of Dürr, Schenck, HOMAG, and BBS Automation in the Shanghai area. He will meet with local employees and customers, as well as consultants and investment bankers. And he will do a lot of listening. "China is changing rapidly, and it is important to understand this transformation," says Weyrauch.

The country is of strategic importance to the Dürr Group. The company came to the People's Republic back in 1983 to build a paint curing oven for Volkswagen. Today, China is Dürr's most important individual market after the United States. 16 percent of sales come from the People's Republic with its nearly one and a half billion inhabitants. All the Group's divisions operate large sites in China. From here, they supply industrial companies with paint systems, woodworking machinery, or balancing and automation technology. In recent years, the country has also developed into a base from which emerging countries in the global South are supplied.

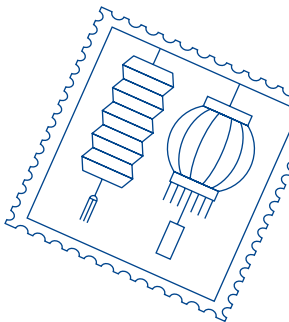
Traveling through the urban jungle in a minibus

A sand-colored Toyota minibus collects Weyrauch and his group every day at 8am. The hotel is located 13 kilometers west of the city center — which is quite central for a large Chinese city. Traffic in Shanghai, which is home to 25 million people, is unpredictable. It can take ten minutes or an hour to travel five kilometers.

But even time spent in traffic can be used to type on a laptop, have a conversation, or simply observe. How has Shanghai changed? What stands out the most? "The city is becoming greener and greener," says Weyrauch, who first visited over 30 years ago. Streets and concrete are no longer the only features defining this metropolis. The city administration has created

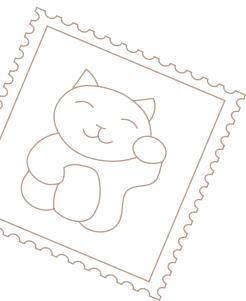


TRAVELING IN CHINA
Dr. Jochen Weyrauch spoke with Chinese employees during his two-week trip.



China is one of the most important markets for the Dürr Group. In November, CEO Dr. Jochen Weyrauch and the Group management team spent nearly two weeks traveling through the country to explore its rapid transformation and develop new business models. The group gained some exciting insights.

TEXT: HEIMO FISCHER — PHOTOS: YOLANDA VOM HAGEN, DÜRR



parks and planted trees. The outer districts also look more appealing than before. It seems that efforts are being made to further improve the quality of life after the difficult Covid years.

What cars are those?

The large windows of the bus offer an excellent vantage point for observing the vehicles on the road. “A few years ago, you would mostly see Western and Japanese car brands here,” says Weyrauch. Today, Chinese manufacturers also shape the landscape. One example is the Avatr brand. It belongs to a joint venture between the Chinese car manufacturers Changan and Nio. The technology corporation Huawei and the battery manufacturer CATL are also on board. With over 500 horsepower, the top-of-the-range model is designed to cover up to 700 kilometers on electric power and with a high degree of autonomy. The interior features premium leather instead of plain plastic. And all of this for a price of 50,000 euros from new. Aboard the Dürr minibus there are many managers who know a thing or two about car production costs. A lively discussion immediately ensues.

At 8:30am, the bus stops at the HOMAG company yard in Shanghai. The tour of the sites will follow the same pattern over the next few days. It will start with a visit to the production facilities, followed by discussions with local management and employees on site.

The manufacturer of woodworking machinery is producing less than usual at the moment. The management discusses the reasons for this in the early evening with a consultant and investment banker who has lived in China for a long time. The Board of Management has invited him as an expert to hear his analysis of the transformation in China and of the current situation.

The Chinese economy continues to grow, albeit not at the same pace as before the pandemic. According to the expert, companies that have good ideas and produce quickly and cheaply still stand a strong chance of continuing to be successful. He believes that the state does not aim

What most shaped your perception of China?

The speed at which the country and its society are developing. The determination of the companies and people is truly impressive. It struck me how seamlessly daily life operates, such as the punctuality of public transport or the ease of rescheduling something via an app. People in China love technical gadgets, which are increasingly found in almost all products — from smartphones to cars.

TRAVEL JOURNAL Q&A

to push Western companies out of the market, but rather to encourage competition and innovation. This becomes evident at the other Group locations. Some of them produce so much that logistics space is becoming scarce.

But isn't China said to subsidize its key industries, enabling it to offer many products at lower prices than foreign competitors? Weyrauch does not dismiss this, but he also acknowledges the other side. When talking to people on the ground, he repeatedly finds that they have a different perspective on the issue. “It appears that, in China, the EU's agricultural policy, for example, is viewed with skepticism, as it is thought to complicate access to the internal market.”

PLENTY TO SEE

There was a lot to see for the visitors. On their way through the production area, they also had to watch out for passing forklifts.



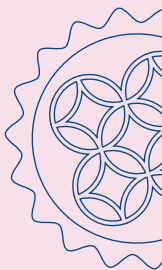


INTERCONNECTED WORLDS

During their visits to the plants, the management team gained some exciting insights.

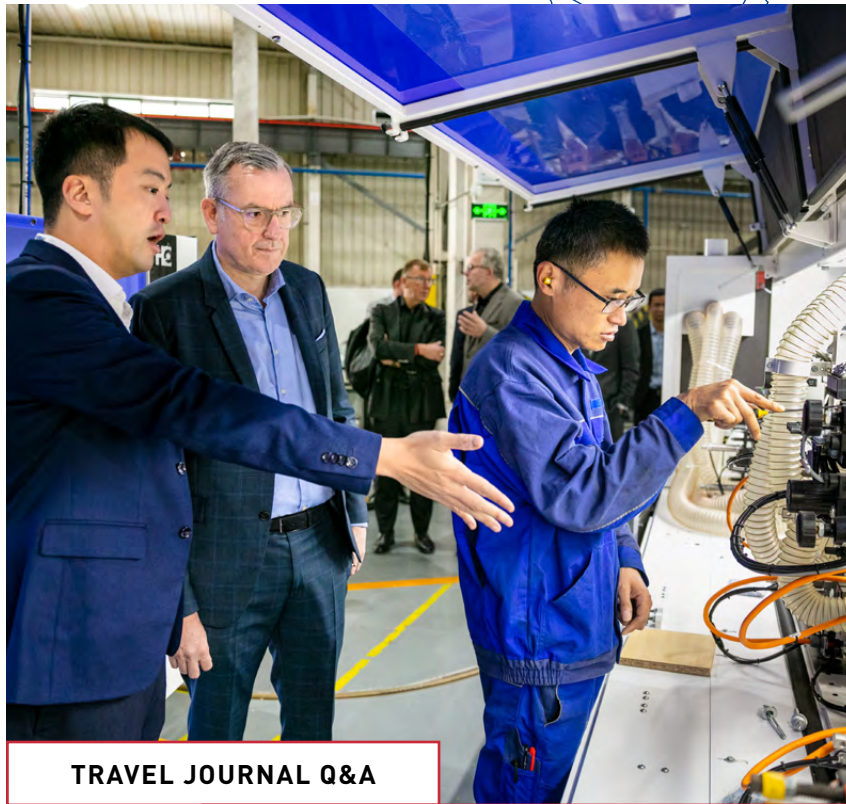
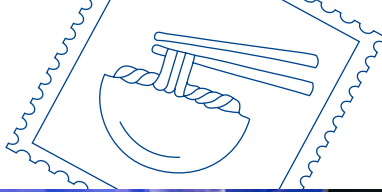


TRAVEL JOURNAL Q&A



What did you see as a challenge?

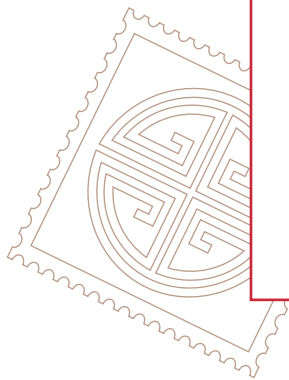
I have been paying very close attention to how good Chinese companies' products have become. During Covid, the country developed very rapidly in key sectors such as the automotive industry, almost unnoticed by the West. Many companies can now easily compete with global technology leaders, with these companies' products often costing significantly less. Anyone aiming to succeed in the Chinese market in the future should closely monitor this development and consider what lessons can be learned.



TRAVEL JOURNAL Q&A

What impressed you most about people in China?

The confidence with which businesspeople in the country conduct themselves. In the past, I often had the impression that people looked up to their counterparts from established industrialized countries. Now, we speak as equals. People are proud of what they have achieved — and I think rightly so.



Antonio Kwan, Managing Director of HOMAG in China, guided the German delegation through the halls.

Red wine from China

It also becomes clear during dinner at the restaurant just how much the country is changing. Dumplings, pieces of meat and fish, and spicy vegetables are served at a traditional round table with a rotating platter. This is served with red wine — not from Europe, South Africa, or Australia, but from China. “For me, as a wine lover from one of Germany’s top wine-producing regions, I found tasting these Chinese wines an exciting experience,” says Weyrauch. Vineyards with Cabernet Sauvignon, Merlot, or Pinot Noir are no longer a rarity in the People’s Republic. On the contrary: When it comes to the size of the wine-growing area, China is now on a par with France. Wine consumption has also increased significantly over the past 20 years.

This transformation breeds confidence. According to Weyrauch, anyone who meets Chinese businesspeople quickly notices how self-confident they are. They are proud of what they and their country have achieved over the past decades.

Questions from the app

This becomes evident during a visit to Dürr Paintshop Systems in Shanghai. The agenda includes an employee meeting on-site. The employees gather in large numbers in the canteen, with even more following the meeting online. Using an interactive app, they type questions into their smartphones that appear on a large screen in the canteen.

One of them wants to know what effects the reorganization of Dürr’s paint shop business will have locally. Someone else asks whether it involves transfers. Or what impact a possible trade conflict after Donald Trump’s election might have on Dürr in China. The employees are eager to hear answers straight from the Board of Management.

Success is inspiring — especially in China

For people in China, it is very important to work for a successful company. Growth is considered attractive by employees, as it secures jobs. This can be observed during a visit to BBS Automation. The Chinese business of the



ON THE ROAD IN A MINIBUS

A sand-colored bus took the managers through the urban canyons of Shanghai.

COLORFUL OFFICES

In the Chinese factories and offices, a very different kind of decoration was found.



Group's young automation subsidiary is growing rapidly. "When we walked across the campus in the evening, most of the offices were still occupied," says Weyrauch. Overtime is paid, of course. If someone leaves the office very late, they can call a taxi at the company's expense.

Timely train

In the late evening, the multi-lane roads in the region usually allow for smooth travel. During the day, the train is a better option. This also applies to the CEO, whose plan for the next day is to visit customers in the industrial metropolis of Hefei, 500 kilometers away. The high-speed train arrives on time, and not a second late. In first class, there are comfortable seats that can be turned to face the direction of travel. Internet is no issue — the WiFi on board works perfectly.

Digital technology is really important in China. The fancier, the better. On the train, there are

people everywhere engaged with new apps on their smartphones. "I also like to download new apps at home and try them out," says Weyrauch. He finds it interesting to see how tech-savvy the Chinese are and how creative the apps are.

Shaking your smartphone allows you to find random contacts nearby. If you scan your face in a fast-food restaurant, you will be offered a dish tailored to your gender, age, and mood. Vehicles greet their drivers with a friendly "Hello" as they enter, projecting the word as a hologram onto the windshield.

Thoughts above the clouds

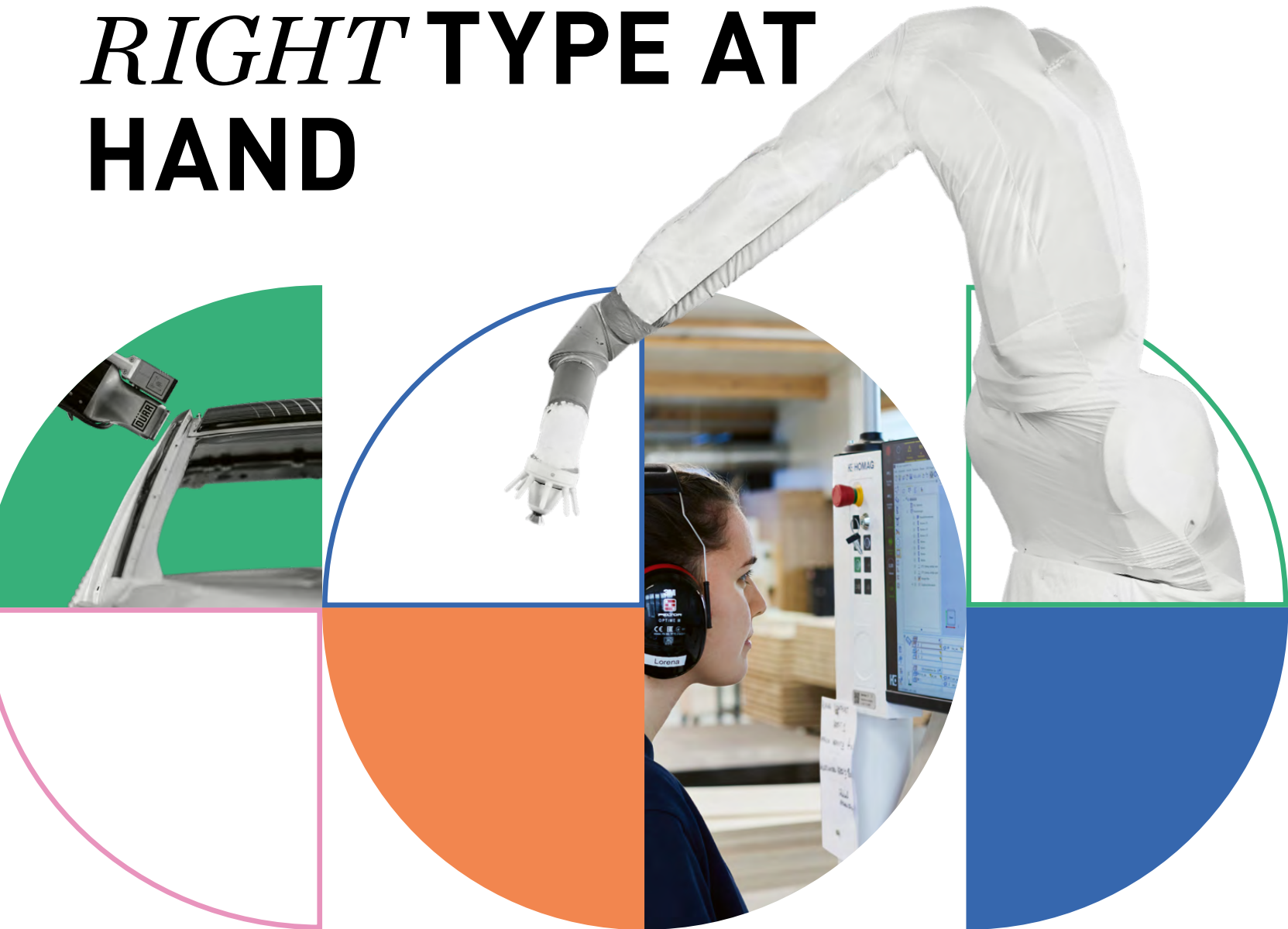
So how do machines and systems from a German company need to be designed to sell in China? What do they need to feature, aside from technical gimmicks? These questions are on Weyrauch's mind during his customer visits — for example, during a business dinner with

the electric car manufacturer Nio. How does its board of management view Europe? "They still appreciate technology from Germany, but they have the impression that we're getting bogged down in red tape and therefore becoming too slow," says Weyrauch. The picture becomes clearer with every conversation. Cars, machines, and systems developed in China are getting better and better and are cost-effective. Foreign companies that want to succeed in China must be able to keep up. One requirement for this is to have a strong local presence in order to listen to customers, recognize trends, and remain competitive. The Dürr Group has focused on this approach for a long time.

Before the return flight at the gate in Pudong, the CEO sums up his trip to China: "Traditional engineering solutions that strive for perfection will not get us very far here in the long run." European companies should strengthen research and development locally and give their Chinese subsidiaries more freedom to do so. After all, they understand better what matters in their home market. This also helps foster stronger relationships with customers in China.

As the plane takes off, Shanghai disappears into the autumn haze. Clouds envelop the aircraft. Weyrauch briefly closes his eyes — there is a lot to do in Germany.

ALWAYS THE *RIGHT* TYPE AT HAND



Automation is a strong growth driver for industrial equipment suppliers such as the Dürr Group. The strength of automation is its versatility: Sometimes it makes production faster, sometimes more precise. Sometimes it handles heavy loads, sometimes it impresses with its endurance. And in any case, it is unbeatably efficient. We present a selection of types.

TEXT: HEIMO FISCHER — PHOTOS: DÜRR, HOMAG, KAHLE AUTOMATION

“This increases flexibility in production tremendously.”

STEFANO BELL,
PROFLEET PRODUCT MANAGER
AT DÜRR

The Dürr Group has risen to a leading position in the global automation industry in recent years. Not only by acquiring renowned companies. Automation has also become a growth driver in established business areas such as painting technology and woodworking.

What is the reason? In synergy with artificial intelligence and large amounts of data, automated processes will be able to solve many of the industry's problems in the future. This includes, for example, the lack of skilled workers in Western countries. Automated production also ensures the consistent quality of products that are manufactured on a large scale. In addition, population and prosperity are growing in many regions of the world. This increases the demand for goods and forces companies to produce more quickly.

In the Dürr Group, the face of automation is characterized by a wide variety of features: They can be found in machines and systems of different sectors — from woodworking to paint shops and medical technology. We present selected types, each with its own characteristics.

IT RUNS AND RUNS AND RUNS

The TENONTEQ D-800 mills the connection profiles, thus ensuring that the floorboards can be easily “clicked” together.



THE ENDURING ONE

All over the world, people are laying huge quantities of parquet, laminate, and designer flooring. Estimates range up to 900 million square meters per year. That is more than the surface area of Singapore. This requires billions of boards, which are usually simply “clicked” into place during installation.

In order to produce these huge quantities, the production lines of companies must be in constant operation. Group subsidiary HOMAG offers a system that requires only two or three short maintenance breaks per year and runs continuously the rest of the time. “The unfinished boards go in at the front and the packed boxes with the boards ready for transportation come out at the back,” says Andreas Winter, who works in technical sales and product management. The system produces up to 300,000 boards fully automatically per day. Calculated over the course of a year, it would mean that you could circle the world almost three and a half times if you laid the boards end to end. Part of the system is the TENONTEQ D-800 — a master of endurance running.

The entire system consists of several components. First of all, a rip saw cuts the raw boards into strips, then a cross cut saw divides them into individual boards. High-precision profiling machines mill the click profiles on the longitudinal and transverse edges of the boards — the locking systems. “The boards are moved through the longitudinal profiling at up to 300 meters per minute,” says Winter. This is equivalent to a speed of 18 kilometers per hour, or more than three boards per second. The surface is checked once again, then the parts are stacked and automatically packaged.

What sounds simple is controlled by the technology in a sophisticated way. This is important so that the floor covering later results in an attractive pattern. Sensors and cameras detect markings in the raw boards and align them precisely before processing, so that the decor of the boards fits precisely during installation.

Although the system is particularly suitable for the production of floorboards, it can also be used to produce furniture components — wherever angles, rebates, grooves, or other contours are cut into a wooden workpiece. And all that while running with endurance.

THE STRONG ONE

Watching the driverless transport vehicles maneuver around the paint shop feels like you're in a science fiction movie. The smallest of the fleet are only slightly wider than a toboggan and are so flat that they drive under a car body, lift it up and move it to the next workstation. "The small vehicles carry loads of up to one ton," says Stefano Bell. The product manager is responsible for driverless transport systems at Dürr — the fleet of Automated Guided Vehicles (AGV) is called ProFleet.

The rolling power packs replace rigid conveyor technology. It is replaced by total flexibility: An AGV always drives to the painting box that is free, ready for operation, and suitable for the next work step. The control system complements and changes the route plan as required. So, if one workstation suddenly fails, the other stations can continue their work undisturbed. The AGV simply moves to the next available box. "This increases flexibility in production tremendously," says Bell.

In order to prevent accidents, the AGV is equipped with sensors. Laser scanners immediately detect obstacles. If necessary, it brakes or drives around the obstacle. Charging also takes place automatically — the AGVs use the transfers at the stations and recharge their energy storage independently. This means that they can be used almost non-stop.

The driverless transporters can be used not only in the paint shop, but also in the final assembly of cars. Here, they transport a vehicle including wheels, engine, and battery from one workstation to the next. Of course, finished cars are much heavier. This is why a different version of the AGV fleet is used here. One that can carry up to six tons. Talk about strong!

THE PRECISE ONE

Robots have to apply the paint evenly and precisely to the car body. This is particularly important for multi-colored cars — for example, if the roof is to have a different color.

What is visually striking in road traffic is a laborious process in conventional production: First, the car body passes through the painting line. "When it is dry, employees apply a protective film and leave only the desired areas exposed," explains Dürr painting expert Timo Beyl. The



POWERFUL VEHICLE

Flat driverless transport vehicles maneuver car bodies from one workstation to the next.

vehicle is then painted in a second painting process. A lot of effort when you consider that hundreds of car bodies are painted in several colors every day in a car factory.

With the **EcoPaintJet Pro**, this work can be simplified. A nozzle plate attached to the robot's applicator works so precisely that the painting paths can be applied without missing a single drop. Masking is no longer necessary. This saves material, time, and energy.

Before the robots begin their work, optical sensors measure the entire car body. Software compares the real car body with a model stored in virtual form and corrects the painting paths accordingly. "Even car bodies for the same vehicle type have differences that could lead to painting errors without this correction process," says Beyl. Only when it is clear how all deviations can be compensated for does the robot guide the applicator over the car body with high precision. The permitted tolerance for the paint application corresponds to approximately 0.1 millimeters.

Vibrations in the vicinity of the system must be avoided at all costs. Therefore, the conveyor technology and the rails on which the robots move must be carefully matched to the system environment. Only then can the **EcoPaintJet Pro** make full use of its precision.

"The unfinished boards go in at the front and the packed boxes with the boards ready for transportation come out at the back."

ANDREAS WINTER,
TECHNICAL SALES & PRODUCT
MANAGEMENT AT HOMAG

THE FAST ONE

Diabetes is a widespread disease of our time. Almost half a billion people are affected by the condition. They have to measure their blood sugar level regularly. Medical technology offers various possibilities of doing this. For example, a small device with a built-in cartridge containing ten tests. Those affected simply have to press a button with their finger. The device then pricks the fingertip, draws a tiny amount of blood, and displays the result shortly afterwards.

The cartridge is the heart of the device and consists of micro components. The ten tests included are arranged in a circle and resemble the drum of a revolver. They consist of a mechanism, a spring, an ultra-thin needle, and a reagent paper. The production of the tiny cartridges is highly complex. The manufacturing process must be fast. The product must function with absolute reliability and has to be produced in huge quantities.

Kahle Automation, a Dürr Group subsidiary that will operate under the name of BBS Automation from June 2025, specializes in machines and systems that meet these requirements. The customer of the Italian company comes from the pharmaceutical industry and receives production technology tailored precisely to its needs. "All our machines and systems are unique," explains product manager Marco De Priori.

The system designed for producing the cartridges consists of three machines that share a total of 30 work steps. In the process, the micro components are precisely assembled, inspected, and moved further along. In each step, each machine processes up to 30 parts at the same time. This is the only way to keep up the pace: The system produces around 45 cartridges per minute, each one consisting of 10 sub-assemblies. That adds up to around 450 parts per minute. Meanwhile, cameras check the quality of the work at every stage. Workpieces with even the slightest deviations are ejected from the

AT FULL SPEED

The system of the Medtech subsidiary is extremely fast in the production of medical test kits.



PRECISELY APPLIED

A green car with a red roof, or a cool racing stripe on the hood? No problem for the EcoPaintJet Pro.

production process. Because ultimately, only the parts that meet the high safety requirements should find their way to the patient.

AUTOMATION WITHOUT LIMITS

In recent years, the Dürr Group has acquired and internally developed extensive automation expertise. In doing so, the company is driving a trend that benefits a lot of people. After all, automation makes life easier and more comfortable.

What type of automation are you? Take the self-test and put yourself in the shoes of a machine. On the next page, you will find an inspiring — and not entirely serious — test to help you find your new identity.

TYPICALLY AUTOMATION

0.1 mm

TOLERANCE:

For a precise paint application, the EcoPaintJet Pro does not deviate from the calculated starting point by more than a tenth of a millimeter.

6 tons

From 500 kilograms to 6 tons, the powerful driverless transport systems can maneuver anything that needs to be moved.

45

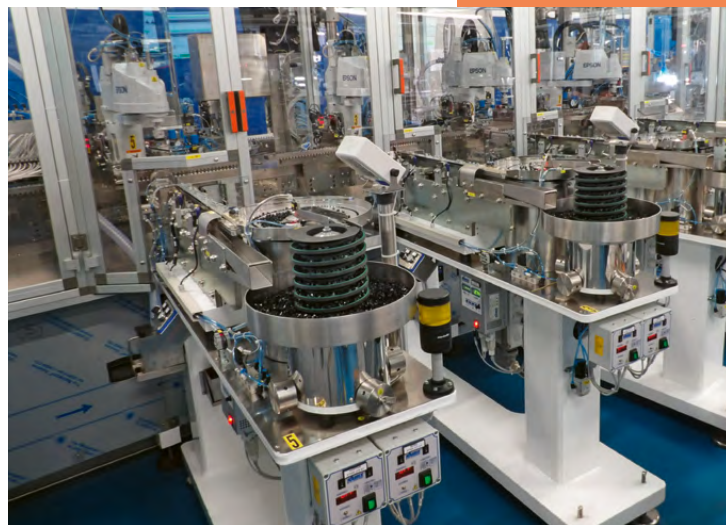
CARTRIDGES PER MINUTE:

At top speed, the system from Kahle Automation produces complex micro components for measuring blood glucose levels.

136,000 km

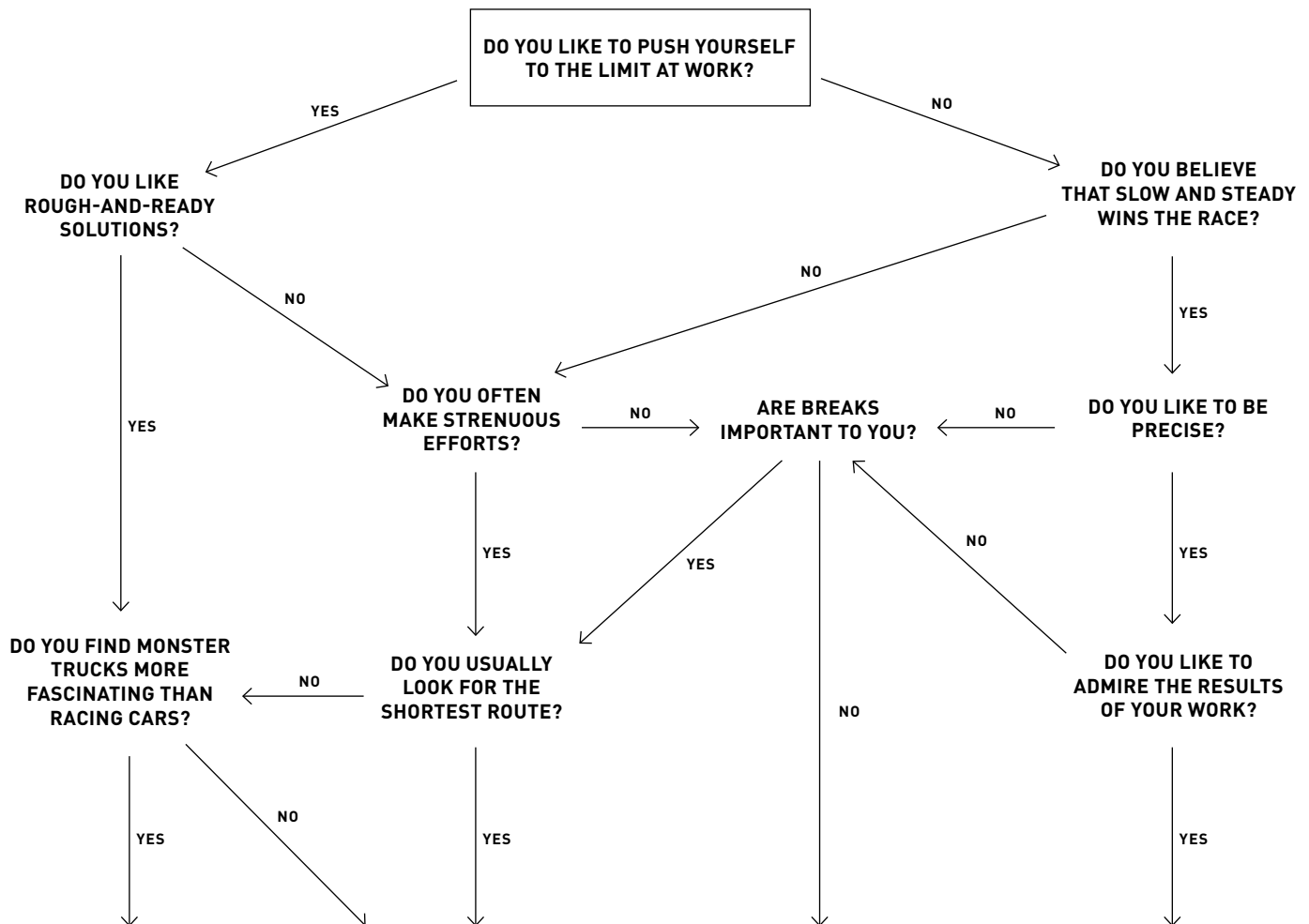
PER YEAR:

The TENONTEQ D-800 produces boards while running with endurance. Over the course of a year, you could circle the world 3.4 times if you laid the boards end to end.



WHAT TYPE OF AUTOMATION ARE YOU?

Highly automated machines already help us with many aspects of our lives. And one day, they may even feel like we humans do. So it's time to put yourself in the shoes of a machine. But what kind of machine would you be? The answer depends on which type you most closely resemble. An inspiring (and not entirely serious) test to help you find your new identity as a machine.



THE STRONG ONE

Power is what counts! At maximum power, you are in your element as a machine.



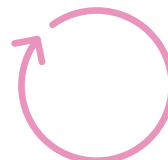
THE FAST ONE

Top speed is your normal pace. Things must move quickly, because you are a racing machine!



THE ENDURING ONE

Working without interruption — this is how you feel most comfortable as a machine.



THE PRECISE ONE

It looks really good! The result of your work as a machine has to be visually appealing — even if it takes time.



Fast as



a *hummingbird*

SWIFT FLAPPING

A hummingbird can flap its wings as many as 80 times per second — certain species can even reach up to 200. This is more than any other bird. The tiny feathered bird can boast a number of superlatives. Not only is it the smallest and lightest bird. Its sophisticated flying techniques also allow it to fly backwards. While hovering in the air like a helicopter, the hummingbird sucks nectar from flowers with its straw-like tongue. With Kahle Automation, the Dürr Group has a really fast automation expert for Medtech products on board: At 45 cartridges per minute, the system for producing blood glucose level tests is a particularly fast one. Each cartridge contains ten individually assembled tests, which in turn consist of micro components. At the current stage of development, however, the plant does not run backwards.

Read more about this on page 10

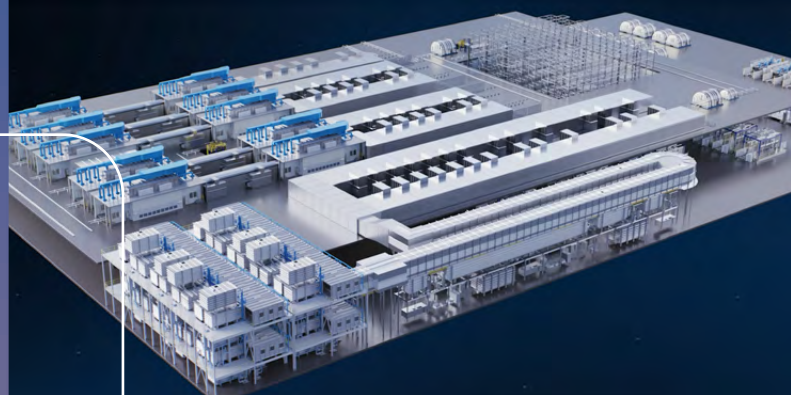
The future looks bright and colorful



VARIABLE AND NIMBLE

The new generation of high-performance atomizers is called EcoBell4. It can be used to paint car bodies in a particularly resource-efficient way.

THE FUTURE LOOKS BRIGHT AND COLORFUL



For a long time, it was just a vision — now it is becoming a reality: The paint shop of the future is ushering in a new era in automotive production. Rigid systems are giving way to modules that allow for flexible access, making them even more efficient. The paint shop of the future boasts features such as compact painting boxes, energy-saving ovens, instant color changes, and the use of excess heat.

TEXT: HEIMO FISCHER — PHOTOS: DÜRR, SASCHA FEUSTER

In automotive paint shops around the world, one workstation follows the next like beads on a string. Robots spray paint onto car bodies according to a strict cycle, and the paint is then cured in ovens.

This rigid logic of the assembly line has proven itself over decades. However, it is out of step with a time when more and more model variants need to be produced in existing facilities. In addition, new competitors are entering the market and environmental regulations are becoming more stringent. This is why Dürr has long been working on a concept that addresses this transformation.

The paint shop of the future began many years ago as a sketch that developers scribbled on a napkin while taking a break at a Japanese café on a business trip. Today, it is becoming a reality. Its outstanding feature is its flexibility. "It consists of various solutions that our customers can continually tailor to their needs," says Product Manager Corinna Maier. The paint shop can adapt to changing quantities or modified models without stopping production. In addition, the use of efficient products, innovative energy network systems, and intelligent software saves resources. These are some of its components:

Painting box unlocks new possibilities

The paint shop of the future is designed very differently from the way it has been up to now. Instead of long, linear painting lines, it features painting boxes arranged side by side. This box concept saves space and makes painting more flexible.

PAINT SHOP AS A BOX CONCEPT

The modular layout takes the paint shop of the future to a new level in terms of flexibility.

The painting boxes of the current generation are called **EcoProBooth**. They are compact and equipped with four painting robots that can paint both the exterior and interior of the car body in a single operation. Until now, this has required three painting cycles.

The paint shop of the future boasts flexibility and modularity as its key features. The traditional painting line operates continuously. With the modular box concept, individual booths can be temporarily shut down when fewer cars are ordered. This lowers operating costs. If demand increases, the manufacturer can quickly ramp up production again. And if demand continues

<5 MINUTES

The **EcoProBooth** paint booth requires no more than this amount of maintenance downtime per day. With conventional paint booths, the daily production stoppage is up to two hours.

FLEXIBLE FLOODING AND RINSING: A NEW APPROACH TO PRETREATMENT

EcoProWet integrates into the paint shop of the future

Before a car body receives its colored paint coat, it must undergo a pre-treatment process consisting of several steps. It is cleaned, degreased, and rinsed, followed by corrosion protection in the form of cathodic dip coating.

With its ten steps, pretreatment is the most expensive part of the painting process. "We therefore asked ourselves how the process stages could be designed in a more flexible, efficient, and space-saving way," says Product Manager Klaus Heinsohn.

The answer is the new **EcoProWet** system, which integrates into the paint shop of the future. Instead of dip tanks arranged in a row, the system consists of individual treatment chambers positioned side by side.

Two types of chambers are available for the process. In the spray chamber, the car bodies are sprayed with the liquid designated for the specific process stage. In the flood chamber, the car bodies are completely immersed in liquid flowing at high speed. "The chambers can be optimally adjusted to the type of car body," says Heinsohn.

If production is scaled up or a model change occurs, automakers can expand the system as required. This makes the process more efficient and economically sustainable. Customers benefit from enhanced quality while reducing resource consumption at the same time.

The future looks bright and colorful

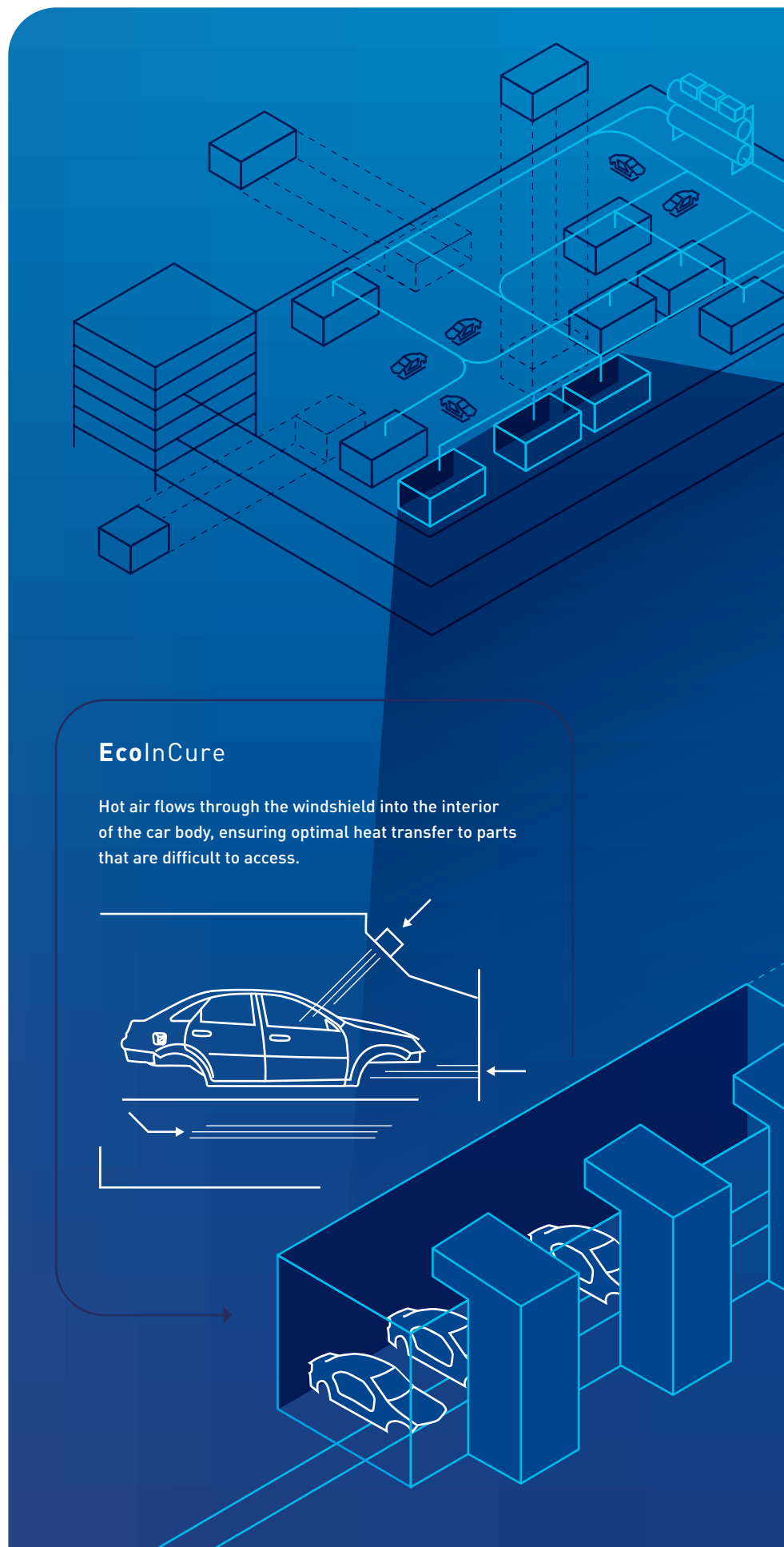
to grow, the scenario still works: “Additional painting boxes can be set up in no time at all,” says Frank Herre, Head of Application Development. Modifications no longer result in week-long production downtime, as was necessary with rigid painting lines.

The **EcoProBooth** has another advantage: Automakers produce different models on the same line, with larger vehicles determining the duration of each work stage, even if they only account for a portion of the production. Even though small car bodies can be painted more quickly, they have to follow the pace of the larger ones. This takes time. The innovative box concept allows for varying cycle times, as the car body is painted in just one station and immediately moved out. The next model can follow without delay. This saves time and increases production volume.

Another important element is the inclusion of small maintenance windows in the paint booth. They allow the robots’ paint atomizers to be easily cleaned or repaired without stopping the entire line. Only the dirty robot interrupts its work and places its head into the maintenance window. The atomizer can be cleaned from a well-ventilated cell, according to Product Manager Daniel Ackermann. “Until now, a worker wearing respiratory protection has had to enter the booth, perhaps bringing in contaminants that landed on the fresh paint and had to be laboriously repaired or polished out.” A conventional paint booth remains idle for an average of one-and-a-half to two hours per day just for cleaning. With the maintenance windows, the daily production downtime lasts less than five minutes.

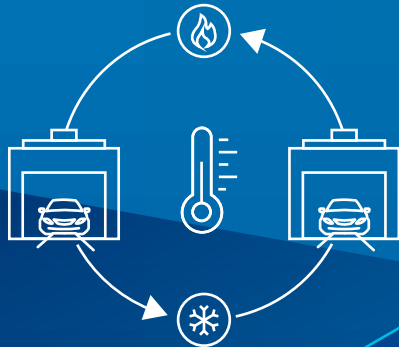
“Additional paint boxes can be set up in no time at all.”

FRANK HERRE,
HEAD OF APPLICATION DEVELOPMENT
AT DÜRR



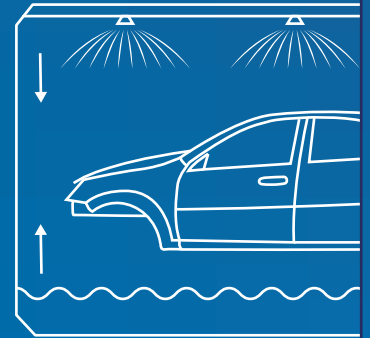
EcoQPower

The combined heating and cooling system interconnects all components of a paint shop. Virtually no energy remains unused: Excess heat or cold from one production step is made available elsewhere.



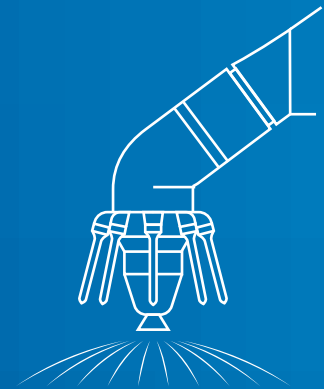
EcoProWet

Car bodies are pre-treated before they receive their color coating: They are sustainably cleaned in spray and flood chambers with the exact amount of liquid required.



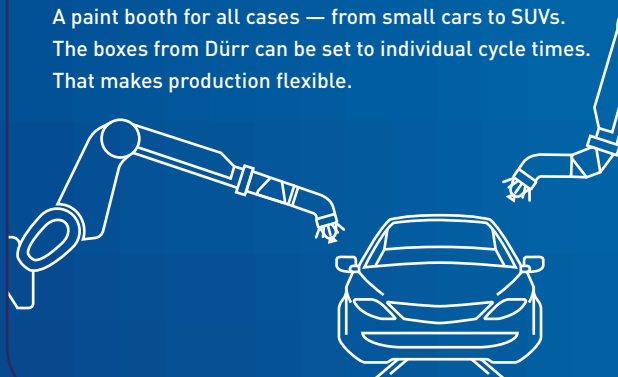
EcoBell4

From green to red to yellow to blue. A color change takes just four seconds — with minimal loss of paint and rinsing agent.



EcoProBooth

A paint booth for all cases — from small cars to SUVs. The boxes from Dürr can be set to individual cycle times. That makes production flexible.



The future looks bright and colorful

The all-rounder

To enable car bodies to be painted both inside and out in the same booth, robots need a particularly versatile high-performance atomizer. It must direct and regulate its spray jet in such a way that it covers every area as quickly and thoroughly as possible — without wasting any paint.

This capability is provided by the new generation of atomizers, **EcoBell4**. It could be described as the premier class among Dürr's 120 atomizers and can apply all known automotive paints. During its development, experts devised a technology for which they have filed a patent: "A color change takes just four seconds," says developer Thomas Buck. Older systems require between 15 and 25 seconds for this process. In a factory that produces 60 vehicles per hour, the time saved is considerable.

The color change is one of the work stages that need to be completed with particular speed. Rinsing agent shoots through the nozzles of the atomizer at lightning speed before the paint residue is removed with compressed air. The new paint then flows in through a separate paint channel.

Another new feature is the digital documentation of the atomizers' life cycle using RFID technology. It records the data of the components, e.g. how long they have been in use, and displays the remaining service life. This allows components to be replaced in good time, which avoids unplanned production downtime.

A transverse journey through the oven

Once the paint has been applied, the car body needs to dry. This takes place in ovens heated up to 190 degrees Celsius. Compared to conventional ovens, the electrically powered **EcoInCure** can reduce energy consumption by up to 70 percent. This not only leads to a significant reduction in operating costs. The **EcoInCure** can lower the CO₂ emissions of the entire paint shop by up to 40 percent when using green electricity.

Powerful nozzles direct the hot air flow in the oven into and onto the car body, allowing it to heat up faster. This saves both time and space, as the system requires only half the length and height of a conventional oven. Unlike before, the car bodies pass through the oven tunnel transversely. "This allows hot air to flow through the windshield opening and reach areas inside



FOUR PAINTING ROBOTS AT WORK

In the **EcoProBooth**, the inside and outside of the car body are painted in a single operation.

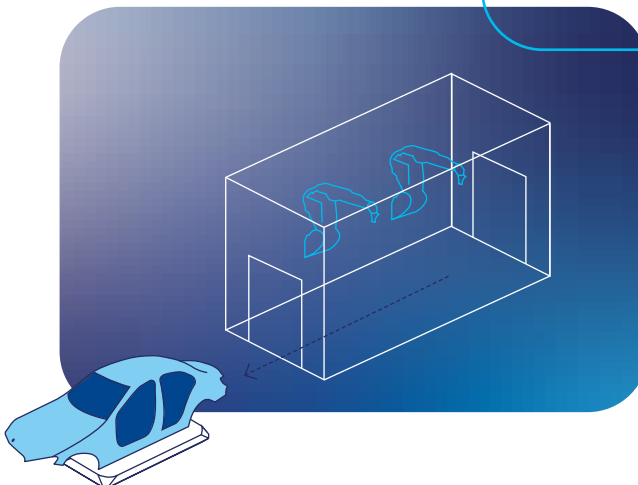
the car body that are difficult to access. These include massive cast parts, known as gigacastings, as well as the tunnel reinforcement," says Product Manager Heiko Dieter.

This is particularly advantageous for electric cars. "Due to their heavy batteries, electric cars are reinforced below the door sills," explains Dieter. These so-called rocker panels are difficult to access for conventional ovens. The intelligently targeted heat flow in the **EcoInCure** reaches the adhesive joints of the rocker panel and cures them. This is important for crash safety.

The **EcoInCure** processes a wide range of car bodies with virtually unchanged drying performance: from sleek sports cars to SUVs.

21%

The paint shop optimized with the **EcoQPower** energy network system is around 21% more energy efficient than a comparable modern standard paint shop.



A CONVERSATION WITH CORINNA MAIER AND DIETMAR WIELAND

THE PRODUCT MANAGER AND THE RESEARCH AND DEVELOPMENT EXPERT DISCUSS HOW THE PAINT SHOP OF THE FUTURE WAS CREATED. AN OUT-OF-THE-BOX CONCEPT BASED ON BOXES.

How did the idea of the paint shop of the future come about?

Dietmar Wieland We started exploring the idea of a flexible, modular box concept many years ago. When a major German car manufacturer expressed interest in an adaptable and sustainable paint shop, we validated the idea in joint workshops. We thus developed the first modular box-concept solution for the customer – but initially only for a paint booth where the base coat is applied. We used the knowledge we gained to develop the concept further.

What was the outcome?

DW We found that flexible painting boxes meet customer needs better than conventional line production. This also applies when integrating new car models into an existing plant. It takes an immense amount of effort, along with long production downtimes, when manufacturers want to produce new models on old painting lines. We asked ourselves how we could improve this sustainably and came up with the box concept. We continued to explore this in the research and

development department, in close cooperation with product management. This ultimately led to the creation of the **EcoProBooth**.

Corinna Maier With the modular painting box, we struck a chord with our customers. This was the crucial factor that prompted us at Dürr to break up other rigidly sequenced work stages in the paint shop. With a radically different approach, we managed to develop a completely new layout to meet ever-changing requirements.

What does the new layout look like?

CM The painting process consists of around 120 work stages. Instead of arranging these rigidly along a production line, the paint shop of the future divides the work stages into smaller sections. These, in turn, are carried out in compact boxes. Once you start thinking in terms of a modular layout, you quickly realize how much more flexible the design of a paint shop can be. We have thus gradually incorporated additional products and work stages into the box concept.

DW The paint shop of the future revolves around the core ideas of productivity, sustainability, flexibility, modularity, and scalability, while maintaining the highest level of quality. The plant is optimally utilized at all times. Conversely, this means lower resource consumption: Processes run in parallel and are no longer dependent on the longest cycle time of the largest car body. This results in maximum flexibility for customers – regardless of the size of the paint shop: Whether for large or small production volumes, the concept can be adapted to the specific requirements of each manufacturer.

What other products can be found in the paint shop of the future?

CM One example is a central high-bay warehouse for car bodies. It serves as a car body storage system and ensures that there is always a car body at each box, ready to be processed next. Our flexible, automated guided vehicles, **EcoProFleet**, maneuver the car bodies to the corresponding workstations.

DW Our paint shop of the future also includes the **EcoProWet** modular pretreatment system, the high-performance **EcoBell4** generation of paint atomizers, the energy-saving **EcoInCure** car body oven, and the innovative **EcoQPower** combined heating and cooling system.



CORINNA MAIER

has been working for the Dürr Group since 2012. As Product Manager, she is responsible for the paint shop of the future and the sustainability of paint shops.

DIETMAR WIELAND

has been working for the Dürr Group since 1991. He is director in the research and development department, responsible for innovation and development of paint shop technology.

“The paint shop of the future consists of various solutions that our customers can continually tailor to their needs.”

CORINNA MAIER,
PRODUCT MANAGER AT DÜRR

The lifelines of a paint shop

Since painting consumes a lot of energy, Dürr is continuously working on more efficient systems. One of its innovations is the **EcoQPower** energy network system. It focuses on the entire energy flows of the paint shop. With the help of specially developed software, specialists analyze the cooling and heating requirements of the individual modules and network them intelligently, ensuring that very little energy remains unused.

This theoretical concept is illustrated by the example of cathodic dip coating (CDC). In the dip tank, paint is applied using an electric current, as this protects the car body particularly well against corrosion. This process generates heat, which has until now escaped with the exhaust air. **EcoQPower** makes this energy usable: Heat pumps extract the heat from the tank and redirect it to other process stages. The system operates in a similar way in other areas.

The intelligent combined heating and cooling system has recently been put into operation for the first time by a manufacturer in Europe. Tests have shown that the factory equipped with **EcoQPower** will cut CO₂ emissions by almost a fifth over its entire life cycle. The new paint shop is therefore the first to comply with the requirements of the EU Taxonomy, the classification system for sustainable economic activities.

Of course, **EcoQPower** not only lowers emissions, but also cuts costs. This is particularly important when switching from gas to green electricity. Since gas is generally cheaper than electricity, switching would lead to higher operating costs. “The increase in ongoing operating costs can be partially or even fully offset by the energy savings of **EcoQPower**,” says Product Manager Corinna Maier.

Dürr experts are working on further innovations to expand the system. For example, heat and cold storage systems are being added to store energy when electricity can be sourced at a low cost.

This would lead to even more flexibility. And that is ultimately the most important goal for the paint shop of the future.

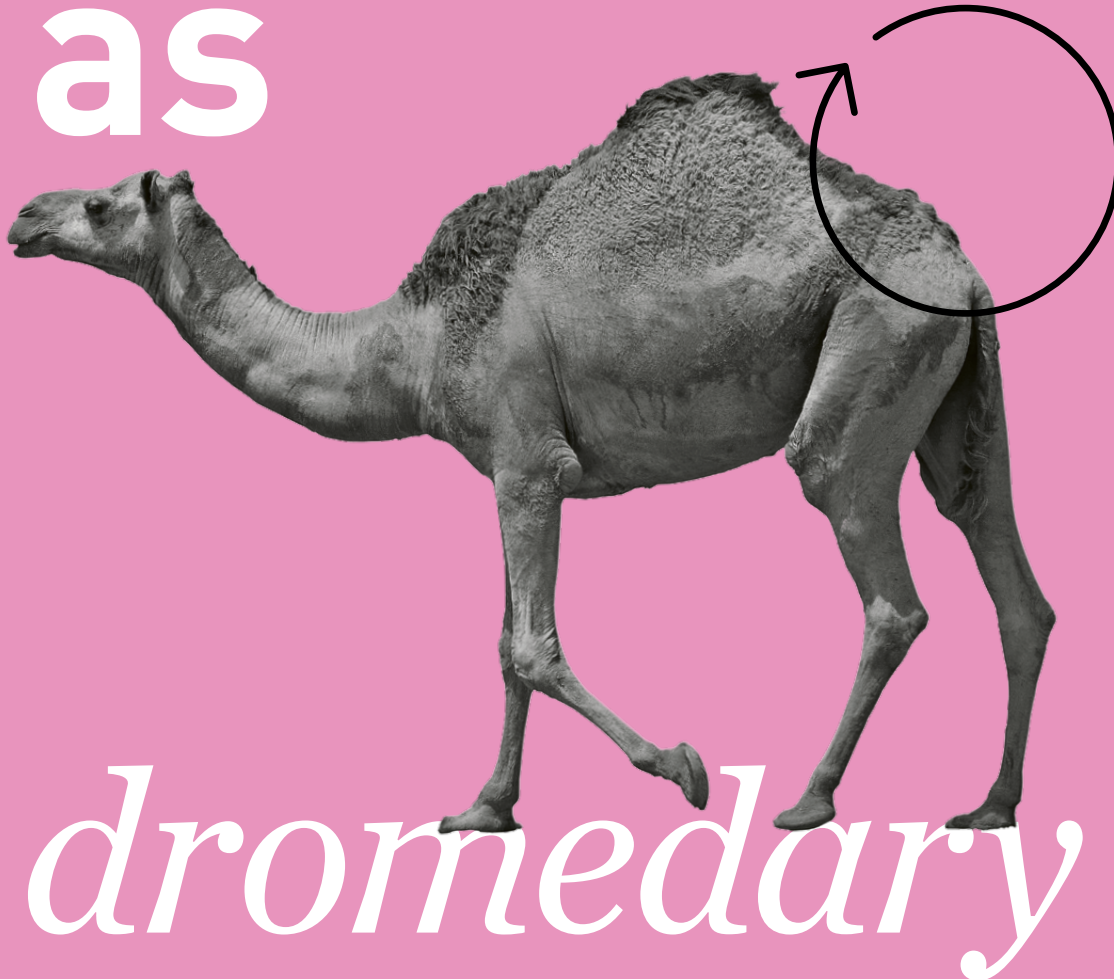


EFFICIENT DRYING PROCESS

If the electric drier is operated with green electricity, the entire paint shop can reduce CO₂ emissions by up to 40%.



Enduring as



a dromedary

DESERT ANIMAL ON AN ENDURANCE RUN

The dromedary is a master of endurance. This species of camel, with its unmistakable hump, specializes in long distances and can run for up to 18 consecutive hours at a speed of 16 kilometers per hour. The desert animals can manage without water for several days. Contrary to what many people think, however, the hump does not store water, but is a pure reserve of fat. The TENONTEQ D-800 machine from Dürr subsidiary HOMAG also runs with endurance — not on hot sand, though, but in the woodworking industry. It produces boards of parquet, laminate, and design flooring in continuous production without any break: The machine has a daily output of around 75,000 square meters. This is the equivalent of just over 10 soccer fields.

Read more about this on page 10

TIMBER CONSTRUCTION WITHOUT LIMITS



The Portuguese company Kozowood focuses on the trend toward timber construction in its home country. It has equipped its two new production lines with HOMAG machines and systems. The ambitious project is made possible through the close collaboration of HOMAG subsidiaries from Denmark and Germany.

TEXT: HEIMO FISCHER — PHOTOS: IVO TAVARES, KALLESOE, WEINMANN, HOLZKURIER

LOAD-BEARING COMPONENTS

Mass timber elements made of cross-laminated timber can even withstand earthquakes.

Kozowood showcases its expertise an hour and a half's drive south of Lisbon. There, in Comporta, you will find white beaches, clear water, and lush meadows. In this area, Kozowood is working with a major real estate company to build high-quality timber houses — architectural masterpieces that blend harmoniously into their natural surroundings. Moreover, the company consciously focuses on the ecological and economic advantages that timber offers.

Not long ago, the company primarily focused on building with concrete. The global trend toward sustainability has prompted it to rethink its business model. In Portugal, where industrialized timber construction is still the exception, the major investment in the industrialization of prefabrication makes Kozowood a pioneer.

Wood is a climate-friendly building material, provided that new trees are planted to replace those that have been felled. Unlike concrete, wood absorbs carbon dioxide from the atmosphere — one cubic meter of wood binds around one ton of carbon dioxide. In buildings, this natural material can last for centuries, thus serving as a carbon store.

Building a house in just three weeks

Going forward, Kozowood aims to build not only customized villas but also modern single- and multi-family houses made of wood in series production — both in Portugal and abroad. The company is therefore investing a significant sum in the heavily forested north of the country. Near the town of Esposende, around 360 kilometers north of Lisbon, Kozowood is building two new production lines. These will be used to produce wall, ceiling, and roof elements that can be assembled into a building on site in record time. The required machines and systems come from three HOMAG subsidiaries in Germany and Denmark.

The two Danish manufacturers Kallesoe and System TM have been part of the HOMAG Group for a few years now. In close collaboration with the German subsidiary WEINMANN, they were involved in the project in Portugal that was

implemented across three countries. “Thanks to our broad product portfolio and the advanced technologies, we were able to tailor the project precisely to Kozowood’s needs,” says Marco André Silva, HOMAG’s Head of Sales in Portugal.

Framed for success

The project includes a production line for timber frame construction, supplied by WEINMANN. It produces wall and ceiling elements, which form the skeleton of a building. “This construction method is particularly suitable for low- to mid-rise residential buildings, such as detached houses and apartment buildings,” explains Ingemar Bauersfeld, Sales Manager at WEINMANN.

How timber frame construction works for wall, ceiling, and roof elements can be observed in Esposende. Production begins with beam

Timber construction without limits



**DIGNIFIED, COMFORTABLE
ATMOSPHERE**
Wood adds warmth and coziness
to the interior.



“Thanks to our broad product portfolio and the advanced technologies, we were able to tailor the project precisely to Kozowood’s needs.”

MARCO ANDRÉ SILVA,
HOMAG’S HEAD OF SALES IN PORTUGAL



processing. This refers to the cutting, drilling, milling, and preparing of beams, which are then assembled to create a timber frame. Vacuum lifters place a panel on top, which is secured by a multifunction bridge. This is followed by automatic milling, sawing, and drilling to cut openings for doors, windows, and shafts in the partially finished wall.

The wall is then turned and filled fully automatically with insulating materials such as cellulose or wood fiber. A second panel closes the wall, and then it's off to the storage area, where it awaits further processing, along with other elements. If required, windows can be installed at this stage. With these prefabricated wall and ceiling elements, Kozowood can construct up to 300 houses per year.

Greater stability for large timber buildings

To construct larger buildings, Kozowood has also acquired a production line for cross-laminated timber (CLT), which went into operation in 2023. This enables the production of more load-bearing components compared to timber frame construction. CLT elements consist of multiple layers that are glued crosswise, one on top of the other, and compressed to form a mass timber element. This makes them so stable that they can even withstand earthquakes.

CLT is used to create entire surfaces for walls or floors. It should not be confused with glulam (glued laminated timber), which consists of multiple solid wood boards glued to form thick beams. These are used as load-bearing elements in large and tall buildings.

The Danish HOMAG subsidiaries System TM and Kallesoe specialize in production technology for these mass timber elements and have jointly

MATCHING MATERIALS

Timber houses blend harmoniously into the natural landscape.





**ALL YOU HAVE TO DO
IS WATCH**
Powerful special machines
from WEINMANN move
heavy wall elements.

FIRMLY CONNECTED

Zigzag-shaped finger joints ensure strong longitudinal connections.



ADVANTAGES OF TIMBER AS A BUILDING MATERIAL

01

Fire resistant

The low thermal conductivity of wood is a natural form of protection and makes wooden buildings very resistant to fire. Modern constructions often exceed statutory fire protection regulations.

02

Strength

Timber is light and extremely resilient. In relation to the weight of the material, it supports ten times as much weight as steel. Timber also has high compressive strength and elasticity.

03

Speed of construction

Individual building modules are prefabricated in series in factories and can be assembled on construction sites within a few days. This saves time and lowers costs.

04

Environmentally friendly

Wood binds CO₂ — even after it has been felled. And, unlike other building materials, it can be dismantled and recycled with low energy consumption.

MASS TIMBER SPECIALISTS

Jens Kallesøe (left), Chief Sales Officer at Kallesøe, and Peter Simonsen, Area Sales Manager at System TM, were always on hand to assist the customer.





ALL-ROUNDER IN ACTION

The multifunction bridge mills, saws, and drills to create recesses for windows, doors, and shafts.

“The gluing and pressing process is around two times faster.”

JENS KALLESØE,
CHIEF SALES OFFICER AT KALLESØE

planned the processes of the CLT production line for Kozowood. The production process begins with raw, dried lumber that is fed into the production line by a vacuum infeed system. Conveyors carry the wood through a series of scanners that measure certain characteristics, such as moisture content, and detect defects or cracks. “Our automatic saw then cuts out the defective sections according to the optimization process,” says Peter Simonsen, Area Sales Manager at System TM. This is done at high speed and precision.

The boards are now between half a meter and three meters long. The finger jointing machine takes care of the next step. It mills finger-joint profiles into both ends. These are special cuts in the wood that run in a zigzag pattern and fit precisely into each other. The pieces are then glued together to form boards, serving as the base material for the next production stage. This is where Kallesøe’s machines come into play.

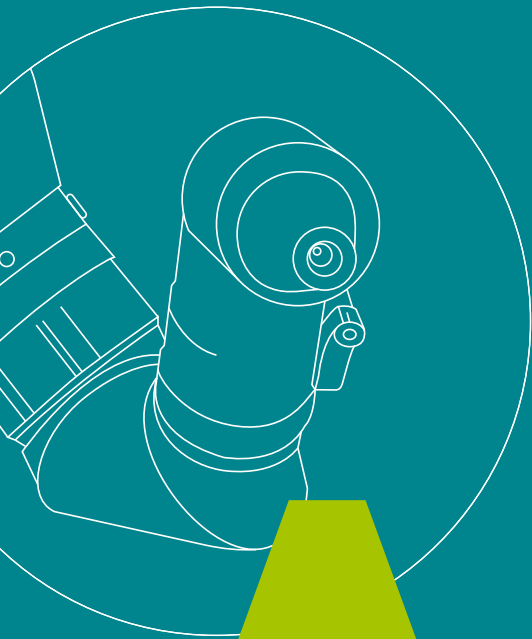
Super glue for greater load-bearing capacity

The finger-jointed boards are cut to lengths suitable for the construction of cross-laminated timber. A vacuum lifter arranges the boards in alternating lengthwise and crosswise layers.

Adhesive is applied between each layer to bond them securely. This creates a cross-laminated structure for enhanced stability. The adhesive used is something of a secret weapon in the production process. “Its properties clearly stand out from existing products on the market,” says Chief Sales Officer Jens Kallesøe.

The adhesive mixture consists of two components and is relatively inexpensive. It is fire-resistant and can be processed quickly. Kallesøe is utilizing high frequency press technology for rapidly heating up the glue and with that, quickly cures the glue line in the CLT elements. The technology can be compared to a microwave oven. “The gluing and pressing process is around two times faster than that of a conventional cold press,” says Kallesøe.

At the moment, Kozowood’s CLT line has the capacity to produce around 20,000 cubic meters of building material per year. However, the next expansion stage is already being planned. The planned new production line should also be able to produce glulam (glued laminated timber) for creating the load-bearing skeleton of larger buildings — even including those with more than ten stories. This is a sign that Kozowood aims to reach new heights in the future.



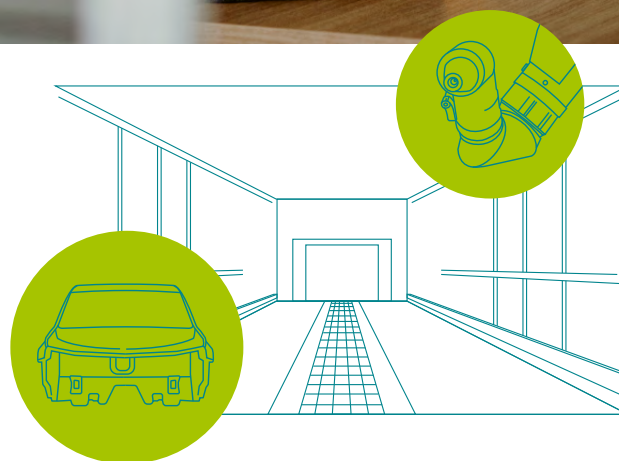
AI

AUTOMATIC THINKING

Can machines be as smart as humans? This question has been preoccupying the high-tech world for years. In the Dürr Group, too, dozens of experts are working on topics relating to artificial intelligence (AI). Searching for clues at the Bietigheim campus.

TEXT: HEIMO FISCHER — PHOTOS: SASCHA FEUSTER

NICO KOCH
has been working with
robotics and artificial intel-
ligence for many years.



1

In the future, huge amounts of data will be used to calculate what the optimum paint booth for the customer looks like.

First stop: The treasure of the data lake

Today, Nico Koch has sat down at a bistro table. There are no more fixed workplaces in the Digital Factory. This also applies to the electrical engineer, who has been working with robotics and artificial intelligence for years. The head of department is currently working on a research project. Its aim is to drastically simplify the planning and design of paint booths. The project is part of the RoX research project funded by the Federal Ministry for Economic Affairs and Climate Action. In it, some 30 companies and research institutes are developing solutions in the field of AI robotics.

Today, when an automobile manufacturer puts out a tender for the construction of a paint shop, a team from Dürr spends weeks of planning in the first step. After the contract has been awarded, further weeks and months are required to work out the details of the project. “However, the times for planning and engineering could be drastically reduced,” says Koch. It sounds incredible, but it is possible — thanks to AI.

And this is how it could work: Dürr has been building paint booths for decades. All past projects are stored in the company as digital data. Although no two paint booths are the same, there are many common aspects. In the research project, algorithms are being developed that can analyze the huge amounts of data from past projects in a matter of minutes. From this, the program is to generate a plan for a paint booth that takes the customer’s needs into account.

Of course, long-standing employees can recall a lot of information from memory. That helps. “But even these specialists have by no means seen all the paint booths and are also becoming increasingly rare due to demographic developments,” says Koch.

Handing the job over to AI is not easy. After all, standards and norms have changed over the years. As a result, the data stored for the paint booths is often not comparable. “An important goal of the research project is to develop features that can be used to accurately select suitable data,” says Koch. This should not take too long — the RoX research project is scheduled to run for two and a half years.

“The times for planning and engineering could be drastically reduced.”

NICO KOCH,
IOT SOLUTIONS DEPARTMENT MANAGER AT DÜRR

Second stop: Intelligent hunt for errors

Jan-Philipp Schuh welcomes us in a small meeting room in the Digital Factory. The mechanical engineer is working on the further development of DXQplant.analytics — intelligent software that systematically detects quality defects in the production process and provides information on how to rectify them.

“In our vision, AI is the key to automated troubleshooting.”

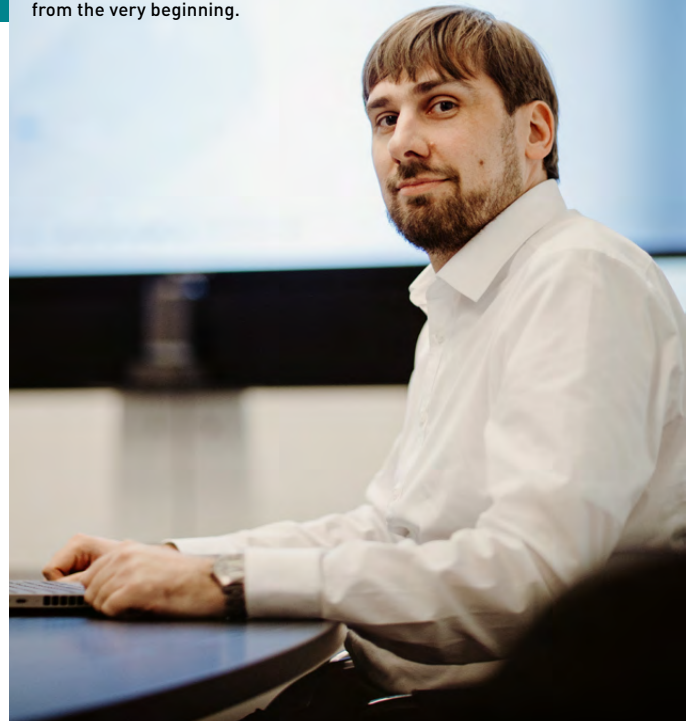
JAN-PHILIPP SCHUH,
PRODUCT OWNER AT DÜRR



2

Using artificial intelligence, the software checks freshly painted car bodies for defects.

JAN-PHILIPP SCHUH
has been on board with DXQplant.analytics
from the very beginning.



“The chatbot can not only answer in standard German, but also in the Swabian dialect.”

DOMINIC REITER
and his team developed
the Dürr AI Chat.



DOMINIC REITER,
DIGITALIZATION TEAM LEADER

Constantly learning:
The scope of knowledge
of the Dürr AI Chat is
growing continuously.

3



This is an important aspect for the painting process. Anyone who buys a new car attaches great importance to flawless paintwork. Manufacturers therefore inspect each car body for defects in a light tunnel at the end of the painting line. In modern paint shops, robot-guided camera systems are already used for this purpose. These digitally record the defects as accurately as possible. However, in many places this data still has to be analyzed manually, which takes a lot of time and requires immense expert knowledge. “This work can be automated with AI,” says Schuh.

The recorded quality defects are analyzed for recurring patterns using millions of stored data points. The software displays these quality defects in a virtual image of the car body.

“If defects occur frequently in the same place, it stands to reason that there is a common cause,” says Schuh. He tells of one manufacturer who

tested a system after the occurrence of such a defect pattern and found the cause: Due to a defect in the area of a nozzle, it was constantly spraying liquid onto the paint. During the drying process, flaws then appeared on the painted surface. After the repair, the paintwork functioned perfectly again.

A flawless coat of paint saves car manufacturers a lot of money. Because every flaw has to be corrected by hand. For this reason, DXQplant.analytics is to get better and better. “In our vision, AI is the key to automated troubleshooting,” says Schuh.

Third stop: A chatbot that doesn't spill the beans

Dominic Reiter welcomes us in a sitting area. In front of him are a notebook and a cup of coffee. That is all he needs for his work at the moment. As team leader, he is responsible for generative AI. This is a technology that independently generates new content, such as texts, images, or even videos, based on user requests.

Generative AI is intended to support Dürr Group employees in their day-to-day tasks. Basically,

they could use the applications already available on the market, such as ChatGPT®. But that's exactly what is not supposed to happen. "Anyone who uses such applications for free is paying with their data," says Reiter.

The information of the company and its customers, however, shall remain protected. That is why Reiter and his team developed the company's own Dürr AI chat. The digital assistant supports employees in a secure environment, be it searching for information, comparing documents or writing texts. Employees can also submit their requirements and wishes regarding the AI. As a result, the knowledge base of the Dürr AI chat is constantly growing,

enabling it to assist with more and more use cases over time.

This is how an idea from the service department became a vision for Reiter and his team: Service employees usually search through huge amounts of technical documentation to find a solution to a technical problem. In the future, the digital assistant will sift through the vast amounts of data in a matter of seconds and display a suitable solution to the problem.

By the way, the exchange with the AI can be designed creatively, says Reiter, laughing: "The chatbot can not only answer in standard German, but also in the Swabian dialect."



Machines that can think

Artificial intelligence — AI for short — is not a modern phenomenon. Let's take a brief journey through some important evolutionary steps in machine learning.

1936

The foundation for AI is laid by the British mathematician Alan Turing as early as 1936. His theories prove that a calculating machine — the so-called Turing machine — would be capable of performing cognitive processes. This requires the processes to be broken down into several individual steps and represented by an algorithm.

1956

At a conference at Dartmouth College in New Hampshire (USA), scientists discuss how machines could simulate aspects of learning and other features of human intelligence. The term "artificial intelligence" is born.

1966

The first chatbot is created. The German-American computer scientist Joseph Weizenbaum invents a computer program that can communicate with people. He names the bot, which can simulate a human conversation partner, "ELIZA".

1986

Thanks to the "NETalk" program, the computer is given a voice for the first time and learns to speak. Example sentences and sounds are fed into the program, which is one of the early artificial neural networks. Building on this, it can draw its own conclusions: "NETalk" can read words, pronounce them correctly, and apply what it has learned to new words.

2018

IBM's "Project Debater" engages in discussions with human debate champions on topics like space exploration or politics. And Google's AI "Duplex" can make a hair appointment or a restaurant reservation in a chatty tone over the phone — without the person on the other end realizing they're speaking to a machine.

Spun, not stirred



SPUN,
NOT
STIRRED

E-cars, energy storage systems, or electric flight — efficient and reliable rotors are key to the technologies of the future. At the new Green Technology Center of the Group's subsidiary Schenck RoTec in the German city of Darmstadt, everything revolves around sustainability.

TEXT: STEPHAN KÖHNLEIN — PHOTOS: THOMAS HOPPE, JÖRG LADWIG, SASCHA FEUSTER

The rotor spins faster and faster in the spin test system. At first, everything runs smoothly. But suddenly, a small crack forms on its outer surface. Just a moment later, it bursts into pieces. “We can push every rotor to its load limit,” says Matthias Hartnagel with a grin. He heads up the Technical Consulting team. The test results are not always as spectacular as the ones captured by a high-speed camera in this particular case. Sometimes, the rotors simply deform. But even the slightest deformation can be meticulously examined in the specially equipped measuring room of the new Green Technology Center.

Under the motto “Enabling sustainable rotating technology,” everything here revolves around sustainability. After all, reliable rotors are crucial for the future. This does not just apply to innovative motors in e-mobility, where the new generation of rotors requires much more performance and less weight than before. Rotors also play a major role in energy storage systems and hydrogen compressors. In addition, there are new rotors from the aerospace industry, such as those used for electric flight. And they all need to be tested.

“The demand for our services has grown steadily in recent years,” says Hartnagel. “To meet the demand, we have set up several new spin test systems. At the time, however, they were being installed across the site, wherever there was space and the environmental conditions were right. At some point, it became clear that this was very inefficient due to the long distances.” As there were also plans to expand the measuring room as part of the certification center, the idea arose to combine both services within one building.

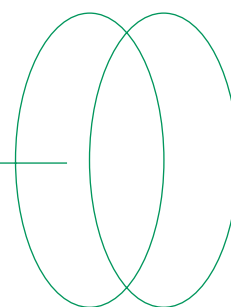
“We can push every rotor to its load limit.”

MATTHIAS HARTNAGEL,
HEAD OF TECHNICAL CONSULTING
AT SCHENCK ROTEC

After around two years of planning how to make a 1960s factory building suitable for the new purposes, plus a further year of construction, the Green Technology Center opened in July 2024. The bright space with wooden cladding looks friendly and welcoming. “We wanted to create a certain showroom character while also meeting the stringent requirements of information security. Here, first-class service is provided in a pleasant working atmosphere,” says Project Manager Marcel Uhl.

Colleagues roll up their sleeves

The planning and construction of the building were conceived by a project team consisting of five Schenck employees and an architect. Depending on requirements, specialists for shell and drywall construction as well as for heating, ventilation, and sanitation (HVAC), plus electricians, painters, or carpenters were brought in. Coordinating the various trades required a lot of communication and sometimes mediation. Another challenge was minimizing downtime caused by the construction and relocation. For the project team, the work was largely uncharted territory, where the members essentially became builders themselves. “We’ve all



ROTORS IN THE SPIN CYCLE

The rotor is the heart of electric machines with rotary motion. It is extensively tested in the spin test system.

BRIGHT AND SPACIOUS

For the construction of the Green Technology Center, a factory building from the 1960s was refurbished. In doing so, the Hessian builders attached great importance to creating a pleasant atmosphere.



become HVAC specialists, as it were,” laughs Melanie Wahl. As head of the certification center and the measuring room, she was part of the project team.

The ambitious schedule was constantly challenged by unforeseen events that required a rethink. One such surprise was the discovery of old foundations beneath the existing factory floor that nobody knew about beforehand. However, the effort paid off. “It was a great opportunity to create optimal working conditions. We were able to design the building according to our needs,” recalls Hartnagel. “This inspired us to invest such a lot of energy.”

“We look at the μ ,
the thousandth of a
millimeter.”

MELANIE WAHL,
HEAD OF THE CERTIFICATION CENTER
AT SCHENCK ROTEC

The building is divided into two halves, with one side housing the four spin test systems. This is where rotors weighing up to 400 kilograms can be tested and speeds of up to 250,000 revolutions per minute can be achieved by using various gearboxes. All spin test systems are placed on their own foundations, which can absorb the immense forces generated during a burst. On the other side, there are four balancing machines designed to correct any unbalance directly on site, along with the certification center and integrated measuring room equipped with three high-precision coordinate measuring machines.

It's every μ that counts

“We look at the μ , i.e. the thousandth of a millimeter,” says Wahl. Since even slight temperature differences, among other factors, can influence the measurement results, it takes time to bring the parts to be tested to the right temperature. This is done in advance in a specially equipped room. As a result, the parts already have the required standard temperature when they arrive in the measuring room. To protect against external vibrations, which could also distort measurement results, the measuring room's foundation is decoupled from its surroundings.

The spin testing service and the certification center are two separate areas of work that sometimes serve different customers. While rotors are spinning on the left side of the building, the right side is used to test customers' working standards for balancing technology, such as rotors and test masses. “To a certain extent, our work at the certification center is comparable with technical inspections carried out on vehicles. Every car undergoes regular checks of all



ROTORS FROM FLYWEIGHTS TO HEAVYWEIGHTS

Rotors are examined for geometric deformations in the measuring room. The rotor in the picture, which weighs just 60 grams, is used in miniature fans in vacuum cleaners, for example.

function-critical features to ensure, for instance, whether the brakes and steering are working properly and the vehicle's emission levels comply with prescribed standards. The inspection seal confirms that the car is roadworthy. What we do here is quite comparable," explains Melanie Wahl. Traceable testing is used to verify whether the rotors and balancing machines comply with internationally recognized metrology norms and standards. Testing covers geometry, mass, and the measurement variable of unbalance — a unique selling point for Schenck RoTec that is unmatched worldwide. This reassures the customers that all function-critical features of their machine and the associated working standards are in good condition.

Of course, there are also overlaps with the spinning processes. "After our colleagues have conducted the spin test, the rotors often come to our work area so we can examine them for geometric deformations that may have been caused by the spinning," explains Wahl.

Discretion is a top priority throughout the Green Technology Center. The bays of the spin test systems are equipped with film-coated glass panels to prevent outside visibility while still letting in plenty of light. Curtains can be drawn in the measuring room. On arrival, rotors are immediately moved to a protected area. This ensures that only individuals who are directly involved know about the work being carried out, as prototypes are often handled there.

Test, test, and test again

Supporting customers to achieve progress in developing a product — that's what fascinates Marcel Uhl. "We often receive the first version of a rotor for testing. The customer then improves this version using our data. Afterward, we receive the modified version and test it again. If we find that the enhanced rotor can handle 50 percent more speed, for example, that's a great sense of achievement."

The entire process can take months — until the customer is satisfied. "Eventually, there are no more prototypes, but a product ready for series production," says Uhl. But even this needs to be tested, especially for its durability. "To

demonstrate that the product will last for years and more, it is repeatedly accelerated to maximum speed and then decelerated. This typically happens 50,000 times, up to 14 days straight."

Uhl sees technical consulting as one of Schenck RoTec's strengths. "We don't just run tests, but we work with the customer to figure out what the real challenges are. Our ideas help to create added value," he says. According to Uhl, clarifying the technical details together with the customer and determining the correct sequence of tests is the most time-consuming part. But it pays off, as he points out: "Once we have gained a customer, they usually stay with us."

"Once we have gained a customer, they usually stay with us."

MARCEL UHL,
PROJECT MANAGER AT
SCHENCK ROTEC

PRECISION IN THE TEST LAB

Melanie Wahl in her element: In the measuring room, three coordinate measuring machines precisely examine the rotors.



DIVERSITY FROM FIVE O'CLOCK IN THE MORNING

Different people from all over the world work for the Dürr Group. The company develops them according to their interests, skills, and needs. One example is Anja Walthart, who has been Director of Engineering at Dürr Mexico for about one year. She talks about her journey there and everyday life in the big city of Querétaro.

TEXT: ANJA WALTHART — PHOTOS: MARTIN MURIEL



ON TOUR

In her leisure time, Anja Walthart explores the city and the countryside.





BETWEEN HOME, OFFICE, AND PRODUCTION

As Director of Engineering, Anja Walthart is always on the move — from one appointment to the next.

CAREER PATHS IN THE DÜRR GROUP

A career in the Dürr Group can be as diverse as you are. We support our employees in their personal and professional development, regardless of the phase of their career. We promote their strengths so that they can develop their full potential with us.



**YOU WANT TO
GET AHEAD
PROFESSIONALLY?**
Find out about current
vacancies in the Dürr Group.

My working day often starts at five in the morning. Then I work on the first e-mails at home before my daughter wakes up. Due to the time difference, this is also the best opportunity to arrange appointments with colleagues in Germany.

But from the beginning: 13 years ago, I started a work-study program in mechanical engineering at Dürr in Bietigheim-Bissingen, Germany. It comprised theory semesters at the university and practical semesters at the company. I really liked the mix. During my studies, I was able to gain international experience with Dürr. I completed a practical part in the USA and later spent a semester abroad in Denmark.

After graduating, I started my first permanent job in 2015. As the central contact person for SAP in Engineering, I was the link between the IT department and the users. Almost three years later, I moved to a project for the reduction of costs in the painting and systems business. Here, I supported various modules related to engineering. It was an exciting task, not least because I had a lot to do with top management.

Study for a Master's degree at the weekends

I wanted to gain further qualifications and go on to study for a Master's degree. But I didn't like the thought of being a full-time student. A part-time distance learning course suited me better.



Bietigheim-Bissingen
[Germany]

I worked in my job for two years and studied for my degree in Technology and Innovation Management in the evenings and at weekends. I was able to take three months off for my Master's thesis. This was possible because we can accumulate overtime in a long-term work account and then use it for various purposes.

After that, I took on my first team leader position. Shortly after, our daughter was born. It was a chaotic time, but we are able to organize ourselves well. My husband also works for Dürr. This allowed us to go abroad together.

In 2022, we went to the USA for two years — near Detroit, where Dürr Systems is based in the USA. We were able to make contact with the local people very quickly. We have become such good friends with one American family that they still invite us over for a traditional turkey dinner at Thanksgiving.



**“I am sure that
when we are
old we will look
back fondly
on this time.”**

ANJA WALTHART ,
DIRECTOR OF ENGINEERING
AT DÜRR MEXICO

My job in the USA built on my work in Germany. I was responsible for the virtual configuration of products. As different standards apply in the American market and other materials are commonly used, I worked with the team to adapt the product configurators.

After that, we made the move to Mexico almost seamlessly. We now live in Querétaro, around three hours away from the capital. As Director of Engineering, I am in charge of two departments with 42 people. Among other things, we are responsible for modernizing the paint shops of major car manufacturers in Mexico. We also support other Dürr locations in building new paint shops. In addition to day-to-day business, I also want to improve internal processes and interfaces, and modernize product development and our working methods.

When I started in Mexico, I didn't know a word of Spanish. I did an intensive course and now I understand almost everything. When it comes to speaking, I want to get even better. Sometimes I start a sentence in Spanish and finish it in English. My Mexican colleagues are patient and help me as much as they can — linguistically, but also with other matters.

I think about work, the others dance

Mexico has a different working culture to Germany. If necessary, work is done at night and at the weekends. Although my employees are very disciplined, they also live completely in the moment. At company parties, they have a lot of fun singing and dancing. It's not so easy for me, because I often start thinking about the next working day in the evening. But I think it's a nice trait to be able to let go like that.

I had to get used to the fact that communication is not always direct. In Mexico, people don't like to say no to things. If you mean “no,” you answer something like: “I will do it tomorrow.” I've learned not to take that literally.

We have settled in well and are enjoying the adventure. People are open, so it's easy to make nice acquaintances. I have joined a CrossFit® group and train with them regularly. There is never a weekend when we're not invited somewhere, whether it's a barbecue or an excursion in the area. In general, eating together is at the heart of all events. Fortunately, Mexican cuisine is varied and delicious.

I am sure that when we are old, we will look back fondly on this time — and be grateful that the company gave us the opportunity to have such wonderful experiences.



TACOS AND TRAINING

Anja Walthart has learned to appreciate the varied Mexican cuisine. She finds her balance in exercise by doing CrossFit®.

Precise as



a *bat*

SEEING WITH ITS EARS

Seemingly without a sound, the bat flies through the darkness. In reality, it is screeching all the time. But the frequency of its screams is so high that humans cannot hear them. The sound waves bounce off obstacles or prey and return as an echo. In a fraction of a second, the bat can determine how far away an object is — and, in the case of a prey animal, even at what speed and in which direction it is moving. This is how the bat makes its way through the night. The **EcoPaintJet Pro** is as precise as a bat. Although it does not catch prey, the painting robot calculates to within a tenth of a millimeter where it has to start the next painting path.

Read more about this on page 10

HEADING TOWARD *TRUE NORTH*

The best information is not to be found at the desk, but in the coffee kitchen. This is where we meet Kathrin Sitzler and Isabella Jochum. The two work as Lean Consultants in the area of Corporate Process Excellence. We want to know what is behind this unusual professional designation.

TEXT: HEIMO FISCHER — ILLUSTRATION: ANGELA WITTCHEN



KATHRIN SITZLER

Kathrin Sitzler has been working for the Dürr Group for nine years. She started in Controlling and later moved to Process Excellence, where she worked for several years as a Lean Consultant. Since December 2022, she has been leading a team. She studied International Business Administration with a focus on China and Japan.

What do you do as a Lean Consultant?

Kathrin Sitzler Our main task is to establish a culture of continuous improvement within the company. We work for all areas of the Group, from Dürr to HOMAG to Schenck.

Isabella Jochum Our projects are all about streamlining processes. To achieve this, we work with a variety of lean management methods. These aim to identify and analyze problems and develop solutions together with the employees.

Can you very briefly explain such a method?

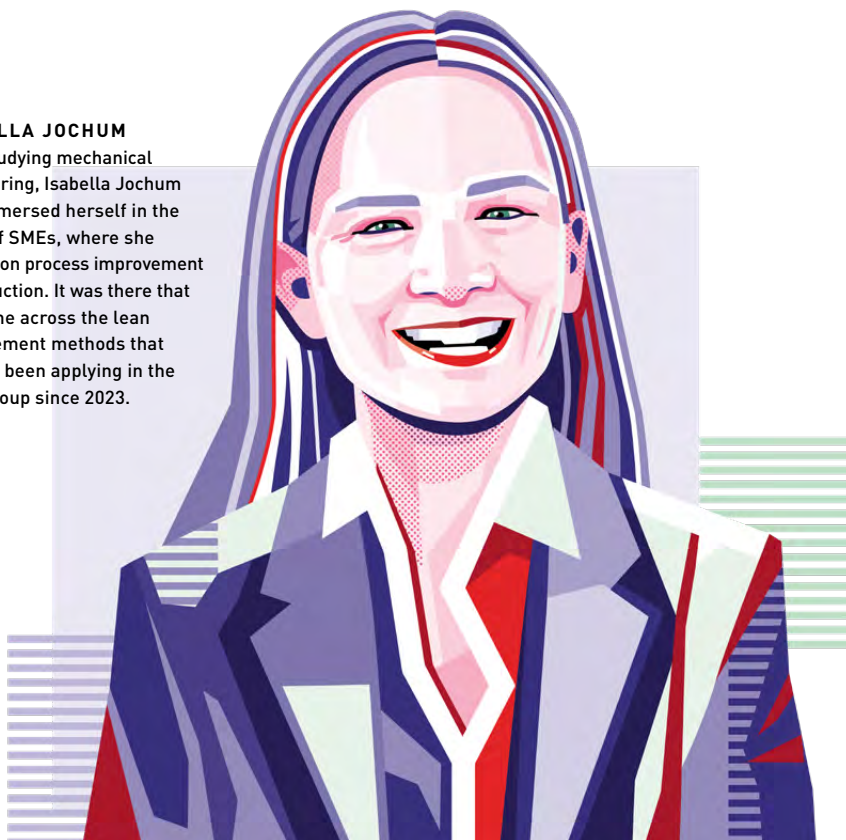
IJ One example is the Shop Floor Management. “Shop floor” essentially means “workshop”. The method originally comes from the area of production. Roughly speaking, it’s about having managers in close proximity to their employees — both in production and in the office. This streamlines communication and improves collaboration. If there is a problem of major significance, it has to be presented to the Board of Management within half a day. But the information chain from team leaders to the management floor only works if there is always someone acting in a leadership role at each level.

Is the Dürr Group not sufficiently streamlined?

KS Lean management and its methods aim to make improvement in small steps. We aspire to be a company with which all customers are 100 percent satisfied, in which nothing is wasted, and in which everyone works in line with the strategy. Realistically, of course, we will never achieve this in its entirety. But these goals are our True North, i.e. the central guiding principle by which we orient ourselves.

ISABELLA JOCHUM

After studying mechanical engineering, Isabella Jochum first immersed herself in the world of SMEs, where she worked on process improvement in production. It was there that she came across the lean management methods that she has been applying in the Dürr Group since 2023.

**What could this look like in operational practice?**

IJ One example is the precise definition of processes. For instance, I took a holistic look at the process of repairing products together with employees from the service department and we coordinated all the steps efficiently. Thanks to the revised process, we will be able to act faster and with improved quality for customers in the future.

What does your day-to-day work look like?

KS In addition to my tasks as a team leader, I also work on projects. For example, we train colleagues to spread the culture of lean management in their environment. These are our so-called multipliers.

IJ I give Lean workshops and I lead improvement projects. All optimizations of various kinds are aimed at increasing efficiency.

Where did you last accompany an improvement?

IJ I was recently involved in a project aimed at improving the ability to track the whereabouts of production accessories. This refers to transport racks or screwdrivers, for example. Their storage locations are often unclear. The solution was to record the production accessories centrally in the SAP system right from the outset. This makes it much easier to find them later.

What are the areas in which you are active?

KS Throughout the Group, both in Germany and worldwide. In the past few years, we have trained multipliers in Mexico and Italy, among other countries. We are currently planning a Lean training program in Germany. We interact with many different people and cultures. No two projects are the same. There is hardly any routine. I like that very much.

How do your projects come about? Are you sent to certain areas of the Group?

KS Most of the time, we are approached by managers with requests for specific topics. But I can also remember a project where an employee pointed out a weakness in the procedures. His concerns found their way into the divisional management meeting. From there, an improvement process was initiated, which we successfully completed together with our colleagues.

How open are the participants to what you are proposing?

IJ Most of them are very open. It is important that people trust us. That is why we apply the “Las Vegas rule”: What happens in Vegas stays in Vegas. This means that nothing confidential leaves the room. Participants should be able to address uncomfortable issues and talk openly with each other.

And does that work?

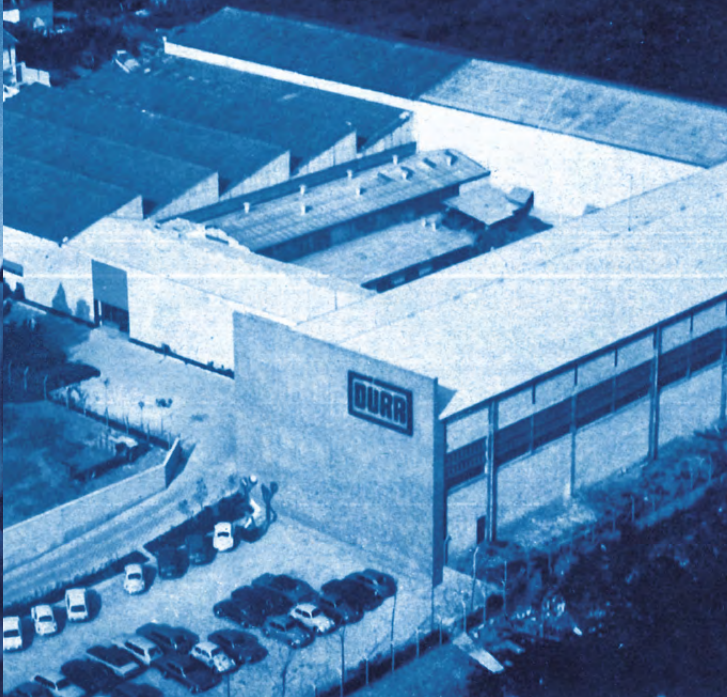
KS Pretty much always. My experience is that after each of our projects, people are a little closer to each other than before.

Thank you very much for the interview!

WHAT IS “LEAN MANAGEMENT”?

The main objective of lean management is to make processes in the company more efficient. It takes into account activities along the entire value chain. “Lean management” is designed to create a holistic system with the best possible quality in which waste is minimized.

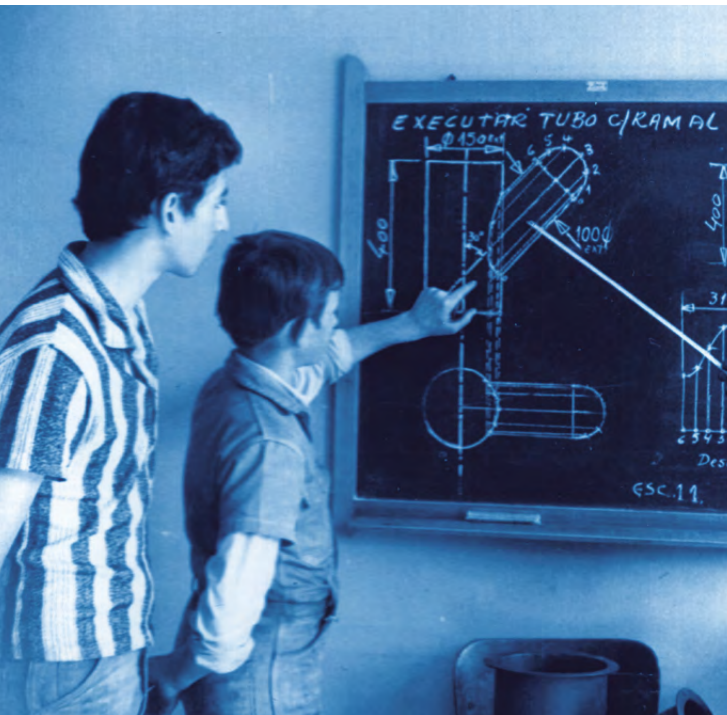
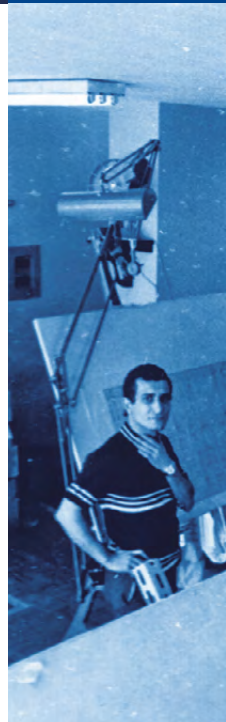
Continuous improvements are achieved through a variety of methods, mindsets, and tools — across all areas of the company.



“God is Brazilian”

60 years ago, an adventure begins for Dürr. The Swabian family business founds its first foreign subsidiary in Brazil. This bold step overseas marks the beginning of the Group's global expansion.

TEXT: HEIMO FISCHER — PHOTOS: DÜRR, ARCHIVE



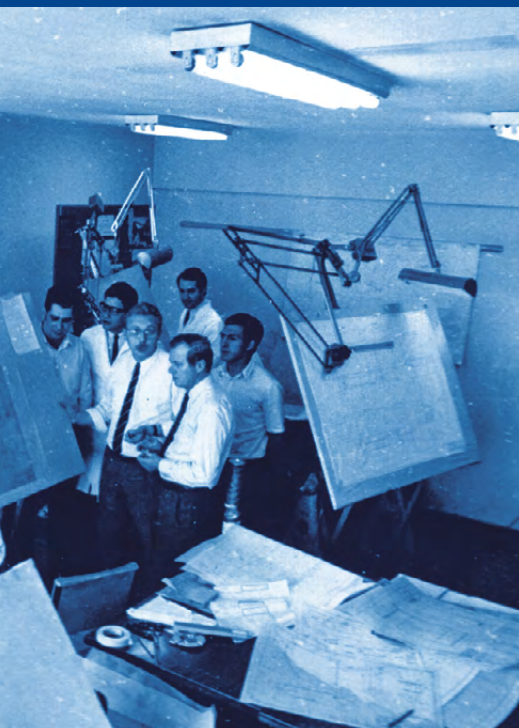
In 1964, Otto and Heinz Dürr venture across the pond to Brazil.

“God is Brazilian”



“Must found a company!”

HEINZ DÜRR IN A SHORT TELEGRAM TO HIS FATHER OTTO DÜRR



It is a time of new beginnings when Heinz Dürr sets foot on Brazilian soil in 1957. With the signing of the Treaty of Rome, Belgium, Germany, France, Italy, Luxembourg and the Netherlands establish the European Economic Community, the first Boeing 707 takes to the skies, and the conquest of space begins with the Soviet satellite Sputnik. It is also a time when companies set out to explore new horizons. Heinz Dürr, who is only 24 years old, will spend two months in Brazil to explore the country as a potential foreign market.

On the agenda of the junior boss are talks with business representatives. One of the companies he visits is Gema, which manufactures machines for the surface treatment of car bodies and therefore is a great fit for the Dürr family business. The negotiations are successful and lead to a cooperation. It becomes the nucleus of the subsequent Dürr subsidiary in Brazil, which is founded in 1964. 60 years later, the anniversary of “Dürr Brasil” was marked with big celebrations.

The establishment in Brazil is the starting signal for Dürr’s global expansion, which continues in Mexico, South Africa, and the USA in the following six years. The collaboration between locations around the world has carried the Group

through the turn of the millennium and continues to shape its corporate culture to this day. Currently, the Dürr Group has 139 locations in 33 countries.

The 1960s are the right time to venture into South America. After a difficult phase, the Brazilian economy is growing. The standard of living is rising, more and more people want to have a car. More than one million vehicles are built in Brazil between 1957 and 1964. Major manufacturers want to conquer the Americas from there. To do this, however, they need reliable suppliers of high-quality machines and systems.

Promising, but full of uncertainties

Dürr wants to meet this demand and gets its chance when Volkswagen builds a new production facility in São Paulo and needs modern painting technology. The order marks the company’s entry into large-scale plant construction. This cannot be achieved with local subcontractors alone. Therefore, Dürr decides to set up its own production facility in Brazil. A bold plan. In later years, Heinz Dürr would describe the move to Latin America as risky. “Promising, but full of uncertainties,” said the entrepreneur, who died in 2023.





VERY BRIEFLY

In the early 1960s, many places still lack the cables to make phone calls across the Atlantic. Sending messages from Brazil is also difficult — and is often done by telegram. The message that Heinz Dürr sends back home at a crucial moment is correspondingly brief: "Must found a company!" In just a few words, he asks his father to send 20,000 Swiss francs and the company lawyer across the Atlantic. That was all it took. The foundation is successful.

BUSINESS TRIP TO THE BIRTHPLACE

Dürr Brasil repeatedly experiences strong periods of growth and hires new staff. These include colleagues from other countries who work in Brazil for a limited period of time. Fani Maria Jacintho from the HR department was responsible for looking after them. She assists with all aspects of their lives, helping them find accommodation and arranging domestic help. One particular experience was with the heavily pregnant wife of a US employee. He doesn't manage to get home from work in time to take his wife to hospital. "She called me desperately, I rushed to the clinic with her, and the baby was almost born in my car," says Jacintho. Since then, she has felt closely connected to the family.

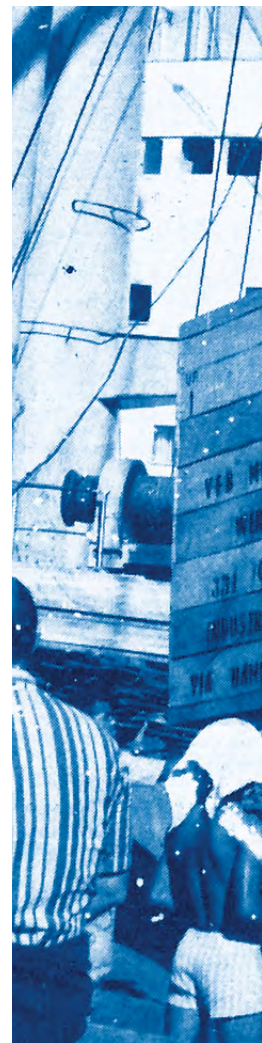
Dürr Brasil starts with a handful of expert tinkerers. Today, over 400 people are employed in São Paulo.

The banks that Dürr asks for backing are also skeptical. Most of them decline. Only a cooperative bank in Stuttgart-Feuerbach is prepared to provide the required guarantee of 500,000 Deutschmarks. The director seems to realize what opportunities the distant country offers. His following statement was documented: "Brazil is far away, but a lot is happening over there."

Company radio link instead of telephone

In the 1960s, there are still no telephones in large parts of Brazil. Internal company communication, which was common at that time, is now a relic of the past: José Gimenez Sanchez, who starts as an office boy at Dürr Brasil in 1967 at the age of 20 and later works his way up to the technical support department, reports on how employees communicate with the help of radio devices. Messengers commute between the administration and the factory to exchange plans and drawings. Hours are spent on transmissions that today take only a few seconds via e-mail.

Dürr's first own production facility is built in Santo Amaro, on the outskirts of São Paulo. Today, it is a prosperous suburb, 60 years ago it was a wasteland. Patriarch Otto Dürr is not amused when his son presents him with the idea. "Are you crazy? It looks just like a desert," he exclaims. In the end, he is persuaded.





The bold plan works. The foundation in Brazil is the cornerstone for the Group's global expansion.

"Are you crazy?
It looks just like
a desert."

OTTO DÜRR TO HIS SON
HEINZ DÜRR



Adventurer and gold helmet

After the Second World War, Brazil attracts people from all over Europe. Many want to escape hardship and destruction and build a new life far away from home. One such adventurer is Sergius Erdelyi. Born in the Serbian city of Novi Sad in 1919, the ingenious tinkerer later lives in Austria. His original plan was to emigrate to the USA. But as he was not allowed to enter the country with his dog, he decided to go to Brazil. He speaks several languages and brings 20 patents with him when he arrives in Brazil. In São Paulo, he founds a company for industrial equipment.

His company supports Dürr with the major order for the Volkswagen plant in São Paulo.

The Swabians are to supply a state-of-the-art paint shop. By the standards of the time, this is a large and very difficult order. In fact, people at Dürr already know a great deal about this sophisticated technology. However, the company is only just beginning to develop into a full-range supplier of systems for the automotive industry. They had never built paint booths before, let alone a complete painting line. New dimensions are also reached in terms of order value, which is higher than the previous annual sales.

The work begins. "A continuous painting line like this required state-of-the-art technology," writes Erdelyi in a review. First of all, precise drawings are needed. These are made without a computer, of course — just with ink, a triangle, and a ruler. The drawing boards are huge, with sheets of paper measuring almost a square meter. Erdelyi is one of the men driving the project forward. Heinz Dürr gets on well with the blond manager, calling him "gold helmet" with a wink.

Large fire sparks self-confidence

In 1970, Dürr is the market leader in Brazil. In addition to Volkswagen, GM and Mercedes are now also customers. But in the same year, the young subsidiary really has to prove itself. Shortly before Christmas, a fire breaks out in the VW plant in São Paulo. A brand-new painting line is destroyed. The column of smoke can be seen 20 kilometers away.

With skill and ingenuity, Dürr builds a make-shift paint shop. Only a few weeks later, VW is able to resume production. A tremendous effort, Erdelyi recalls. "My biggest project at Dürr was undoubtedly saving Volkswagen after the fire. I gave everything for the reconstruction."

The event is deeply engraved in the collective consciousness of the company and gives self-confidence to the workforce. In the decades that follow, Dürr Brasil develops into a reliable constant: Through changing political and economic times, the South American subsidiary supplies other countries on the continent with state-of-the-art painting technology. For 60 years now, Brazil has been an indispensable pillar of the Group. Critical situations have always turned out well. In such cases, Heinz Dürr liked to use a popular Brazilian saying that reflects his affection for the country: "Deus é brasileiro" — "God is Brazilian."

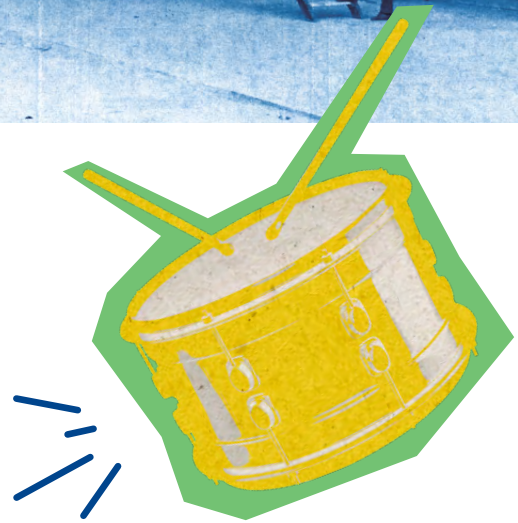
"God is Brazilian"

Best conditions? In the 1960s, there are hardly any telephone lines in the South American country and the location Heinz Dürr found resembles a desert.



TO BRAZIL WITHOUT AN INHERITANCE

Numerous people with touching life stories are driving the development of Dürr's Brazilian subsidiary. Ignazio Sidoti, for example. Born in Sicily, he came to South America with his parents and siblings after the war. His father returned late from Russia — too late, because his siblings had already divided the family inheritance. Emigration was probably the only option. In 1957, Ignazio starts working for a company that merges with Dürr's Brazilian subsidiary shortly thereafter. And he makes his way. First as a laborer, then as a technical draftsman. That is the story told by his younger brother Salvatore, who later becomes a sales manager at Dürr Brasil.



Part of our DNA

ROBERTO TKATCHUK ON THE OCCASION OF THE 60TH ANNIVERSARY OF DÜRR BRASIL

I have been at the helm of Dürr Brasil for approximately 20 years. While celebrating 60 years of age and 60 years of Dürr in Brazil, I feel that the principles left by our founder Heinz Dürr remain part of our DNA to this day. Our culture of efficiency is very strong, and as the company modernized, I have closely followed its technological evolution.

We have been part of the production of vehicles that have become true national icons and have transformed mobility, not only in Brazil but also in other countries in South America. Over the years of experience, I realized that our work goes beyond the final assembly and painting of vehicles. We are committed to the automobile and commercial vehicle industry to provide technological solutions with high performance

and innovation, always considering sustainability and focusing on reducing environmental impact. This is what we value and provide to our clients and society.

To this day, we are leading the national market. We are not just a supplier, we are partners with our clients. Therefore, providing assistance, understanding their needs, and offering the best solutions has always been and will always be our main objective.

With gratitude for the past that has brought us to our 60th anniversary and enthusiasm for what the future holds, we are ready to write more success stories and, together with our clients, revolutionize the Brazilian industry with products that drive efficiency.

"We are not just a supplier, we are partners with our clients."

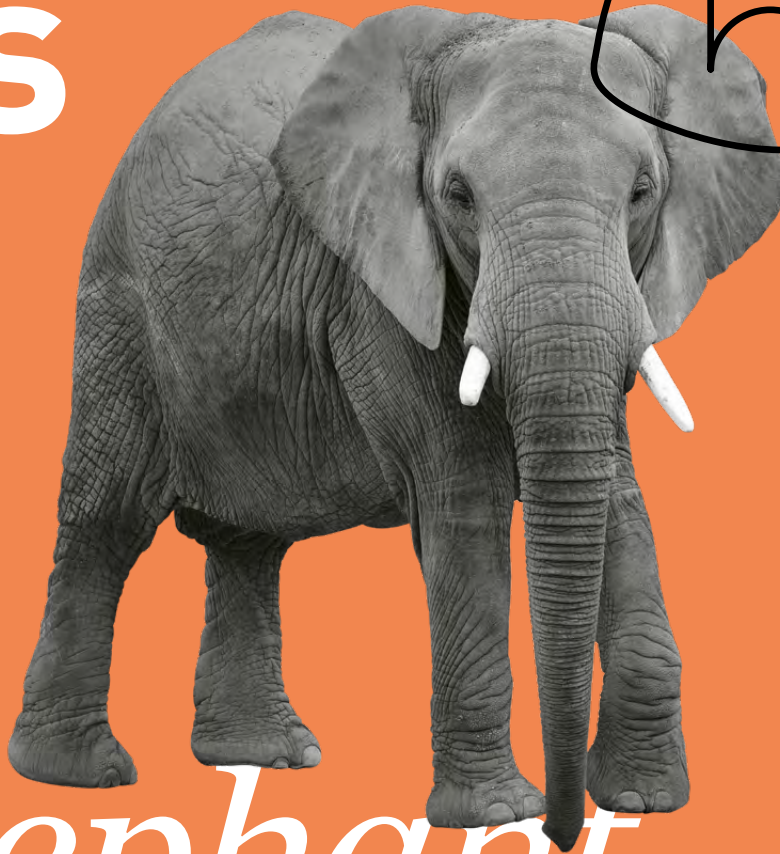
ROBERTO TKATCHUK,
MANAGING DIRECTOR, DÜRR BRASIL



Strong as



as



an

elephant

COMPLEX MUSCLE POWER

The elephant is the largest living land animal. The pachyderm's distinctive trunk moves elegantly and yet is a real powerhouse: With an estimated 40,000 muscles in their trunks, adult animals can lift weights of more than 325 kilograms. The elephant's trunk has the most complex muscle system known in the animal kingdom. However, the organ is not only powerful, but also multifunctional. The gentle giants use it to take a shower or to shove food into their mouths. The driverless transport systems in the ProFleet vehicle fleet are just as powerful and versatile. They effortlessly maneuver car bodies weighing up to 6 tons from one workstation to the next through paint shops or final assembly halls.

Read more about this on page 10

IN A NUTSHELL



In Spanish it's *"Feliz cumpleaños!"*

Dürr's Spanish subsidiary was founded in 1974, not far from the French border. As Spain was not a member of the EU at the time, founding the company was a challenge. However, Otto and Heinz Dürr found a suitable partner in local entrepreneur Ramón Vizcaino, thus accomplishing the move to the Iberian Peninsula. 50 years later, the roughly 125 employees are celebrating the company's anniversary: Dürr Spain, with its four locations, is active and successful far beyond the Basque Country, reaching markets around the world. Feliz cumpleaños!



Full battery power *ahead*

The global need for batteries is rising, whether for electric vehicles, electronic devices, or energy storage. And Europe requires its own battery industry to meet the growing demand. Shortly before the end of the year, the Dürr Group received a major order in battery production technology — by far the largest to date in this business segment. The Italian battery manufacturer FIB, based near Naples, ordered a turnkey system for electrode coating. Four production lines each for cathode and anode coating are scheduled to start production in 2026.



Colorful splendor *and vitamins*

The winged workers with black and yellow stripes were hard at work. When a wildflower meadow was sown and apple trees were planted at Dürr in Bietigheim-Bissingen in the spring of 2024, it didn't take long for busy bees to get to work and collect the sweet nectar. For several weeks, the colorful blooms were not only a feast for the eyes of passersby. By early September, the first apples were ready for harvest. Employees enjoyed a vitamin boost from three sweet and tart apple varieties.



Old devices create *new opportunities*

What to do with old cell phones and tablets? At several German Group locations, employees were able to hand in old personal devices. The IT departments added retired company laptops. A service provider refurbished the devices and resold them. This not only keeps valuable raw materials in the economic cycle. The sales proceeds, amounting to €10,000, were donated to the Hacker School in Hamburg. This nonprofit organization offers programming courses across Germany to inspire children and young people to pursue careers in IT. There are targeted offers for children from socially disadvantaged backgrounds.

PUBLISHING INFORMATION

PUBLISHED BY

Dürr AG
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Archiv, Dürr, Hacker School gGmbH, Sascha Feuster, Freepik,
Yolanda vom Hagen, Holzkurier, HOMAG, Thomas Hoppe, iStock,
Kahle Automation, Kallesoe, Kirchhoff Consult, Kozowood,
Jörg Ladwig, Martin Muriel, Ivo Tavares Studio, WEINMANN,
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CONCEPT AND DESIGN

Kirchhoff Consult GmbH, Hamburg

PRINTING

BEISNER DRUCK GmbH & Co. KG, Buchholz in der Nordheide, Germany

This magazine is also available in German.

COMPANY PROFILE

The Dürr Group is one of the world's leading mechanical and plant engineering firms with particular expertise in the technology fields of automation, digitalization, and energy efficiency. Its products, systems, and services enable highly efficient and sustainable manufacturing processes – mainly in the automotive industry and for producers of furniture and timber houses, but also in sectors such as the chemical and pharmaceutical industries, medical devices, electrical engineering, and battery production. In 2024, the company generated sales of €4.7 billion. The Dürr Group has around 20,000 employees and 139 business locations in 33 countries. As of January 1, 2025, the former divisions Paint and Final Assembly Systems and Application Technology were merged to form the new Automotive division. Since then, the Dürr Group has been operating in the market with four divisions.

FROM THE PAINT BUCKET TO THE FUTURE

A handful of Mercedes employees use paintbrushes to apply the paint.



1904

At the end of the last century, car bodies passed under a rigid spray jet.



1990

1967

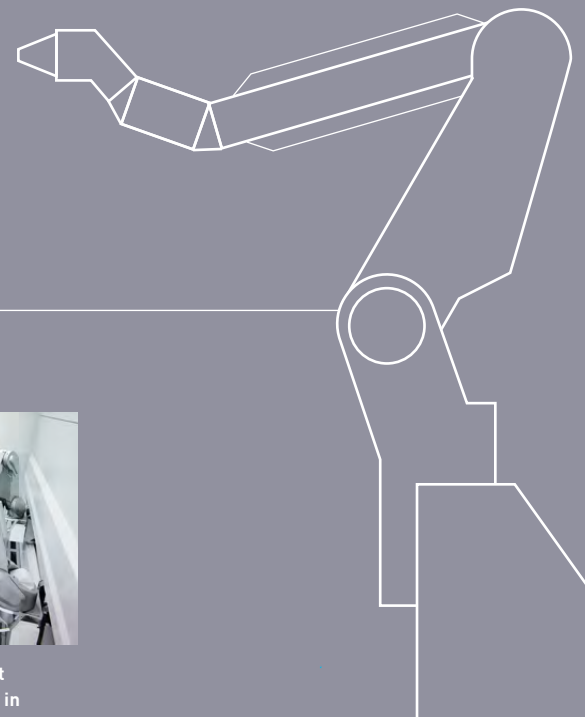


Beetle car bodies float into the dip bath in Puebla, Mexico.

TODAY



Equipped for the future: Paint is applied precisely by robots in modular paint boxes.



*“The best way to
predict **the future** is
to **invent it.**”*

— ALAN KAY

AMERICAN COMPUTER SCIENTIST

