

Issue 04/2021

today

Magazine for
Schaeffler Employees



MOVING THE WORLD FOR 75 YEARS

Everything you want to know
about the anniversary

Pages 5 to 25

SCHAEFFLER

Dear Employees,

Together, we can look back on a special year – including a special anniversary. It is now 75 years ago that Dr. Georg Schaeffler and Dr. Wilhelm Schaeffler founded our company in Herzogenaurach. What started with just a few employees back then has developed into a leading global technology group. Dr. Georg Schaeffler's innovation of the cage-guided needle roller bearing revolutionized the field of bearing technology and made Schaeffler what it still is today: a pioneer that moves the world. Together we will continue this successful corporate history into the future.

At the same time, however, the past months have been a time of special challenges. Sadly, the coronavirus pandemic is still far from over – despite all the progress made with regard to vaccines. We will manage to overcome this only if we pull together, assuming a high degree of responsibility for ourselves and our fellow citizens. Unfortunately, the new “wave” is developing very badly. We will therefore have to endure continued restrictions in our everyday lives and suffer the economic consequences for some time to come.

We would like to express our heartfelt thanks all the more to all of you for your hard work and high level of commitment, which has enabled us to brave this ongoing global crisis together.



In economic terms, for the Schaeffler Group 2021 began well and on a promising note but became increasingly difficult as time went on. Following a phase of economic recovery at the beginning of the year, new difficulties arose in recent months that we must face every day. Among other things, there are major concerns about supply bottlenecks and in some cases dramatic price increases for materials. In addition, there are challenges with regard to rising energy costs and concerns about inflation.

Then there is the ubiquitous technological transformation, which continues unabated – in the face of public and regulatory pressure, but also due to customer requirements.

The fact that, despite all these adversities, we have so far been able to steer our way sensibly through the difficult waters demonstrates the resilience of our global organization. Last year, we at Schaeffler collectively proved that we can weather storms. This is thanks to you, our Employees. You have all proven time and again how much innovative power and resilience there is at Schaeffler. It is precisely this passion, this desire for progress, and the drive to master every challenge together that has made our company globally successful for 75 years.

The most visible expression of the great achievements of our employees worldwide are the numerous awards received from our customers in recognition of outstanding quality and service – as well as the media and trade awards for innovations, such as the “Golden Steering Wheel” for an electric axle or the “Pace Awards” for our P2 hybrid module.

Despite all the external difficulties, we are therefore once again approaching the new year with courage and confidence.

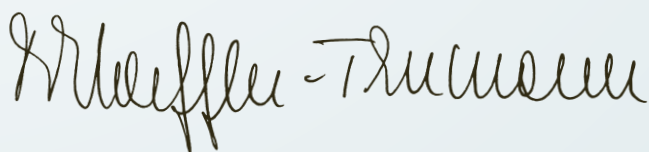
Together, we will systematically continue along the path we have chosen. Standing still has never been an option for Schaeffler. We must play a decisive role in shaping the transformation in our industries and we have laid the necessary foundation for this with our Roadmap 2025.

And our fundamental direction is also right when it comes to the issue of sustainability. As a family-owned company, it is only natural for us to think in the long term. This is part of our DNA because we know that we are only trustees for a certain time, bearing a responsibility for the next generations. Across all regions, we therefore want to establish CO₂-neutral production by 2030. Our supply chain is to be carbon neutral by 2040. This is why the recently announced purchase agreement with H2green-steel is so important for our business. Of course, this is just a first step. Without the use of “green steel” we will not be able to make the necessary transformation.

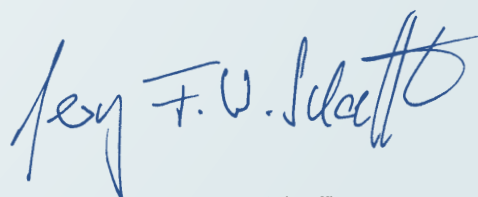
Without any doubt this means that there is a lot of hard work ahead of us, but there is absolutely no alternative to this. Climate neutrality is the basis for being able to continue to exist successfully as a company in the future – so that we will be able to celebrate the Schaeffler Group’s 100th anniversary in 25 years.

With great appreciation for your performance, we sincerely wish you and your families a merry and peaceful Christmas, relaxing holidays, a wonderful end to the year, and a good start to 2022, which we hope brings you happiness, success, and above all good health.

Yours sincerely,



Maria-Elisabeth Schaeffler-Thumann



Georg F. W. Schaeffler

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Focus

75 years of Schaeffler

Schaeffler has been moving the world for 75 years now. The global automotive and industrial supplier celebrated this exceptional anniversary with a digital ceremony. In addition, the newly designed website highlighting the history of both the company and the Schaeffler family was published as part of the anniversary celebration. On the following pages, we have summarized essential information about the anniversary and historical developments for you.



06 In motion for the last 75 years

08 “The future belongs to those who are brave enough to shape it”

10 An overview of Schaeffler’s corporate history

In motion for the last 75 years

To mark Schaeffler's 75th anniversary, Schaeffler AG and IHO Holding announced the establishment of the Schaeffler Foundation. As part of the celebrations, the company also presented a newly designed website that showcases its corporate history.

It is one of the greatest "Made in Germany" success stories: The global automotive and industrial supplier Schaeffler celebrated its 75th anniversary on November 30. Dr. Wilhelm Schaeffler and his brother Dr.-Ing. E.h. Georg Schaeffler laid the foundation for today's company when they founded Industrie GmbH in Herzogenaurach in 1946. This marked the starting point of a company that today employs more than 83,900 employees at around 200 locations in more than 50 countries.

Three originally independent companies – INA, LuK, and FAG – grew together to form a global technology leader with the DNA of a family business. Accordingly, Schaeffler celebrated 75 years of progress, technological innovation, and economic success with a virtual anniversary ceremony for all its employees as well as selected industry and government guests.

Success based on pioneering spirit, innovations, and strategic acquisitions

From 1950 onwards, the company's rapid rise was made possible by the cage-guided needle roller bearing, a brilliant invention by Dr.-Ing. E.h. Georg Schaeffler, which revolutionized motion and mobility in the automotive and industrial sectors.

This invention laid the foundation for the company's continuing global success. In 1965, the Schaeffler brothers decided to invest in LuK Lamellen und Kupplungsbau GmbH in Bühl (Baden), where the Automotive Technologies division is now based. The company became a technological leader with innovative products such as the diaphragm spring clutch, dual-mass flywheel as well as a variety of engine components. Since 1999, LuK has been a fully owned entity of Schaeffler.

In 2001, Schaeffler took over FAG Kugelfischer Georg Schäfer AG in Schweinfurt, making Schaeffler the world's second-largest manufacturer of rolling bearings. The successful IPO of Schaeffler AG followed in 2015. Today, the three product brands INA, LuK, and FAG are united under the Schaeffler corporate brand.

"Schaeffler's pioneering spirit has always been crucial to the success of the company. Even throughout its challenging phases, the company has demonstrated a high degree of resilience and a constant willingness to view profound change as an opportunity. As



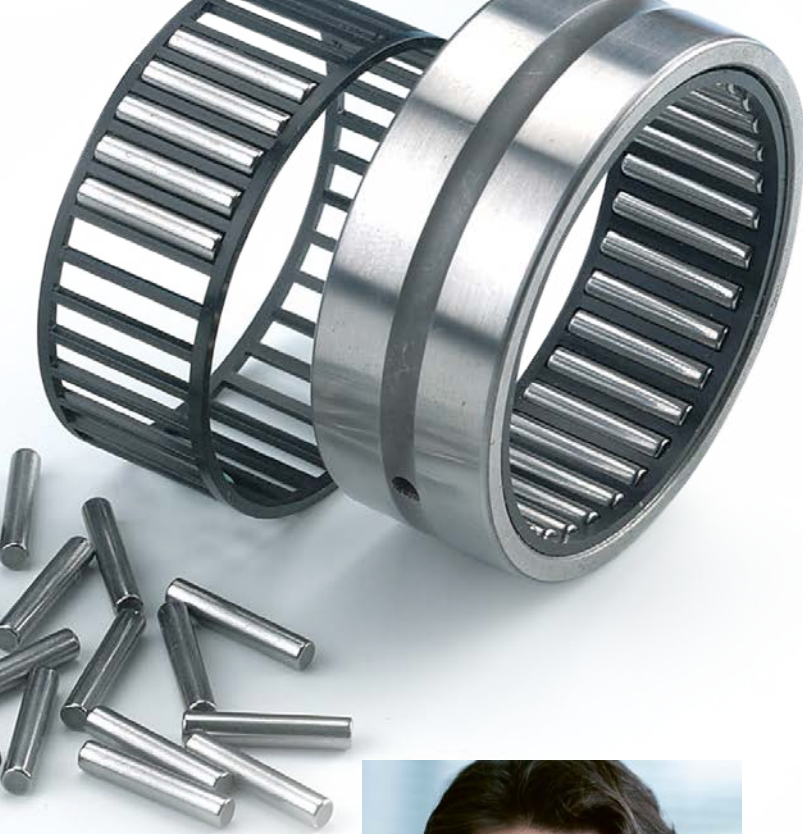
"Schaeffler's pioneering spirit has always been crucial to the success of the company."

Georg F. W. Schaeffler
Chairman of the Supervisory Board

shareholders, we are particularly aware that this success, spanning several decades, is primarily driven by our committed employees around the globe, as well as our customers and suppliers," explains Georg F. W. Schaeffler, Family Shareholder and Chairman of the Supervisory Board of Schaeffler AG.

Transparent and scientific handling of the company's history

To mark the company's anniversary, the Schaeffler family arranged for their history, which is inextricably linked to the company's history, to be systematically researched. To that end, the family successfully engaged the services of renowned historian Prof. Dr. Gregor Schöllgen. As part of the anniversary celebrations, Schaeffler is presenting the results of the research, which also covers the period prior to the company's founding in 1946, on a newly designed website that showcases not only the history, but also the people and the technological innovations they represent. The comprehensive description and analysis entitled "Schaeffler. A biography of a family and their company" by Prof. Dr. Schöllgen was released by the publishing house Deutsche Verlags-Anstalt in early December.



**“As long as there is motion,
there will be Schaeffler.”**

Klaus Rosenfeld
CEO of Schaeffler AG

“Schaeffler has always demonstrated an extraordinary capacity for innovation and a high level of social responsibility,” says Prof. Dr. Schöllgen. “The curiosity and future-oriented focus that drove the two founders still remain the key strengths of this traditional family company today.”

Establishment of the Schaeffler Foundation

To mark Schaeffler’s 75th anniversary, Schaeffler AG and IHO Holding are establishing the Schaeffler Foundation in an effort to emphasize the social responsibility of the Schaeffler Group and its family shareholders. The Schaeffler Foundation will receive an initial foundation capital of 3 million euros, which will be established in equal parts by Schaeffler AG and IHO Holding. This capital will be increased each year through additional donations, in combination with the simultaneous incorporation of existing activities, such as the Schaeffler FAG Foundation.

The Foundation will be active worldwide and concentrate primarily on three focus areas: 1) Climate and Environmental Protection, 2) Research and Science, and 3) Education, Qualification and Equal Opportunity.

With its Roadmap 2025, the Schaeffler Group has clearly positioned itself strategically with a view to the future. It consistently focuses the company, with its three divisions, on transformation in ten customer sectors in order to remain the preferred technology partner for its customers in the future. Sustainability and digitalization are at the center, supported by five focus areas around topics such as CO₂-efficient drives and renewable energies.

“As long as there is motion, there will be Schaeffler. At Schaeffler, innovation, quality, an understanding of systems, and manufacturing excellence combine to form a common and strength. With this strength and the DNA of the family-owned company, we are optimally equipped for the future,” says Klaus Rosenfeld, CEO of Schaeffler AG. (al/mm)



Info



The newly designed website highlighting the company’s history and the history of the Schaeffler family was presented as part of the anniversary celebrations. Containing a wide variety of images and videos, it brings the history, people, and innovations to life and deliberately even goes back to the time before the company was founded in 1946. The renowned historian Prof. Dr. Gregor Schöllgen was engaged for this project. His book entitled “Schaeffler. A biography of a family and their company” was published at the beginning of December. Schaeffler’s corporate history can be found here: www.schaeffler.com/history

“The future belongs to those who

Schaeffler celebrated its 75th anniversary with a digital ceremony. In keeping with the motto “Moving the world for us received from partners, customers, and employees around the world, Georg F. W. Schaeffler, family shareholder and Chairman of the Supervisory Board, thanked the employees, and looked ahead to the opportunities of the future.

In his speech at the ceremony marking the company’s anniversary, Georg F. W. Schaeffler, family shareholder and Chairman of the Supervisory Board, gave an overview of the company’s success story, from its beginnings in Herzogenaurach in 1946 to its status today as a global automotive and industrial supplier. In doing so, he emphasized, “The most important reason I believe in our future is our employees who truly live our four core values of Excellence, Innovation, Passion, and Sustainability.”

The decisive factor, he said, is that the pioneering spirit has remained in the company throughout the decades, as has the willingness to pull together and use far-reaching change as an opportunity. “Regardless of where technology will take us, I am confident that we will remain an important supplier. In a world characterized by perpetual change, in which disruption is the only constant, having our long-term mindset and outlook is an advantage.”

In this context, Georg F. W. Schaeffler emphasized the importance of the company founders, Dr. Wilhelm and Dr.-Ing. E.h. Georg Schaeffler, and his mother Maria-Elisabeth Schaeffler-Thumann for the company’s continued worldwide success. “Today’s leadership, including myself, stands on the shoulders of giants. This of course comprises the founders, but also my mother. She fulfilled the promise she had given my father to lead the company into the future. With courage, grit, passion and resilience as well as incredible people skills, she showed what a determined woman, and a true lady to boot, can achieve.”

Klaus Rosenfeld, CEO of Schaeffler AG, emphasized in his speech that decarbonization, digitalization, demographic aging and deglobalization are the most important future trends that Schaeffler must address as must other companies.

“We at Schaeffler believe that the future belongs to those who are brave enough to shape it. We belong to those companies who know where they come from and, thus, know where to go to,” stated Klaus Rosenfeld.

“Our Roadmap 2025 provides us with strong orientation. Our brand, the Schaeffler brand, gives us the necessary identification. And our corporate purpose tells us why we exist. We are an automotive and industrial supplier. Serving 10 different sectors with our solutions and products. Supplying our customers with the technologies they need. Around the globe – with the ultimate goal to be their preferred technology partner. This is why we exist. And this is what drives us forward,” the CEO said.

Even though nobody can tell for sure what the future holds, one thing is clear, continued Klaus Rosenfeld: “Whatever algorithm will be driving vehicles on roads, rail, water or in the air: People will continue to move from A to B. And goods will be moved as well. And as long as there will be motion, there will be Schaeffler. A company that pioneers motion, in order to further advance how the world moves.

Numerous prominent guests and long-standing partners from politics and business around the world conveyed their congratulations on Schaeffler’s 75th anniversary by video message: from Microsoft and the Genuine Parts Company in the USA, to Bharat Forge Ltd. in India and the CITIC Pacific Special Steel Group from China, to major German corporations such as Daimler, Volkswagen, Siemens, and Deutsche Bank. Further well-wishers included Bavarian Prime Minister Markus Söder, Hildegard Müller, President of the German Association of the Automotive Industry (VDA), and Siegfried Russwurm, President of the Federation of German Industries (BDI).

As a special highlight of the digital celebration, Schaeffler employees from all over the world also sent their congratulations around the globe – symbolizing that Schaeffler as a global, diverse company stands closely together even in challenging times.

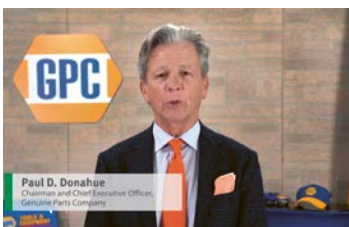
The Schaeffler Big Band brought the event to an emotional close with an adaptation of the classic song “Celebration”. (mm)



The complete speeches by Georg F. W. Schaeffler, family shareholder and Chairman of the Supervisory Board, and Klaus Rosenfeld, Chairman of the Executive Board of Schaeffler AG, on the occasion of the company’s 75th anniversary can be found on Schaeffler CONNECT. There, as well as on the newly designed corporate history section on the Schaeffler website, you can also find a recording of the entire digital ceremony.

are brave enough to shape it”

75 years”, the varied program included a corporate journey through time. In addition to anniversary greet- and Chairman of the Supervisory Board, and Klaus Rosenfeld, CEO of Schaeffler AG, highlighted the com-



History in motion

Schaeffler has been moving the world for decades. It all began 75 years ago, when two brothers, Dr. Wilhelm and Dr.-Ing. E.h. Georg Schaeffler, set up the company Industrie GmbH in Herzogenaurach. This was the “big bang” moment that would ultimately give rise to a leading global automotive and industrial supplier. (mm)

Always changing, always on the move. A company history spanning many decades means new names and corporate forms, new products and ideas, and new locations and opportunities. And yet our family company has remained precisely that: a family company. Its pioneering achievements – whether made in the 1950s or the 2000s – are the future of mobility and motion.

INA, LuK, and FAG developed along their own trajectories over many decades, each with specific expertise in different aspects of motion. Today, these three brands are united as part of the Schaeffler Group.

Here are some of the milestones along the way from Industrie GmbH to today’s publicly listed family company.



1946

Industrie GmbH was set up in Herzogenaurach. The shareholders’ agreement establishing the company was dated November 30, 1946.



1940-50s

To convince customers of the superior qualities of INA needle roller bearings, Georg Schaeffler took to the road.

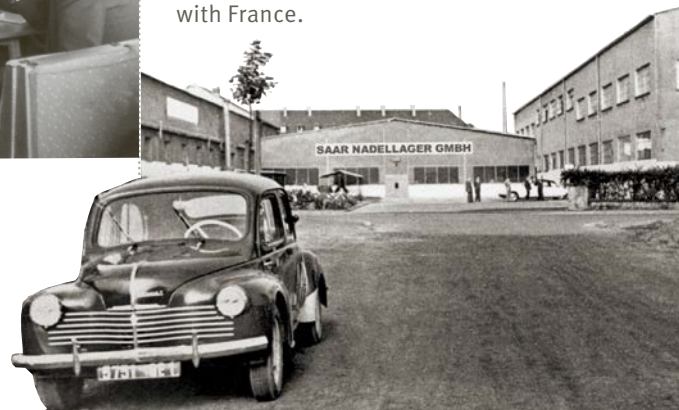


1951

The name “INA” was registered with the German Patents and Trademarks Office as a word and picture mark. INA combines the first letter of the company name “Industriewerk Schaeffler o.H.G.” with the first two letters of the German word for “needle roller bearing.”



The first step in the company’s internationalization came in 1951 in the town of Homburg in what was then the Saar Protectorate, a semi-autonomous region in an economic union with France.



1950

The cage-guided needle roller bearing is the result of a brilliant idea by Dr.-Ing. E.h. Georg Schaeffler. It features a needle cage in which the rolling elements are guided parallel to the axle. The innovative bearing is lightweight, compact, and reliable, runs with low friction and noise at high shaft revolutions, and is a cost-effective option in many different applications. In 1950, Georg Schaeffler filed a patent application for his new idea and in the course of that year, the cage-guided needle roller bearing was developed from prototype to production readiness. Today, needle roller bearings are used in the automotive industry, as well as in general mechanical engineering and gearbox construction. In e-mobility, needle roller bearings are vital to the proper functioning of numerous electrified transmission systems.



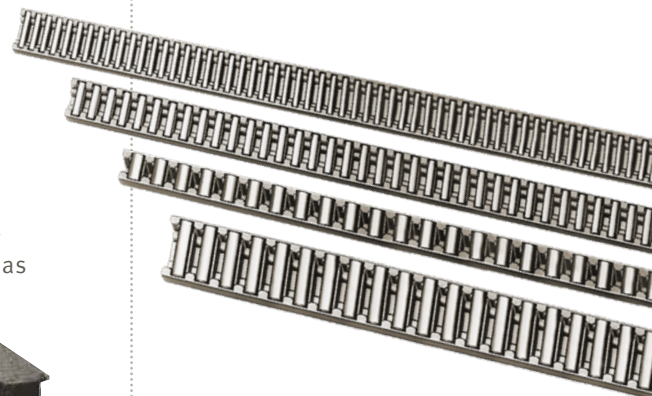
1953

Herzogenaurach grew bigger as INA employees settled there. In 1953, the charitable organization Sozialwerk Schaeffler was founded to create homes for the workers.



1952

The VW Beetle was INA's big breakthrough as an automotive supplier. Low-wear INA needle roller bearings were installed in the Beetle's transmission as standard from 1952 onwards.



In the mid-1950s, INA carried the idea of the cage-guided needle roller bearing across from rotary to linear motion, thus laying the foundation for the company's linear technology business.

Due to the great market success of the cage-guided needle roller bearing, INA continues to grow. Over the years, new departments are created, such as the special machinery department, the testing department, a research and development department, and the application engineering department.

In addition to building new plants, Georg and Dr. Wilhelm Schaeffler extend the range of products by strategically acquiring and integrating other companies. In the 1950s and 1960s, production starts in France, Great Britain, and the USA, among other countries. With Rodisa S.A. in Elgoibar, a new plant is added in Spain.

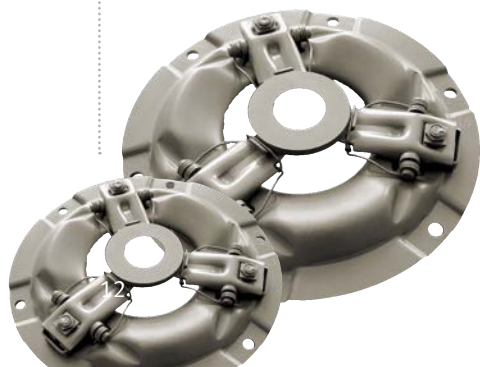
Maria-Elisabeth (née Kurssa) and Georg Schaeffler got married in 1963. Maria-Elisabeth Schaeffler gave up her medical studies in Vienna to join her husband in building a future in Herzogenaurach.

1956

The staff newsletter “Werk und Leben” (“Work and Life”) made its debut in 1956. You are holding its great-grand successor in your hands right now.



As early as in the mid-1960s, Georg and Dr. Wilhelm Schaeffler acquired a stake in LuK Lamellen und Kupplungsbau August Häussermann in order to access new business opportunities in the field of automotive drivetrain applications. Within just a few months, the Schaeffler brothers manage to start volume production of the diaphragm spring clutch in Bühl. From 1967, Volkswagen equips all new vehicles with this innovative product. Another famous example of new driving comfort is the dual-mass flywheel from LuK, which goes into volume production in 1985. Since 1999, LuK has been a fully owned entity of Schaeffler.



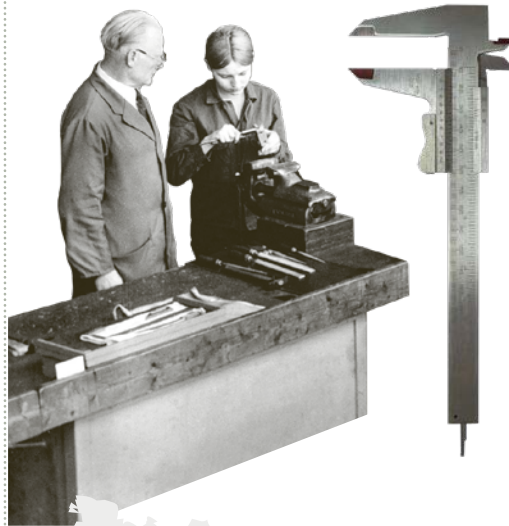
1957

The company succeeded in making the leap across the English Channel in 1957. A production operation was set up in Llanelli, South Wales, initially with six employees.



1959

Schaeffler has a long tradition of training apprentices. The first two apprentices began their training in 1948 with Industrie GmbH. In 1959, a training workshop accommodating a total of 100 young apprentices went into operation. The training program covered about ten different occupations.



1963

Georg Schaeffler married Maria-Elisabeth Kurssa, at that time a medical student in Vienna.



1958

The story of INA in Brazil began in 1958, at Santo Amaro, to the south of São Paulo. The new plant supplied its first needle roller bearings and industrial needle rollers to customers, including Volkswagen, in early 1960.



GERMANY

HERZOGENAURACH

1961

The first electronic calculator was installed at INA as early as 1961. Known as "14-01", it featured 8 kb RAM.



1963

Production in the USA began in the 1960s, in the form of a joint venture. The Fafnir-INA Needle Roller Bearing Company was established at Cheraw, South Carolina, in 1963.



PLANT IN CHERAW



PLANT IN SÃO PAULO

PLANT IN LLANELLI

Expansion continued with LuK's entry into the American market in 1973. LuK do Brasil Embreagens Ltda. was set up, initially in a hall of the INA location in Santo Amaro. Later on, the new company was relocated to Sorocaba where LuK started to build a factory at the end of July 1974. As a spare parts supplier of clutches for passenger cars, light commercial vehicles, trucks and tractors, LuK do Brasil Embreagens Ltda. quickly became one of the foremost automotive suppliers in Brazil. 1975 saw the birth of LuK Puebla in Mexico. Soon afterwards, the first LuK clutches for the Volkswagen Beetle came off the assembly line there.

During the 1960s and 1970s, digitalization makes its entry at Schaeffler. The first electronic calculator, known as "14-01", was installed at INA as early as 1961. The new INA data processing center built in 1969 featured an uninterruptable power supply system, an ionization early-warning system, and special fire protection chambers for magnetic storage tapes, which represented the state of the art available at that time. Computer-aided design was introduced in the 1970s.

1970

Computer-aided design (CAD) was introduced at Schaeffler in the 1970s.



1967

Volkswagen began fitting all its new vehicles with diaphragm spring clutches in 1967.



1969

The new INA data processing center represented the state of the art available in 1969.



1971

Schaeffler was one of the first manufacturers in Europe to supply hydraulic valve lash adjusters in high volumes.



Top quality has been a key success factor for Schaeffler from the very beginning. In 1964, INA set up its own quality assurance department to examine even the first samples for customers. Increasingly, the focus was on organizing quality, as demonstrated by the new "Central Office for Quality Assurance" in 1967. Measuring and testing equipment as well as several laboratories directly connected to the respective production departments were designed to ensure the high standards. In 1974, INA received the first official award for its effective quality assurance processes: The Rüsselsheim Opel plant named the company "Supplier of the Year". In 2020, Schaeffler received 72 awards for quality, more than ever before in the company's history.



GERMANY

HERZOGENAURACH

1973

LuK do Brasil Embregens Ltda. in Sorocaba, Brazil, was the first LuK subsidiary to be established outside of Germany in 1973.

In the mid-1970s, INA Bearings (Pty.) Ltd. based in Edenvale/Johannesburg was entered in the commercial register.



PLANT IN SOROCABA



PLANT IN PUEBLA



1975

LuK Puebla was founded in Mexico in 1975.

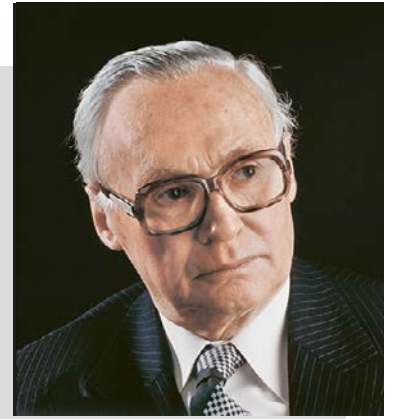


PLANT IN JOHANNESBURG

Digitalization was picking up more and more momentum: During the course of the 1980s, the first computer-controlled manufacturing facilities were put into operation. Schaeffler thus also achieved a decisive advance in quality assurance: From then on, the respective machines monitored quality as early as during the production process.

In conjunction with initiatives for reducing fuel consumption in gasoline engines through reduced engine speed, LuK commenced volume production of the dual mass flywheel in 1985. This innovative system for improving ride comfort also became an essential part of the new direct-injection turbocharged diesel engines that ushered in the diesel boom from 1989.

But in the 1980s Schaeffler also suffered a painful loss: Aged 73, Dr. Wilhelm Schaeffler died on October 22, 1981. It was with great sadness that the entire corporate Schaeffler family mourned the loss of their “doctor”, as Dr. Wilhelm Schaeffler was fondly called by his employees.



1981

Dr. Wilhelm Schaeffler died on October 22, 1981 at the age of 73.

1976

The foundation of LuK AS (Autoteile-Service GmbH) in 1976 in Mörfelden near Frankfurt meant that Schaeffler henceforth offered customer-oriented services and marketing support. Internationalization of the Aftermarket unit began just five years later with a branch office in Brazil.



PLANT IN MÖRFELDEN



PLANT IN WOOSTER



1977

LuK Incorporated is established in Wooster, Ohio, USA.

1982

For his achievements, Dr.-Ing. E.h. Georg Schaeffler received, among other honors, the Grand Cross of Merit of the Federal Republic of Germany and the Bavarian Order of Merit, which was presented to him by Bavarian State Prime Minister Franz Josef Strauß in 1982.



1980s

During the 1980s, the first computer-controlled production machines were put into operation at Schaeffler.



PLANT IN HIRSCHAID

1986

The Hirschaid location was opened in 1986 following the foundation of INA Motorenelemente Schaeffler KG. The same year, Schaeffler acquired stakes in Atlas Fahrzeugtechnik (AFT) based in Werdohl.

A component that ensures improved ride comfort and less fuel consumption: The DMF consists of two masses, one of which is firmly connected to the engine crankshaft and the other to the transmission input shaft. Arc springs connect the two and ensure smooth running of the drive train. With the DMF, LuK paved the way for fuel-saving “downspeeding” approaches that are based on minimizing the number of engine revolutions. The DMF was used for the first time in the BMW 524 eta with gasoline engine. It also became an essential part of the new direct-injection turbocharged diesel engines that ushered in the diesel boom from 1989.



At the end of the 1980s, environmental issues became increasingly the focus of attention. In 1987, the first environmental protection officer was appointed at the Herzogenaurach location, who provided advice to the Executive Board on the environmental impact of corporate decisions. Soon after, such officers were established at other plants as well, initially in Germany and later on at international locations.

The end of the Cold War and the economic rise of Asia opened up new opportunities for expansion. In 1992, the new INA plant in Ansan, Korea, marked a milestone in opening up the growth region of Asia. As early as 1991, a joint venture was established with ZVL Skalica in Slovakia. In 1993, Schaeffler became the sole owner of the company. Furthermore, in the mid-1990s, Schaeffler took the first steps toward establishing its own production facility in Taicang, China.

The research and development center was inaugurated at the Herzogenaurach headquarters in 1990. That same year, LuK celebrated its 25th anniversary.

1992

The new INA plant in Ansan, Korea, in 1992 was a milestone in opening up the growth region of Asia.



PLANT IN ANSAN



1988

Schaeffler built high-bay warehouses at its Homburg, Lahr, and Herzogenaurach locations in 1988.



PLANT IN SPARTANBURG



1987

In 1987, another plant was set up in the USA – INA Bearing Company in Spartanburg.



1990

In the early 1990s, Schaeffler developed the hydraulic camshaft phasing unit. This component allows continuous variation of valve timing, which in turn results in reduced fuel consumption and emissions.

Despite cyclical fluctuations during the 1990s, Schaeffler continued to invest in this period: The research and development center in Herzogenaurach was inaugurated in 1990 – a milestone for Schaeffler. The center opened up new opportunities for product and application development.



GERMANY

HERZOGENAURACH



SLOVAKIA

SKALICA

1993

Following the formation of a joint venture with ZVL Skalica in Slovakia in 1991, the company becomes a wholly-owned subsidiary of Schaeffler in 1993.



PLANT IN SKALICA

1994

Schaeffler brands also contribute to the success of space projects. In 1994, FAG equipped the high-pressure turbo pumps for the rocket propulsion system of the Space Shuttle with innovative bearings.



CHINA

TAICANG



PLANT IN TAICANG

1995

The establishment of INA Bearings China in 1995 is an important step towards local production in the region. Georg F. W. Schaeffler inaugurates the Taicang plant in 1998.

Dr.-Ing. E.h. Georg Schaeffler was at the helm of INA for half a century. When he died in 1996, his wife Maria-Elisabeth and their son Georg F. W. Schaeffler took over responsibility. By then, INA had developed into a global corporation with around 20,000 employees. At the transition to the new millennium, Maria-Elisabeth and Georg F. W. Schaeffler took several steps to broaden the company's base.

Schaeffler expanded strongly in the coming years: In 1999, it acquires the remaining shares in LuK, which had previously been held by Ferodo/Valeo since 1967. Schaeffler thus became the sole owner. This was followed by the acquisition of Schweinfurt-based FAG Kugelfischer Georg Schäfer AG in 2001. New plants were built in Romania and Hungary.

The development of the BEARINX® software in 1997 represented another technological milestone. For the first time, this allowed precise bearing calculations down to the individual rolling element contact to be carried out. In 2002, the opening of the new R&D Competence Center doubled Schaeffler's development capacities in Herzogenaurach.



PLANT IN BÜHL

1999

Schaeffler acquired the remaining 49 percent stake of the LuK Group in 1999 and became its sole owner.



1996

Dr. Georg Schaeffler passed away on August 2, 1996 at the age of 79. Maria-Elisabeth Schaeffler and son Georg F. W. Schaeffler continue his life's work.

1997

Digitalization began to open up new possibilities. A milestone in this regard was the development of the BEARINX® software in 1997. For the first time, this allowed precise bearing calculations down to the individual rolling element contact to be carried out.



1999

Schaeffler has been supplying rotary table bearings since 1977 and its rotary axis bearing offering has included options with internally integrated measuring systems since 1999.



2000

When the Millennium Wheel opened in 2000, it was the world's tallest Ferris wheel. The London Eye has a circumference of 424 meters and an overall weight of 2,100 metric tons. And it's still turning smoothly, thanks to two FAG spherical roller bearings weighing several tons each.

2003

The Schaeffler Group laid the foundations for a new location in Brasov, Romania in 2003.



PLANT IN BRASOV



2004

Two millimeters: That's the shaft diameter of the world's smallest drawn cup needle roller bearing, which went into production in 2004. It was designed for a motor application in electronics manufacturing.

In 2001, Schaeffler took over FAG Kugelfischer Georg Schäfer KGaA headquartered in Schweinfurt. As a result, the Schaeffler Group rose to become the second largest bearing manufacturer worldwide. The origins of FAG go back to the bicycle. At the beginning, manually ground balls were used here as rolling elements.

Friedrich Fischer's invention of the ball grinding machine in 1883 for the first time enabled the high-precision manufacture of these steel balls.

In 1905, the FAG trademark is registered with the Imperial Patent Office. Under the motto "Together we move the world", INA, LuK, and FAG merge to form the Schaeffler Group at the end of 2002.

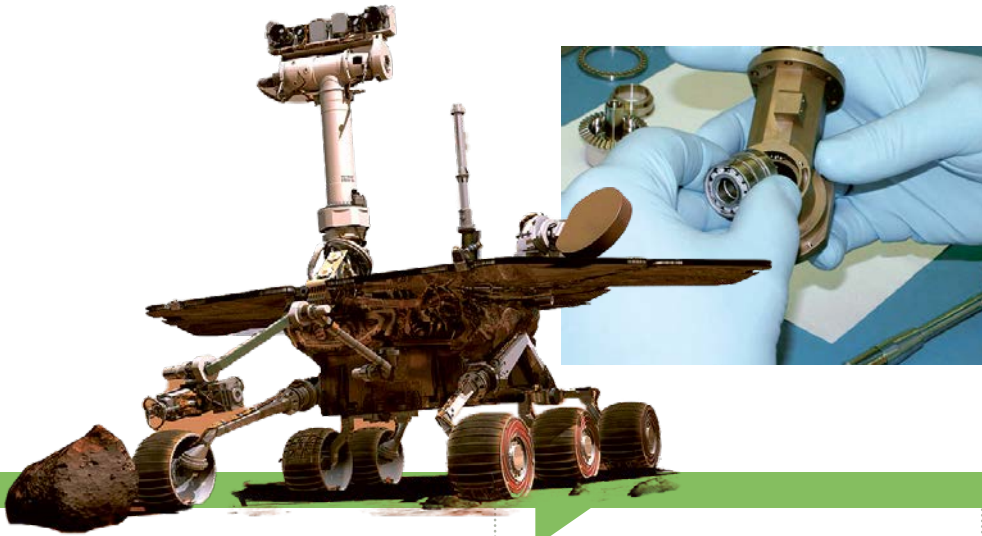


PLANT IN SCHWEINFURT

Turbulent times: In the 2000s, Schaeffler continued its successful expansion course. New plants were built at various locations, including Debrecen, Hungary, and Pune, India. Production also started up in Irapuato, Mexico, and Bien Hoa City in Dong Nai Province, Vietnam – Schaeffler’s first manufacturing location in Southeast Asia. In 2014, Schaeffler opened its first production facility in Russia. The Schaeffler family opens another new chapter in 2009 with its investment in Continental AG. In the ensuing general economic and financial crisis, the acquisition of

this shareholding became an existential challenge. In Herzogenaurach, 8,000 employees took to the streets to demonstrate for their company. The Schaeffler Group’s financial consolidation was the major task of the following years. Today, the Schaeffler family’s holding company owns 46 percent of the shares in Continental AG.

In 2015, Schaeffler AG went public. Nevertheless, the company continues to be a family business, as all voting rights remain with the Schaeffler family.



2008

Schaeffler was part of the 2008 Mars landing program: Precision bearings from “The Barden Corporation” in Danbury, Connecticut (USA), a member of the Schaeffler Group, lend flexibility to the robotic arm of Mars probe “Phoenix”.

2007

In 2007 and 2008, new plants were built in Hungary, India, Mexico, and Vietnam. A production site in Russia followed in 2014.

2009

The fully variable electro-hydraulic valve train system UniAir was launched on the market in 2009. UniAir activates the engine valves precisely according to operational requirements, allowing almost any variation of the valve lift. This results in major reductions in fuel consumption and emissions.

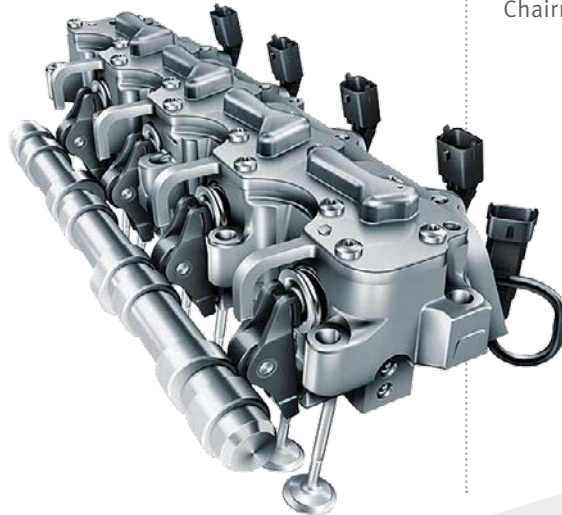


2010

Georg F. W. Schaeffler was elected Chairman of the Supervisory Board.



PLANT IN IRAPUATO





2011

The world's most powerful large bearing test rig was brought into operation in 2011. Located at Schaeffler's Schweinfurt plant, "Astraios" can test large bearings – of the kind built for wind turbines, for example – weighing up to 15 metric tons and with outside diameters of up to 3.5 meters.

2013

The Schaeffler Academy in Herzogenaurach has effected internal further training since 2013. Up to 200 employees can attend courses here every day.



2014

Formula E: The world's first fully electric racing series got underway with the 2014/2015 season. Schaeffler driver Lucas di Grassi won the inaugural race, driving for the Audi Sport ABT Schaeffler team formed in partnership with Audi. After seven seasons, Audi Sport ABT Schaeffler is the most successful team in Formula E history, notching up one team title, one driver title, and 46 podium finishes.



2010

The "Schaeffler Hybrid" made its debut in 2010. In addition to a standard internal combustion engine, the vehicle features a centrally located electric motor and two wheel hub motors.



2015

A new chapter in the company's history: Following the formation of Schaeffler AG in 2011, the company successfully went public in 2015 under the motto "We share our success". The first Annual General Meeting in the company's history was held in Nuremberg in April 2016.





2018

At the beginning of 2018, Schaeffler established its new E-Mobility business division. The company expects to receive orders worth 2-3 billion euros each year, starting in 2022.

2018

In 2018, the Automotive Aftermarket was established as the third Schaeffler division alongside the Automotive Technologies and Industrial divisions.



2020

The new training center in Schweinfurt was opened in 2020. The focus there is on topics including Digitalization and Industry 4.0.



2018

In 2018, Schaeffler launched the “Schaeffler Award” to promote and value employee performance. The four main categories – Sustainability, Innovation, Excellence, and Passion – reflect the company’s values.



2020

In 2020, Schaeffler brought its IoT solution OPTIME onto the market, opening the way for comprehensive, round-the-clock condition monitoring. This solution makes condition monitoring of machines in production processes efficient and affordable.



2020 – Roadmap 2025

With the Roadmap 2025 announced in 2020, the global automotive and industrial supplier is consistently aligning itself with the transformation in industries. Sustainability and digitalization determine the course. The ambition is to continue shaping progress that moves the world as a diversified automotive and industrial supplier. This is also expressed in the family-owned company's new claim "We pioneer motion". Success will continue to be based on the four tried-and-tested USPs of innovation, manufacturing excellence, top quality, and a profound understanding of systems.



Climate targets

The Schaeffler Group will be operating as a climate-neutral company from 2040. In-house production will already be climate neutral by 2030.

2021

Schaeffler's MultiMode transmission for full and plug-in hybrids, launched in 2021, offers high efficiency, performance, and comfort.



2020

Schaeffler decided to invest around 80 million euros in a new central laboratory complex in Herzogenaurach. Completion is planned for 2023. The cross-divisional central laboratory will provide space for 15 laboratories and more than 360 employees on a total gross area of approximately 15,000 square meters.



**SUSTAINABLE
INNOVATIVE
EXCELLENT
PASSIONATE**

"We pioneer motion"



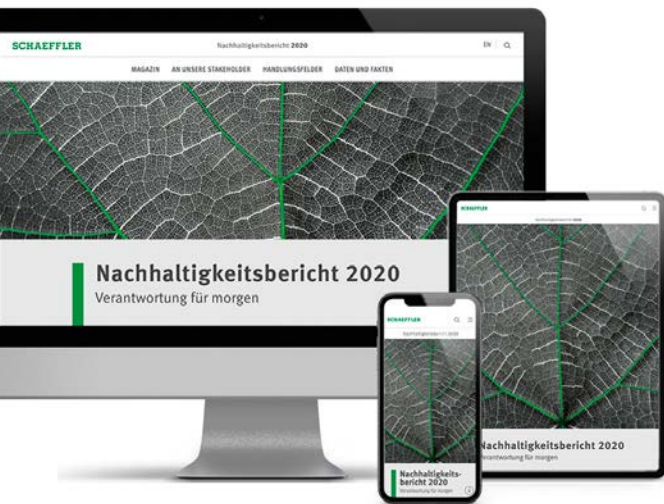
TOP 10

60,000 honeybees in Hirschaid, the Urban Zero Night in Glasgow, an award for our sustainability report, and participation in the H2Giga project: Ten good news items from the Schaeffler world are summarized for you on the following pages.



1 Sustainability report wins gold

The Schaeffler Group has won **gold** in the “**CSR & Annual Report**” category of the **Digital Communications Award (DCA) 2021** for its **online sustainability report** and associated social media communication. The DCA is presented for outstanding online projects and online campaigns worldwide. It is one of the most significant awards in the field of communications and marketing. The winner was chosen by a jury comprising experienced digital managers from the fields of business and academics, the non-profit sector, finance, and other sectors. There was a total of 400 international applications submitted for the DCA 2021.



2 Whistleblowing system now open for customers and partners

Schaeffler's whistleblowing system provides employees and more recently suppliers, customers, and partners with a secure and anonymous way of reporting compliance infringements or violations of human rights. In general, every violation of the Schaeffler Group's Code of Conduct can be reported. These violations include fraud, breaches of trust, corruption, serious cases of theft, embezzlement, accounting fraud, violations of antitrust and competition legislation, and unauthorized disclosure of business secrets and company secrets. Reports can be made in any language. Anonymous reports are also possible.



3



“We know that we need to rely on young people with commitment, open-mindedness, team spirit, and creativity in order to continue along our successful path as a technology company in the future.”

Corinna Schittenhelm
Chief Human Resources Officer



4 New winding process, lighter electric drives

With Schaeffler’s **wave winding technology** for electric motors, electric drives can be produced more easily, with significantly reduced material consumption and lower costs. With the process-safe implementation of wave winding technology, Schaeffler has established a process that significantly optimizes the electric motor. It uses flat wire that maximally fills the available space with copper. While the hairpin process requires each of the hundreds of copper wire ends to be welded to their respective counterparts on one side of the stator, the wave winding technology from **Schaeffler Elmotec Statomat** does not require any spot welds – a continuous copper wire is pressed into the grooves.

5 The Schaeffler OneCode: One code, one scan, all info



From now on, automotive garages across Europe can obtain valuable additional information and services at a glance via the “**Schaeffler OneCode**” found on the labels used on **Automotive Aftermarket** product packaging. By scanning the code with a QR code scannable device, such as a smartphone, the user is taken directly to the product page in the catalog, where they can find comprehensive product information, repair instructions, and can also perform an authenticity check. Thanks to a unique serial number, the Schaeffler OneCode also enables the precise tracking of products, which offers significant added value for quality management in particular.

Schaeffler and Deutsche Bank jointly organized the “Urban Zero Night: Enabling green mobility – Perspectives for Cities” as part of the 26th UN Climate Change Conference in Glasgow, Scotland. The focus was on mobility concepts in modern, urban areas and their potential for climate protection.



Urban Zero Night: Green mobility in urban areas

According to the United Nations Environment Program, global emissions must be reduced by 7.6 percent during the next decade in order to meet the Paris Climate Agreement’s target of limiting the maximum global temperature increase to 1.5 °C. Cities are facing a very special challenge when it comes to climate protection. Whether it is increasing settlement density or the growing industrial sector: Many factors lead to increased CO₂-emissions in large cities – including the increased volume of traffic. Urban mobility concepts must address precisely this point. But how can green mobility be implemented in urban

areas? This question was the focus of the **“Urban Zero Night: Enabling green mobility – Perspectives for Cities”**. The hybrid event took place as part of the **26th UN Climate Change Conference** in Glasgow. As hosts, Schaeffler and Deutsche Bank addressed their sustainability ambitions, new product solutions, and their collaborative partnership. “Sustainability is not something that one country, one industry, or one company can achieve on its own. It will take a concerted effort to succeed,” said Klaus Rosenfeld, CEO of Schaeffler AG. Read more about this topic on pages 40 and 41.



7 Three million

The **three millionth electromechanical camshaft phaser (ECP)** rolled off the production line in **Hirschaid**. The ECP makes internal combustion engines fit for EU7 and is ideally suited for use in modern hybrid drives. While around 700,000 units have been manufactured per year most recently, Schaeffler expects the production volume to increase to around three million units annually by 2025, not least due to the importance of the product for hybrid drives. In order to meet this demand, additional flexible assembly lines are to be commissioned at the Hirschaid location.

8 Hydrogen project H2Giga

Over 130 companies and research institutions are involved in **H2Giga**, a hydrogen project that has received around 500 million euros of funding from **Germany's Federal Ministry of Education and Research (BMBF)**. The objective of the project is to develop systems and methods for the industrial production of electrolyzer systems and components needed to make green hydrogen widely available and cost effective. Schaeffler is acting as the consortium lead for one of the sub-projects, "Stack Scale up – Industrializing PEM Electrolysis". Comprising nine partners from industry and research, the sub-project aims to fast-track the development of stack technologies and large-series production processes for low-temperature electrolysis core components.



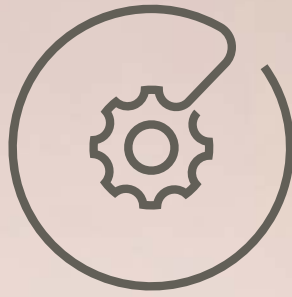
9 Buzz, buzz, buzz ...

Around **60,000 honeybees** found a new home at the **Hirschaid** site in late October. Three beehives were set up on the edge of the plant premises on a newly created and sown flowering meadow. The near-natural areas do not require extensive care or mowing and no additional irrigation. In this way, the location is committed to environmental protection and biodiversity and is also contributing to Schaeffler's sustainability goal of reducing fresh water consumption by 20 percent by the year 2030.



10 SPS Review launched

The **Schaeffler Production System Review (SPS Review)** has been implemented plant-wide since July, and initial certifications have already taken place. The SPS maturity model is divided into four levels (Fundamentals, Bronze, Silver, Gold), which indicate the progress made with regard to SPS implementation. The criteria are based, among other things, on the SPS Guideline with the three SPS principles Optimal Technology, Engaged Teams, and Lean Processes. The Herzogenaurach, Irapuato, and Hirschaid plants were the first to achieve the bronze level.



Internal

An inside look: Find out how the Schaeffler Group expects to become a climate-neutral company by 2040 and what the Center of Leadership Excellence is all about. Furthermore, we introduce the winners who came up with the “3 best ideas” and present the smart OPTIME C1 relubrication system.



By bundling its Automotive bearing business in a new Bearing business division, the Automotive Technologies division places a clear focus on customers and a better use of synergies.

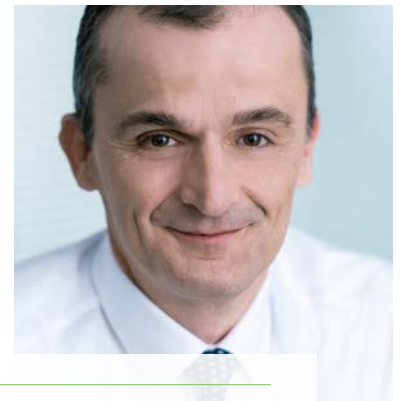
Next step towards “One Automotive”

New climate targets, the electrification of powertrains, and the long-term decline in demand for internal combustion engine products are driving the transformation of the automotive industry. At the same time, developments such as autonomous driving and new mobility solutions are creating new market potential.

To successfully meet these challenges, an agile organization model is needed that can optimally respond to changing customer requirements. The Automotive Technologies division will therefore adopt a new structure effective January 1, 2022.

The successful bearing business, which is and will remain a significant mainstay for Schaeffler, will be bundled in a new **Bearing business division** under the management of Dr. Dieter Eireiner. Furthermore, the Engine Systems and Transmission Systems business divisions will be merged to form a singular **Engine & Transmission Systems business division** under the management of Rainer Schübel, in order to make even better use of synergies.

A BEV Thermal Management project house will be established in the **E-Mobility business division** to strengthen Schaeffler’s market position in the field of hybrid and fully electric vehicles. The newly formed **Chassis Systems business division** will comprise the company’s Mechatronic Systems business unit and the strategic Advanced Steering and Smart Mobility business units that will define and develop future solutions and products for new mobility concepts. And finally, R&D Automotive Technologies will be integrated into the respective business divisions.



“We are on the right track. Whether it’s a single component or a complete system, Schaeffler is and will remain the technology partner of choice for its customers worldwide.”

Matthias Zink
CEO Automotive Technologies

“Through the implementation of our new organizational structure, we are continuing to prepare Schaeffler Automotive Technologies for the future as ‘One Automotive’ by strengthening our existing business as well as acquiring new business,” says Matthias Zink, CEO Automotive Technologies at Schaeffler AG. (ts)

Schaeffler publishes third-quarter results

Schaeffler presented its interim statement for the first nine months of 2021 in November. The Schaeffler Group's revenue for the reporting period amounted to 10,346 million euros (prior year: 8,964 million euros). The 15.9 percent increase at constant-currency is primarily due to the considerable recovery during the first half of the year.



“The results for the third quarter show how essential it is for us to be both an automotive and an industrial supplier.”

Klaus Rosenfeld
Chief Executive Officer of Schaeffler AG

“After a strong first half of the year, the Schaeffler Group was unable to avoid the sharp decline in growth in global automobile production in the third quarter. The Automotive Technologies division nevertheless achieved a solid outperformance for the first nine months of 2021 and grew faster than the market. The strong operating profit of the Industrial division and the positive contribution of the Automotive Aftermarket division are particularly encouraging. The results for the third quarter show how essential it is for us to be both an automotive and an industrial supplier,” said Klaus Rosenfeld, CEO of Schaeffler AG.

The Schaeffler Group's revenue for the third quarter of 2021 decreased by 3.0 percent at constant currency as a result of a significant decline in customers' call-offs setting in the Automotive Technologies division during this period. Rising commodities prices in the procurement markets, whose impact had still remained limited in the first six months of 2021, increasingly hampered earnings in the third quarter of 2021, particularly those of the Automotive Technologies and Industrial divisions.

“The Schaeffler Group has proven its resilience in a challenging market environment in the third quarter of 2021. We will maintain our strict discipline with respect to capital and costs and review additional measures in order to address the challenges persistently growing in the fourth quarter, primarily those relating to materials prices,” said Claus Bauer, Chief Financial Officer of Schaeffler AG, responsible for Finance & IT.

Market-driven decline in Automotive Technologies revenue in Q3

The Automotive Technologies division generated 6,286 million euros in revenue for the first nine months (prior year: 5,425 million euros). At constant currency, revenue increased by 16.1 percent from the prior year driven by volumes, mainly due to the low basis for comparison in the first half of the year. In the third quarter, growing bottlenecks in global supply chains, particularly those for semiconductors, significantly reduced customers’ call-offs and decreased revenue by a considerable 12.2 percent at constant currency. The Automotive Technologies division outperformed global automobile production by 6.6 percentage points during the first nine months.

The division reported 467 million euros (prior year: -16 million euros) in EBIT before special items for the first nine months. The EBIT margin before special items for the same period was 7.4 percent, considerably ahead of the -0.3 percent reported in the prior year.

Automotive Aftermarket with double-digit revenue growth

The Automotive Aftermarket division reported 1,411 million euros (prior year: 1,204 million euros) in revenue for the reporting period, representing



“The Schaeffler Group has proven its resilience in a challenging market environment in the third quarter of 2021.”

Claus Bauer
CFO of Schaeffler AG,
responsible for Finance & IT

constant-currency revenue growth of 18.3 percent. Revenue rose considerably in all regions.

These developments resulted in EBIT before special items of 206 million euros (prior year: 190 million euros). This represents an EBIT margin before special items of 14.6 percent (prior year: 15.8 percent). The decline from the prior year was primarily due to higher product expenses.

Industrial increases revenue and EBIT margin

The Industrial division reported 2,649 million euros (prior year: 2,335 million euros) in revenue for the first nine months, representing constant-currency revenue growth of 14.2 percent.

During this period, the Industrial division generated 321 million euros (prior year: 202 million euros) in EBIT before special items, representing an EBIT margin before special items of 12.1 percent (prior year: 8.6 percent). The higher EBIT margin before special items compared to the prior year period was largely driven by economies of scale. The cost reduction measures expanded in the prior year proved effective as well.

Strong growth in free cash flow

Free cash flow rose despite an increase in working capital as a result of business growth. Free cash flow before cash in- and outflows for M&A activities for the first nine months was 468 million euros, considerably exceeding the prior year level (185 million euros).

Full-year guidance confirmed for EBIT margin before special items and free cash flow

The Schaeffler Group still expects to generate an EBIT margin before special items of 8 to 9.5 percent in 2021. The company also anticipates free cash flow before cash in- and outflows for M&A activities for 2021 of more than 400 million euros.

The Schaeffler Group’s revenue is now expected to grow by more than 7 percent at constant currency in 2021, following growth of more than 11 percent expected in the outlook issued on July 26, 2021. This decrease is due to a significant decline in the market volume of global production of passenger cars and light commercial vehicles. The October 2021 base scenario by IHS Markit currently reflects expected full-year growth of 0.3 percent in 2021. The guidance for Automotive Technologies outperformance remains unchanged at 2 to 5 percentage points. Market estimates for the Automotive Aftermarket division are largely unchanged. The revenue guidance for the Industrial division was raised from 9 to 11 percent in revenue growth to 11 to 13 percent. (mh)

GPF 2021: Shaping the transformation together

The 55th Global Production Forum was held under the theme “Adapting the Schaeffler value chain to changing customer requirements.” Approximately 450 participants from all around the world joined the hybrid event to discuss SPS, new production technologies, purchasing, supply chain management, and quality.



Georg F. W. Schaeffler, family shareholder and Chairman of the Supervisory Board, welcomed participants at the 55th Global Production Forum held on November 10.

About 450 participants from around the Schaeffler world joined this year's 55th Global Production Forum (GPF) to discuss SPS, new production technologies, purchasing, supply chain management, and quality. Video links via four studios specially set up at Schaeffler locations around the world allowed direct discussion and debate between employees in the regions and the presenters in Herzogenaurach. Georg F. W. Schaeffler, family shareholder and Chairman of the Supervisory Board, physically attended on both days of the forum, along with the members of the Executive Board. The GPF concept was initiated by Dr.-Ing. E. h. Georg Schaeffler and is the longest-standing in-house fixture on the company calendar.

A new format was introduced at this year's event to allow more precisely focused discussion and definition of key production issues at Schaeffler, as Chief Operating Officer Andreas Schick explains: “This year's GPF was deliberately focused on Schaeffler's three divisions and their business objectives, new products, and challenges. These were addressed in clusters: SPS, (Advanced) Production Technology and Digitalization, Tools & Machines, Purchasing and Supply Chain, and Quality. There is no doubt that shaping the transformation will have to be a joint effort, defined by our corporate values of sustainability, innovation, excellence, and passion. I want to thank all participants for making the event such a success.”



In his prerecorded address, CEO Klaus Rosenfeld emphasized the importance of leadership by plant managers in difficult times.

Focus on people, technology, and customers

In his welcome address, Georg F.W. Schaeffler, family shareholder and Chairman of the Supervisory Board, emphasized that the current upsurge in COVID case numbers and increasingly strict safety measures posed special challenges for a company such as Schaeffler: “Our production plants are the backbone of our company. So on my own and my mother’s behalf, I want to thank all of you in the production plants and operational areas for your hard work, discipline, and engagement in this time of crisis. Excellence in production and manufacturing technology have been a hallmark of our business since the establishment of the Schaeffler Group 75 years ago. Our task, with a focus on people, technology, and customers, is to continue to concentrate on all these areas.”

Sustainability, digitalization, and succession planning as priorities

Key points in the address by CEO Klaus Rosenfeld included the following: “Our plant managers are our most important leadership figures: Without you, we would not have a successful company. And challenging times such as the present require leadership.” The three leadership principles at Schaeffler – transparency, trust, and teamwork – were therefore more important than ever, he said. He also highlighted the importance of sustainability, digitalization, and succession planning as elements of a successful transformation. Sustainability was about decarbonization, he said – with the new Schaeffler objective being climate neutral by 2040 – along with many other important issues, such as freshwater supply, green steel sourcing, and above all, keeping employees safe. On the topic of digitalization, Klaus Rosenfeld made the following points: “Digital technologies such as digital twinning are already part of the product development

phase. And many of our factories are highly automated and connected – but that is just the beginning. Future advances in Industry 4.0, such as the more intensive use of artificial intelligence, the Internet of Things, and digital simulations of all production steps, are clearly going to require the development of new competencies and skills.”

Responding flexibly to a changing market

On the first day of the event, Matthias Zink, CEO Automotive Technologies, and Dr. Stefan Spindler, CEO Industrial, presented an overview of current trends in the Automotive Technologies and Industrial divisions. “The divisions and plants will need to collaborate closely,” Matthias Zink said, because only by standing shoulder to shoulder would it be possible to successfully negotiate what was likely to be another challenging year for the automotive business in 2022. Dr. Stefan Spindler told participants that “market cycles and fluctuating revenues will persist into the future, so adaptability and flexibility are going to be key success factors.” On the second day of the forum, a video-streamed address by Jens Schüler, the incoming new CEO of the Automotive Aftermarket division effective January 1, 2022, included the following important point: “In the years up to 2030, the task for our division will be on the one hand to develop the product and service portfolio needed for the transition to E-mobility, and on the other to keep servicing the IC engine-based segment, which will continue to dominate the market.”

Continued on page 36



The 55th Global Production Forum was held as a hybrid event (physical and digital). Andreas Schick, Chief Operating Officer: “There is no doubt that shaping the transformation will have to be a joint effort.”

Continued from page 35

Digital and “real” marketplaces

Technical presentations at the GPF provided insights into topics such as new technologies for new automotive mobility, transformation in tool technology, purchasing strategy, and process optimization. Examples of best practice from Schaeffler production operations around the world were also presented. The Schaeffler Conference App enabled all participants, whether gathered with colleagues at a Schaeffler location or working from home or at the office, to feel part of the audience at the presentations, to put questions directly to the speakers, and take part in ballots.

A key feature at every GPF is the popular “marketplace” showcase. In 2021, this had been provided for the first time in digital-only format, but this year’s event offered a hybrid format, with market stands at the various event locations plus a video presentation on the digital conference platform. There was a total of 25 stands covering a range of Schaeffler topics and technology advances.

Awards for outstanding achievements

A highlight of every Global Production Forum is the prizegiving ceremony for the GPF Awards. Nine prizes were awarded this year, in the categories of “Quality,”



In his presentation, Matthias Zink, CEO Automotive Technologies, noted that customer satisfaction and quality remained top priorities.

“SPS,” and “Best Improving Plants,” from a total of almost 200 submissions from around the world, almost double the number received in the previous year. Digital ballots of participants were held to select the prizewinners for “SPS – Best Engaged Team Solution” and “Best Quality Solution.” And at the end of the ceremony, Chief Operating Officer Andreas Schick presented special honorary awards to Walter Süß and Dr. Peter Bach for their outstanding contributions to the GPF over the decades in terms of content, ideas, and direction. (ts)

In a video-streamed presentation, Jens Schüler, CEO Automotive Aftermarket designate, outlined the ways in which growing E-mobility from 2030 would affect the division’s business.



Dr. Stefan Spindler, CEO Industrial, highlighted the importance of adaptability and flexibility as success factors in an environment of ongoing market cycles and fluctuating revenues.





The 55th GPF was held as a hybrid event: The presentations were viewed live by the audience in Herzogenaurach and streamed to other participants all around the world.



The winners

Quality

- Best Quality Performance: Nanjing 1 & Brasov 2
- Best Quality Improvement: Taicang 1, Segment Roller Finger Followers
- Best Quality Solution (Voting): World-wide unique automatic material quality firewall for large size bearing rings up to 4.2m & 5 tons; Quality Technology Corporate Metrology, Quality Technology Industrial, Plant Nanjing and Plant Brasov

SPS

- SPS – Best Optimal Technology solution: Homburg IWH
- SPS – Best Lean Process solution: Taicang 3
- SPS – Best Engaged Team Solution (Voting): Hosur, Engaged Teams – Holistic setup time and cost improvement journey

Best Improving Plant

- Best Performance Improvement: Savli
- Best Delivery Reliability Improvement: Campus Brasov
- Best LITR Improvement: Szombathely



Around 70 percent of participants gathered to join the GPF from four studios specially set up at the Herzogenaurach, Taicang, Singapore, and Fort Mill locations – seen here is the team from Taicang.



This year's marketplaces were staged physically at locations in three regions, and were also digitally accessible by video in the conference app.

Awards

Europe's most coveted automotive award, Germany's best trainers, and superb quality: The editorial team has compiled a small selection of awards that Schaeffler received in recent months.



Golden Steering Wheel award for electric axle

Precious metal for Schaeffler: The 2-in-1 electric axle system has received the **Golden Steering Wheel** ("Goldenes Lenkrad") award. Offered by German car magazine "AUTO BILD" and national newspaper "BILD am SONNTAG," the award is one of Europe's most coveted auto industry prizes. Schaeffler's integrated axle system went up against a quality lineup of competitors to secure a majority of readers' votes and the final jury decision and come out on top in the **Innovation of the Year** category. "We are very proud to have received this important accolade", said Matthias Zink, CEO Automotive Technologies of Schaeffler. "We have been recognized once again for our pioneering spirit and successful commitment to e-mobility. Our innovative solutions make us a key partner in the transformation to an electrified, more sustainable future."



The winners of the Golden Steering Wheel award pictured with moderator Barbara Schöneberger. Matthias Zink, CEO Automotive Technologies Schaeffler AG (4th from left), accepted the award for the 2-in-1 electric axle.

The Schaeffler 2-in-1 axle is an integrated system comprising a reduction gear and electric motor in a single compact unit. Its stand-out features include extremely high power

density and exceptional acoustic performance. Thanks to its modular design, the system can accommodate a wide range of customer requirements and is suitable for a number of vehicle platforms, whether hybrid or fully electric.



"Best trainers" in Germany: Schaeffler's instructors belong to this group and guarantee excellent training for future specialists.



Schaeffler is one of Germany's best training companies

The German business magazine **Capital** has awarded "**Germany's best trainers**" for the fifth time. Schaeffler received **5 out of 5 stars in the area of training and 4 out of 5 stars in the area of dual studies**. For the past year and a half, training has been taking place under difficult conditions: The pandemic has forced companies, vocational schools, and universities to rethink their techniques. Training in a home office environment was previously considered unthinkable and has demanded a lot from trainers and trainees alike: new concepts for theory and practice, digital teaching and learning methods, social exchange at a distance. This not only forms the foundation for the implementation of digital and hybrid teaching and learning methods, but also ensures the attractiveness and quality of the training.



Pleased to receive the Magna award (from left): Michael Fürbaß, KAM Magna, Stefan Werner, PM BD Transmission Systems, Sebastien Miquel, Global KAM Magna, Dr. Franz Völkel, R&D BD Transmission Systems, and Claus Guckenberger, PD Ball Bearings



Magna Supplier Innovation Award for Schaeffler

Schaeffler received the “**Magna Supplier Innovation Award**” from **Magna** in the category “Hybridization of Transmission HDT & DHT”. Schaeffler won the 1st prize for its innovative High Efficiency ball bearing. The bearing impressed in many ways: Its patented flinger disc reduces friction by up to 80 percent and reliably protects the bearing from contamination while increasing the operating life by up to ten times and reducing costs by five percent. “We are very happy to receive this award. The High Efficiency ball bearing is a low-cost and smart solution when it comes to saving CO₂ and increasing the range of e-vehicles,” says Stefan Werner, PM BD Transmission Systems.



Awards for Schaeffler in China

As the second largest market in the world, China is clearly one of the most important markets for Schaeffler. Since entering the market in 1995, Schaeffler has experienced strong growth through investments in production and R&D. In addition to awards for excellent product quality, the company has also received governmental honors recognizing its long-term commitment to development in China.



The **Suzhou city** government honored Schaeffler with the “**2020 Investment Contribution Award – Outstanding Contribution Award for High Output and Efficiency**” in late September. Francesco Ingarsia, CFO of Schaeffler Greater China, received the “**Friend of Suzhou – Honor**” award. The **Shanghai Foreign Investment Association** published a list of the 100 largest foreign-funded enterprises in the city of Shanghai in 2020. Schaeffler is one of these companies to receive an award accordingly.



At the **Gasgoo Jinji Awards 2021** ceremony, Dr. Yilin Zhang, CEO Schaeffler Greater China, was honored as “**Most Influential Figure in China’s Automotive Industry**” in October. The awards were given by Gagoo.com – a leading automotive trade publication in China – to recognize suppliers and industry leaders for their contribution to the development of the Chinese automotive industry.



Award-winning quality



The Schaeffler plant in Cheraw manufactures coated bucket tappets for the **Nissan Group of North America** – these being of excellent quality. Schaeffler was honored for this with the “**2021 Nissan Regional Supplier Quality Award**” in the “Components” category.



Yamada North America presented Schaeffler’s Cheraw plant with the “**Yamada Excellence in Quality Award**”. Schaeffler has supplied Yamada with axial and angular contact ball bearings for more than 17 years – of particularly superb quality last year. Schaeffler products are fitted in steering columns, which in turn are installed in various Honda models.



Ford Motor Company recognized the Schaeffler plants in Cheraw (USA), Stratford (Canada), and Szombathely (Hungary) for their outstanding quality performance in 2020. The plants now belong to the “**ChEP 100 Best Managed Companies**” and supply Ford with a wide range of products, including roller type finger followers, tensioners, dual mass flywheels, clutch discs, clutch release systems, and planetary gearboxes.

From Attitude to Action

A recent study shows how Germany's CEOs are gearing their companies up for sustainability. Schaeffler CEO Klaus Rosenfeld also participated along with numerous other top executives in German industry.



A recent study revealed that companies are starting to approach sustainability from a strategic perspective to create value for society as well as tap into new opportunities.

The current study titled “From Attitude to Action” examines the mindset of numerous top executives in German industry when it comes to sustainability, actions they have taken in their companies to date as well as their personal attitudes toward the ongoing transformation of the economy. Schaeffler CEO Klaus Rosenfeld also participated. The study was prepared by Futurist, an institute for sustainable transformation, the Potsdam Institute for Climate Impact Research (PIK), a leading global research institute for sustainability, and Bain & Company, an international management consultancy.

Added value for society

The study revealed that companies are starting to approach sustainability from a strategic perspective to create value for society as well as tap into new opportunities. “As 2021 draws to a close, there is no longer any reason to doubt or hesitate,” affirms Professor Dr. Johan Rockström, Director of the Potsdam Institute for Climate Impact Research and Professor of Earth System Research at the University of Potsdam.

“The frequency of extreme weather events, the 6th Assessment Report of the Intergovernmental Panel on Climate Change (IPCC) and the ongoing massive threat to nature and biodiversity make it unequivocally clear that only a climate-neutral society can foster prosperity in this world.”

The priorities at German companies are clear: For nine out of ten top executives, the issues surrounding sustainability will be at least as important as digitalization over the next five years. And almost every other CEO thinks it will become even more important in the future. “Sustainability must succeed. If you want to pursue sustainability, it needs to be tackled with all seriousness,” states Schaeffler CEO Klaus Rosenfeld as he emphasizes the dimension of the upcoming change. Siemens CEO Judith Wiese explains: “At Siemens, we feel sustainability will be one of the key growth drivers of the future. Political, social and economic incentives for reducing emissions and the associated modernization and upgrading of existing infrastructures are already creating new markets and customers willing to invest in the future.”

Climate neutrality as the guiding principle

The all-important goal at present is climate neutrality. On average, the companies included in this analysis still need 14 years to at least reduce their own CO₂ emissions to net zero. At Schaeffler, company production will be climate neutral by 2030, and the supply chain will follow in 2040. To achieve this target, focus is being placed almost exclusively on targeted reduction measures, whereas unavoidable emissions will be offset via compensation measures.

For Klaus Rosenfeld, the goal of climate neutrality is the guiding principle the sustainability commitment is aligned with and that the company wants to approach incrementally. Key milestones at Schaeffler, for example, are the switch to green electricity by 2024 and better energy efficiency with annual savings on the order of 100 GWh by 2024 at the 75 plants worldwide. “The Paris Agreement was an important milestone for me personally,” the Schaeffler CEO affirmed. “It changed my perspective on things. As a result, sustainability has also gained momentum at Schaeffler.”

Leading by example, not just delegating

The CEOs are not yet fully satisfied with the progress made so far in realigning their companies. On a scale of 1 to 10 (from completely dissatisfied to very satisfied), they rate their company's overall attitude toward sustainability at an average of 7.1. When it comes to actions, however, the average score thus far is only 5.6. Only with a clear attitude and targeted actions can companies gear up for sustainability. To this end, executives themselves are challenged by setting an example of sustainability and inspiring passion for it within the organization. “The issue cannot simply be delegated. Goals and targeted measures must be practiced from the top down,” states Klaus Rosenfeld.

The transformation toward greater sustainability also requires special understanding of the roles of managers to motivate, convince, trust as well as listen. “A transformation will only succeed if you can listen,” explains Schaeffler CEO Klaus Rosenfeld. “I view my role as something of a conductor, and not the one who simply explains how things are done and then scatters off. You have to be able to take people with you.” This applies to his own management team, the entire workforce and other stakeholders.

Change as an opportunity

Companies have a key role to play in the essential transformation toward stability in light of the many opportunities available at their disposal. “In the end, answering the question of how we can achieve



“Sustainability must succeed. If you want to pursue sustainability, it needs to be tackled with all seriousness.”

Klaus Rosenfeld
CEO of Schaeffler AG

climate neutrality lands not only on the desks of politicians and NGOs, but also in our engineers' laps,” affirms Daimler CEO Ola Källenius. “Ultimately, it's all about engineering. It can be solved. And we will solve it.”

In this positive transformation, change is seen as an opportunity, not a threat. “Companies are driving technological innovations such as scaling and cost reduction of sustainable products as well as new business models,” explains Dr. Holger Hoff, Senior Scientist at the Wegener Center for Climate and Global Change at the University of Graz and Visiting Scientist at the Potsdam Institute for Climate Impact Research. “They can also set and push new sustainability trends as well as actively influence consumer behavior.” (jp)

SAID ...

**“WE WILL
REDUCE THE
EMISSIONS FROM
INTERMEDIATES AND
RAW MATERIALS
OCCURRING IN THE
SUPPLY CHAIN BY 25
PERCENT BY 2030.”**

Andreas Schick

Chief Operating Officer of Schaeffler AG, in charge of
production, supply chain management and purchasing



AND DONE!



Schaeffler has signed an off-take purchase agreement with the Swedish start-up H2greensteel. From 2025 on, the company will source an annual 100,000 tons of green steel, which is produced virtually CO₂-free.

Schaeffler has entered into an agreement with Swedish start-up company H2greensteel to purchase 100,000 tons of the virtually CO₂-free steel, which is produced using hydrogen, on an annual basis effective 2025. This makes Schaeffler the first tier 1 supplier worldwide to become a customer of the innovative start-up company. The agreement is of long-term duration and includes the supply of strip steel. The Swedish-produced steel uses non-fossil fuels and reduces Schaeffler's annual CO₂ emissions c. p. by up to 200,000 tons. The agreement is a first major step in making Schaeffler's supply chain carbon-neutral by 2040. "Steel purchasing is strategically important to Schaeffler," states Andreas Schick, Chief Operating Officer at Schaeffler AG. "We process a significant amount of steel and view this as a crucial driver in supporting the decarbonization. Already, Schaeffler is increasingly relying on low CO₂ steel production processes among its suppliers. An essential element is also the use of the circular economy, which we want to implement consistently."

200,000

ton reduction in CO₂ emissions annually will result from Schaeffler's decision to use green steel.

H2greensteel (H2GS) was founded in 2020 and aims to produce five million tons of virtually CO₂-neutral steel annually in Sweden by 2030. The production of steel without carbon dioxide is energy-intensive and must be done using sustainable sources. Northern Sweden offers excellent conditions for this. The production of steel without carbon dioxide is carried out by H2GS through the use of the direct reduction method, in which hydrogen produced from renewable energies is used instead of coking coal, thus enabling a 95 percent reduction in the CO₂ emissions produced with previous methods. (dp)

Schaeffler Group to be climate neutral by 2040

Schaeffler is accelerating the pace of the Sustainability Roadmap. The company's in-house production will become – as already known – climate neutral by 2030, and the supply chain will do so by 2040. To achieve these targets, Schaeffler will focus on tangible reduction measures, and only unavoidable emissions will be neutralized by means of carbon offsetting. Initial objectives have already been achieved.

The Schaeffler Group will be operating as a climate-neutral company from 2040. This objective covers the entire supply chain and is underpinned by ambitious mid-term sustainability targets. The Schaeffler Group is therefore accelerating the pace of the Sustainability Roadmap it adopted in 2019.

Measures for a climate neutral company

The company's own production facilities (Scope 1 and 2) will already be climate neutral from 2030, and by 2025 it aims to prevent as much as three-quarters of its production emissions. The emissions from intermediates and raw materials occurring in the supply chain (Scope 3 upstream) will be reduced by 25 percent by 2030. The Schaeffler Group aims to achieve climate neutrality in this area as well by 2040. The base year for all calculations is 2019. To achieve these targets, the company will focus on tangible reduction measures, and only unavoidable emissions will be neutralized by means of carbon offsetting.

Klaus Rosenfeld, CEO of Schaeffler AG, says: "Sustainability plays a key role in implementing our corporate strategy. The decarbonization of the Schaeffler Group by 2040 is a top priority for us. Through our defined targets and specific measures, we are doing our part to help achieve the objectives of the Paris Climate Agreement. In doing so we are strengthening our position as a preferred technology partner and supplier of sustainable solutions and products, for example in the electric mobility and renewable energy segments."

Partnerships with sub-suppliers and customers

With its new climate targets, the Schaeffler Group is also intensifying its relationships with sub-suppliers in the area of climate neutrality. Involving sub-suppliers will mean that in the future, Schaeffler will obtain raw materials and intermediates that have been produced using more climate-friendly processes. This is a major challenge in energy-intensive segments



The Schaeffler Group will be operating as a climate-neutral company from 2040.

like steel and aluminum in particular. To this end, various aspects like the availability of green steel and other sustainably produced raw materials, and the optimization of the circular economy, are being developed and promoted within the context of partnerships.

The transformation in the markets that represent mobility and motion is fundamentally important for Schaeffler as a leading global automotive and industrial supplier. For example, in the fields of electric mobility, regenerative energy production or the production and use of hydrogen, Schaeffler and its partners are focusing on sustainable innovations, because the 1.5 degree Celsius target can only be met if all stakeholders work together. This is also why the Schaeffler Group is a signatory to the UN Global Compact and was chosen as one of the "50 Sustainability & Climate Leaders" by the United Nations in April 2021. (b)

The company's calling card

The Schaeffler Group has updated its code of conduct. In an interview, Eric Soong, Group Chief Compliance Officer at Schaeffler, explains why the code of conduct is important for our company, who it applies to, and how binding the rules are.

Mr. Soong, what is a code of conduct?

The code of conduct (CoC) represents a company's basic set of values. It is the Schaeffler constitution and guides us in our business activities. It sets out how we should behave towards one another, our business partners, the public, and the manner in which we want to conduct our daily business. It is a commitment that applies to the entire Schaeffler Group. In addition, the code of conduct reflects the expectations we have of our business partners.

Why is a code of conduct important for Schaeffler?

Integrity, fairness, and mutual respect are the cornerstones of our activities – and are an integral part of our corporate culture. The Schaeffler Group's code of conduct is vital in ensuring that we do not lose sight of these principles in our day-to-day business. It shows all our stakeholders who we are and according to which maxims we carry out our activities. The code of conduct is therefore also the company's calling card.

How binding is our code of conduct?

The code of conduct is binding for all members of staff. All employees and business partners are called on to feel personally responsible for compliance with the code of conduct and to adhere to it. We do this with integrity and on the basis of



Eric Soong, Group Chief Compliance Officer at Schaeffler

value-based compliance. This means that all employees are expected to be familiar with Schaeffler's current rules and values, they should internalize them and act accordingly. Everyone is required to behave correctly even when no one is looking. Employees should not only follow the stipulated rules, but should above all follow their inner compass of values, and be able to make the right decisions, especially in situations that are not black or white.

What can employees do if they find out about breaches of the code of conduct?

Employees can always contact their manager, their regional compliance officer, the human resources department, the legal and audit department, or their employee representative. Violations against the code of conduct, particularly in relation to illegal business practices or potential human rights abuses, can also be reported via the company's internal whistleblower system. The system is available in a number of languages and allows anonymous, confidential, and specially encrypted communication with the Compliance department. The code of conduct contains detailed information and a full list of contacts. (jp)



The Code of Conduct

can be found on the Compliance pages in Schaeffler CONNECT and on the corporate website. The Compliance team is happy to advise you if you have any questions. There is a regional chief compliance officer in each region, who is supported by regional compliance officers.



The latest news from HR

The newly established “Center for Leadership Excellence” (CLE) now brings together all opportunities for the further development of managers, the Schweinfurt training center was taken over by schoolgirls for a day, and with “Drive Your Career” you can actively pursue your own development and career goals yourself.

Developing leaders to drive change

Good leaders are vital to Schaeffler’s transformation process. That’s why the company has brought its leadership training and development programs together under one roof in its Center for Leadership Excellence (CLE). “The environment in which we operate is undergoing major change,” says Corinna Schittenhelm, Chief Human Resources Officer. “To take ownership of that change and drive it forward, we need leaders who are committed to continuing professional development and willing to expand their skills.” That’s why from now on, Schaeffler management personnel all around the world will be supported in their leadership learning journey by the Center for Leadership Excellence. “Our objective is to grow and develop our leadership culture,” Schittenhelm explains.



Schaeffler needs leaders who are committed to continuing professional development and willing to expand their skills.

Everything under the one roof

Schaeffler’s leadership training and development offering is very broad. All of the leadership programs address the following core competency areas, derived from the Roadmap 2025: sustainability, digitalization and virtual leadership skills, leadership amid transformation, agile mindset, diversity, and integration. “Our leaders will not be left to face current and future demands and challenges on their own,” says Patrick Wilhelmi, Head of the Competence Center for Leadership, Recruiting and Talent Management. The competence center now deals with all matters relating to leadership and, thanks to the new CLE, it also encompasses all training programs for the personal development of staff in leadership roles.

The Center for Leadership Excellence caters for differing needs by offering programs tailored to differing levels of leadership, from budding young executive to top-level manager. “All programs and offerings address the core leadership competencies set out in

Schaeffler’s corporate values, leadership principles, and leadership essentials,” says Sonja Mehrlich, Head of the Center for Leadership Excellence. The various programs deliver these competencies in different ways because the needs of emerging leaders, for example, are very different from those of seasoned executives.

The programs offered by the CLE are being constantly updated and developed. For example, in the regions, the center is currently setting up new leadership excellence programs that are tailored to local requirements while still being consistent with the company’s global leadership concept. The CLE also works closely with Schaeffler’s divisions and functions to develop programs that are specific to their needs. “Leadership Program@eMobility” is a prime example of this. The center also has a brief to support networking between people in leadership positions at Schaeffler around the globe. The central hub for this is the CLE space on Schaeffler CONNECT. (b)

Girls visit training center

Once a year, Schaeffler’s training center in Schweinfurt is placed firmly in the hands of young women. At the Engineering Discovery Days at the beginning of November, 70 schoolgirls had the opportunity to touch and try out technology for themselves and gain insights into the apprenticeships offered by technology group Schaeffler.

Hands-on technology

The young women of grade 8 to 12, who came from all types of schools, had accepted an invitation from the University of Applied Sciences Würzburg-Schweinfurt (FHWS) and the Schaeffler Training department to get a taste of scientific and technical professions.

Whether “Diamonds are a girl’s best friend”, “Hot Steel – Cool Art”, “Hearts in Harmony”, or “The vexed cross” – there was a wide range of creative-named workshops. Soldering, filing,

gluing, turning, milling, bending, and cutting, the students had a lot of fun and went about their tasks with enthusiasm and full concentration. Their radiant

faces showed how proud they were of their successful attempts and the items they had made themselves which they took home as souvenirs. (mbo)



Very popular year after year: the welding station at the Schweinfurt training center. The works created there could be taken home.

Drive Your Career

Dedicated and motivated employees are a key success factor for the Schaeffler Group. The company therefore aims to empower all colleagues to actively pursue their own development and career goals and perform their tasks with self-determination. This is the goal of the “Drive Your Career” initiative, which is being developed and driven forward by HR, employees, and managers worldwide.

To support employees on this path, the “Drive Your Career” initiative focuses on making career and development opportunities and the associated tools more transparent, promoting networks, and further implementing the corporate Employee and Leadership Essentials. Visit the “Drive Your Career” page on Schaeffler CONNECT to find the relevant information. (jp)



The latest digitalization news

Cyber security at Schaeffler, digitally assisted setup operations, and digital teamwork in production startups: We have put together a small selection of new, digital solutions available at Schaeffler that make day-to-day work easier.



Andreas Zelezny, Head of Information & Cyber Security, calls on all employees to actively protect Schaeffler against cyber attacks. The two most important measures to enhance cyber security are, firstly, to always keep all programs and devices up to date – for example, by performing all security updates. Secondly, different and preferably long passwords as well as 2-factor authentication should be used.



Skyrocketing cybercrime

October 2021 is European Cyber Security Month. Cyber security is important because the growth of digitalization in all areas of life and the massive uptake of digital technologies during the pandemic have resulted in an explosion in the number of cyber attacks. For a technology company like Schaeffler, cyber security is absolutely vital. “Schaeffler is a highly innovative company, and we need to safeguard our intellectual property and know-how. The same applies to information entrusted to us by our business partners,” says Andreas Zelezny, Head of Information & Cyber Security. While it is not possible to prevent cyber attacks, Schaeffler can enhance its resilience to them. “We can do this, for example, by detecting and analyzing security incidents as early as possible and then responding to them swiftly so as to minimize their impact on our business operations,” explains Andreas Zelezny. For further information, read the “Golden Rules of Information & Cyber Security” and go to the Information & Cyber Security – Global community page on Schaeffler CONNECT. (jp)



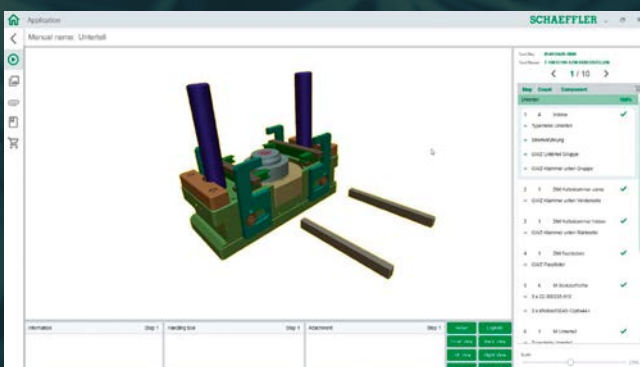
Jürgen Henn, Head of Strategic IT and Digitalization at Schaeffler, and Professor Sabina Jeschke, CEO of KI Park, Berlin, at the launch event of the association. Digitalization and artificial intelligence in particular offer considerable potential for Schaeffler and its customers. The company is therefore bundling its activities in a group-wide digitalization strategy and systematically driving implementation through a comprehensive portfolio of digitalization initiatives.

Schaeffler invests in artificial intelligence

Schaeffler has joined with eleven partners to establish KI Park e.V., an incorporated society, in Berlin, Germany. The purpose of KI Park is to foster real-life applications in the field of artificial intelligence (KI is German for AI) and to develop the associated ethical and regulatory frameworks for Germany and the rest of Europe. Schaeffler already uses intelligently integrated production facilities to achieve significant reductions in throughput times. It leverages artificial intelligence and machine learning at the machine level and in the cloud to continually optimize many aspects of its plant operations. (mm)

Digital support

A rapid and error-free setup and tool assembly procedure plays a decisive role in optimizing production processes. With this in mind, the Digitalization & Operations IT and Tool Technology functions have developed the application “Digital Tool Setup Assistant”, or DiToS for short. The DiToS focuses on providing animated step-by-step instructions on tool assembly in 3D format. In addition, the DiToS tool has further applications to offer the user: For example, the connection to the SAP platform provides employees with access to documents such as technical drawings. (mm)



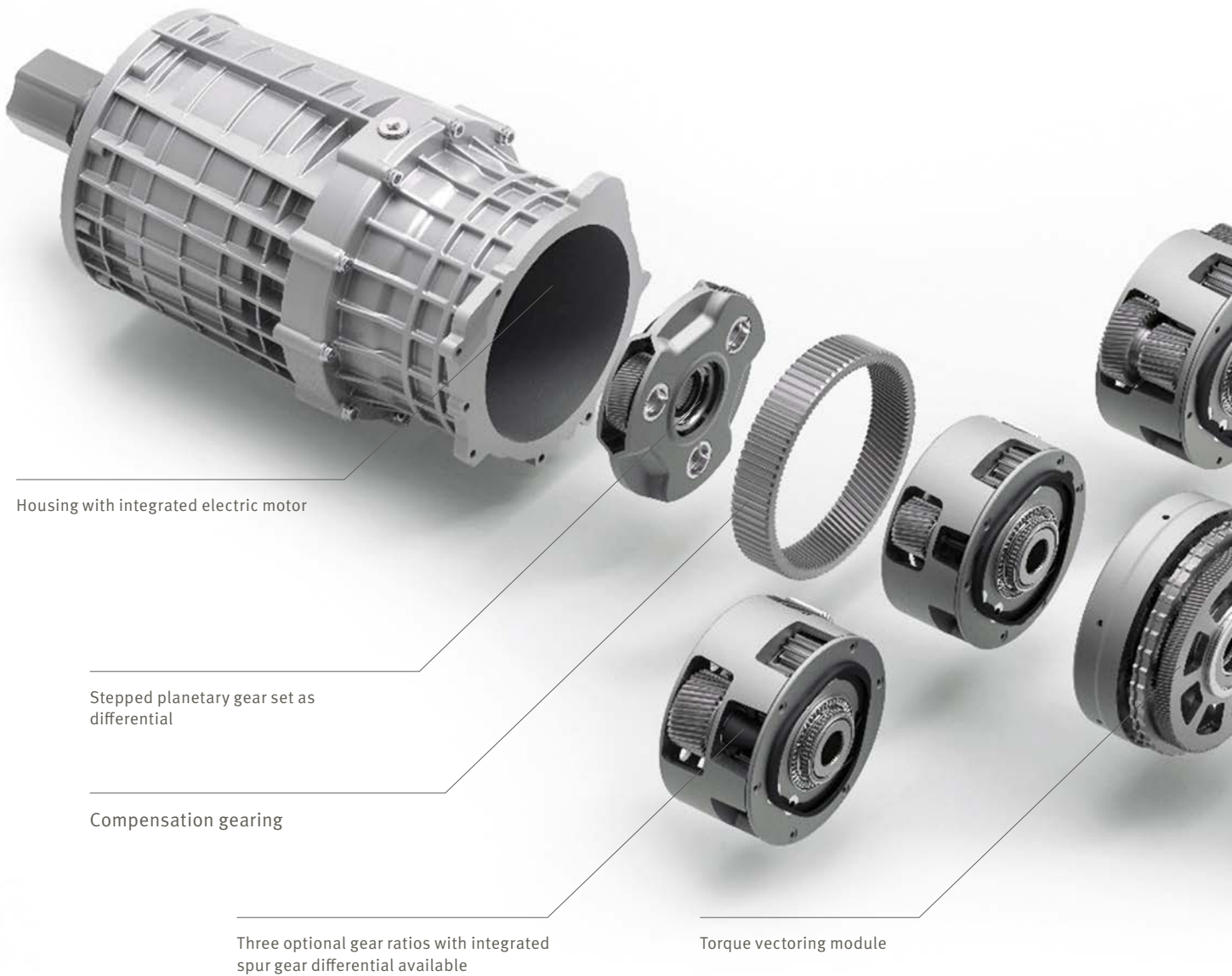
DiToS is now in use in 20 plants.

Digital teamwork

The production launch of the 2-in-1 electric axles in Taicang was a milestone in Schaeffler’s e-mobility business. Travel restrictions due to the coronavirus pandemic had presented the team with significant problems in commissioning, which were overcome by means of digital technology: Experts in Germany, who had already gained experience from another production line, provided assistance to colleagues on site with the help of mixed reality glasses. (cw)

An innovative solution for any system

The transformation of propulsion technology is rapidly moving forward. Hybrid or all-electric systems are complementing or replacing conventional powertrains. Based on decades of expertise, Schaeffler has developed a modular e-axle kit enabling an extensive, universal product portfolio.



With the e-axle kit, Schaeffler makes it possible for its partners in the automotive industry to tailor their platforms to suit all demands of the market – thanks to high vertical integration, modularity, and scalability.

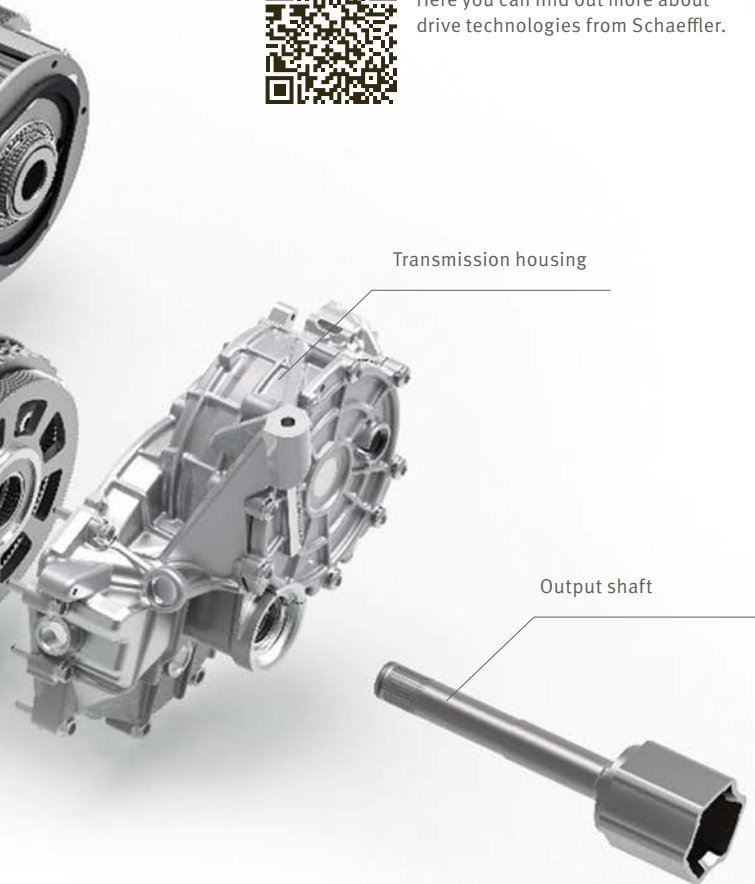
Thanks to the modular e-axle configurator, efficient, compact, and highly integrated systems with high power density can be developed within short development cycles for both 48-volt hybrid and 400- and 800-volt technology. The performance range extends from 15 kW to more than 300 kW. Both axially parallel and coaxial arrangements are possible.

With excellent manufacturing expertise and high development flexibility, novel solutions become ready for market within a very short period of time: across the entire product pyramid – from winding processes to components such as electric motors and clutches to complex 3in1-e-axle and hybrid systems – including power electronics and software.

Article by Stefan Pajung



Here you can find out more about drive technologies from Schaeffler.

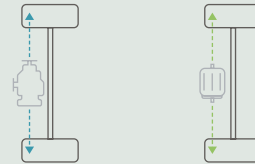


Propulsion strategies

Schaeffler's portfolio includes a suitable solution for any form of powertrain.

Strategy 1

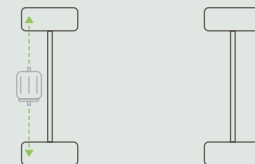
One IC engine + one e-axle



The IC engine propels one axle and the e-motor the other one. E-drives from Schaeffler can be configured for either arrangement at diverse performance levels.

Strategy 2

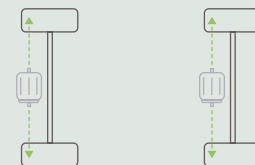
One e-axle



Fully electric drive – supplied by a battery or fuel cell. The e-drive can optionally be installed on the front or the rear axle in this case as well.

Strategy 3

Two e-axes



Fully electric drive, but using one electric motor each on the front and rear axle – for greater dynamics and efficiency.



Example of an e-axle: 3in1-e-axle system featuring a coaxial arrangement with integrated power electronics.

“The central backbone of Schaeffler”

Surface, material, and chemical technologies play a central role for Schaeffler. The “International Surface Technology Conference” and the “International Chemical Technologies Conference” – two online events broadcast to Schaeffler employees around the world – provided an overview of the latest developments, with the focus on sustainable and forward-looking solutions.

“Our know-how in the areas of surface, material, and chemical technologies forms the central backbone of Schaeffler. We use it to improve the energy efficiency, robustness, and performance of our products and processes, while maintaining a constant focus on market orientation and customer benefits in all our actions. The subject of sustainability is playing an increasingly pivotal role in this context,” says Prof. Dr. Tim Hosenfeldt, Senior Vice President of Research, Innovation & Central Technology at Schaeffler. “Our thoughts must center on how we can learn from nature and best preserve nature to sustainable effect with the technology we use.”

Surface technologies as decisive success factors

In his opening keynote speech at the “International Surface Technology Conference,” Uwe Wagner, Chief Technology Officer, pointed out the significant role played by the Surface Technology function in matters of innovation at Schaeffler: “Developing, producing, and using the right material, in the right quantity, in the right location, with the right functionality, and at the best price-performance ratio, is already of great importance now and will be even more important in the future. For this reason, we have defined the ‘Material and Surface Technology’ innovation cluster, in which we will focus our full attention on developing solutions for



“Material and surface technologies are decisive success factors for the future of Schaeffler.”

Uwe Wagner
Chief Technology Officer



Prof. Dr.-Ing. Tim Hosenfeldt (left): “Chemical technologies are playing an increasingly important role.” What makes metallic electrodes suitable for redox flow batteries? Sven Brandt and Dr. Jeevanthi Vivekananthan explained the reasons for this in their presentation.

future trends.” This will also generate considerable potential for reducing the CO₂ footprints of Schaeffler products. The subjects of other presentations included research and innovation projects in the fields of hydrogen, robotics, and storage technologies.

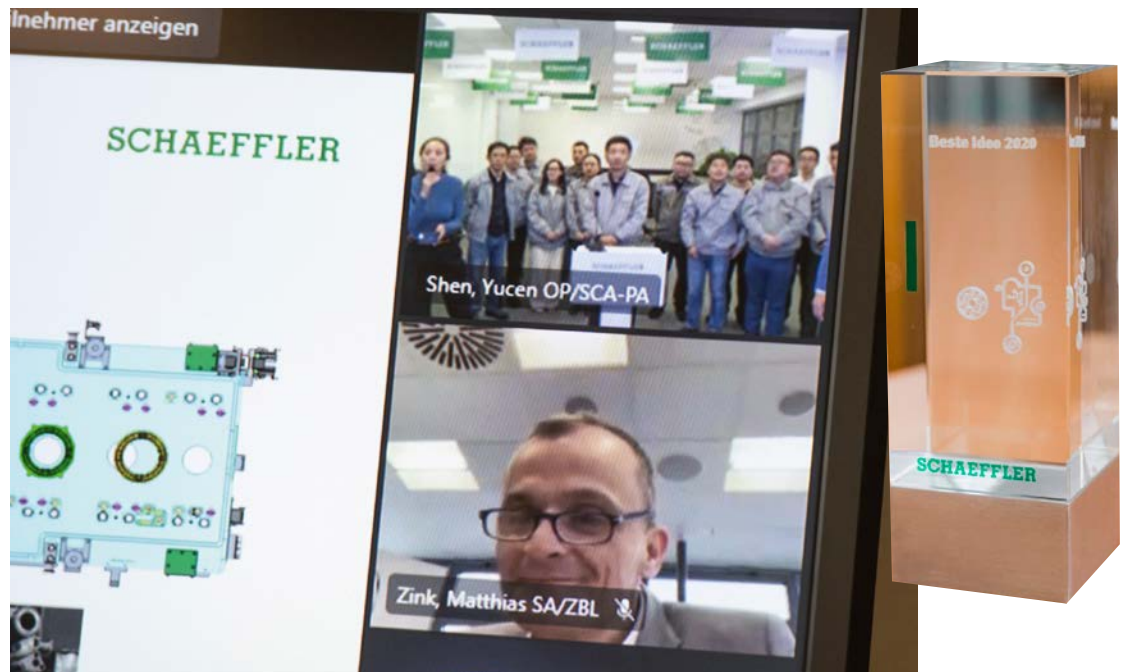
Chemical technologies are playing an increasingly important role

Chemical technologies formed the focus of the “International Chemical Technologies Conference”, in which employees from all regions provided insights into ongoing activities in the areas of “Chemical Engineering, Processes & Resource Efficiency”, “E-mobility”, and “Laboratory and Analytical Methods”. Examples of Best Practice methods were also discussed as part of the “Lessons Learned” agenda item. “Chemical technologies are playing an increasingly important role, particularly in the context of transformation areas such as sustainability, e-mobility, and defossilized energy chains, such as we are currently experiencing in our hydrogen activities and the development of electrochemical cells. For this reason, we made the decision last year to combine chemical technologies in a dedicated department,” says Prof. Dr.-Ing. Tim Hosenfeldt. “This enables us to consolidate our know-how and presents us with a great opportunity to establish an even stronger position for Schaeffler in areas of future importance, such as the development and manufacture of electrochemical cells for fuel cells, electrolyzers, and batteries.” (ld)

And the “3 best ideas” come from ...

Bühl, Langen, and Taicang – this is where the winners with the best ideas 2020 work. The awards were presented in hybrid form this year: Matthias Zink, CEO Automotive Technologies, and Frank Sterzinger, Head of the Ideas Management Competence Group, congratulated Frank Kirschenmann from Bühl in person and the prize winners from Langen and Taicang via video conference.

The winners of the “3 best ideas 2020” come from Bühl, Langen, and Taicang. The award ceremony took place virtually.



In the past year, Schaeffler employees around the globe submitted over 31,000 ideas. These suggestions for improvement generated net savings of EUR 28.7 million. 19,300 ideas were implemented in Schaeffler plants worldwide. “Pioneering spirit, innovative strength and striving for continuous improvement are fundamental components of long-term business success”, said Matthias Zink, CEO Automotive Technologies, at the awards ceremony in Bühl. “Putting this into practice for our customers throughout the world has set us apart in the past and will set us apart in future too. This requires motivated employees who actively contribute their ideas and thereby play a key role in the transformation. I would like to extend my heartfelt thanks to all applicants and prize winners for their efforts.”

Production processes improved



Frank Kirschenmann works in industrial engineering in **Bühl** and has already submitted six ideas. With his winning idea, he optimized the production processes in the hardening shop. He independently developed two prototype loading magnets which could be used to help separate pendulum masses that are stuck to one another. His idea reduces cleaning costs and will be used for existing types and all new fabrications in future.

Packaging optimized

Niko Schmitt from **Langen** improved Schaeffler’s life cycle assessment and modified the packaging for all water pump kits. The new packaging is manufactured using a more standardized and cost-effective process than before and packaging costs have been reduced dramatically.



Better cycle speed

Zhifeng Wang, Wanbao Guo, Xinyi Shi, and Wenzhu Song arbeiten im Werk **Taicang 3** work in the stamping division at the Taicang 3 plant and together submitted a total of 59 ideas. With their idea, they improved the processes in the manufacture of components for the dual mass flywheel. One work process is now no longer necessary, material is saved and output per cycle has increased.

All the ideas that had been implemented in 2020 from all Schaeffler locations that use “Ideenreich” or “ideafactory” software were included for the selection of the “3 best ideas”. This currently encompasses 70 locations in 24 countries. Do you have an idea on how processes could be improved? Then don’t hesitate, submit it now! More information on ideas management can be found in Schaeffler CONNECT. (ak)

Product launch: OPTIME C1 intelligent relubrication system

Manual relubrication errors are one of the main causes of failure in rolling bearings. The bearing specialists at Schaeffler have solved this problem by developing OPTIME C1, an IoT solution for the relubrication of rolling bearings using intelligent, automatic lubricators.

OPTIME C1 takes a lot of the complexity out of lubrication management. Each battery-powered OPTIME C1 unit is designed to be screwed on to a Schaeffler Concept 1 automated lubricator. The unit includes a communication module and a temperature sensor. The overall solution also includes a gateway and the OPTIME app. A mesh network captures and computes key operating data collected by the intelligent lubricator and sends it via the gateway to the Schaeffler cloud.

The system communicates with maintenance personnel via the OPTIME app or the web-based OPTIME dashboard, giving them an overview of all lubricators that have critical fill levels or lubricant supply problems. Thanks to its integrated temperature sensor, the system also provides an overview of all lubricators that are running at elevated temperatures. With OPTIME C1, maintenance personnel no longer need to spend time on scheduled inspection runs or deal with complicated tables or software for planning relubrication in their plants. (jk)

It takes less than two minutes per lubrication point to install the components and configure them in the app. In this way, dozens of lubrication points on pumps, fans, compressors, machines, conveyor drives and the like can be fitted with OPTIME C1 in a very short space of time.



LASER-EQUILIGN2: Precise and cost-effective alignment of shafts



Laser technology is one of the most precise methods for correctly aligning rotating shafts.

If the shafts in pumps, compressors, or gearboxes are not aligned with each other, this results in higher energy consumption and increased machine wear and can lead to unplanned downtimes. Based on innovative single laser technology, Schaeffler is now bringing the LASER-EQUILIGN2 alignment tool onto the market, a new system for aligning rotating shafts – for the highest levels of machine performance and availability as well as lower operating costs.

In contrast to the conventional double laser technology in which two laser/sensor units must be aligned with each other, only one laser/sensor unit and a reflector are used in single laser technology. The single laser is simply aligned with the reflector. This increases the usability and provides maintenance technicians with precise measurement results. (jk)



Worldwide

Here you can take a look at what's happening in the four Schaeffler regions. Read about how Schaeffler is supporting healthcare in India, what contribution Schaeffler Aerospace is making to sustainability in aviation, how cobots are promoting collaboration, and what speeds axlebox bearings are subjected to in high-speed trains in China.

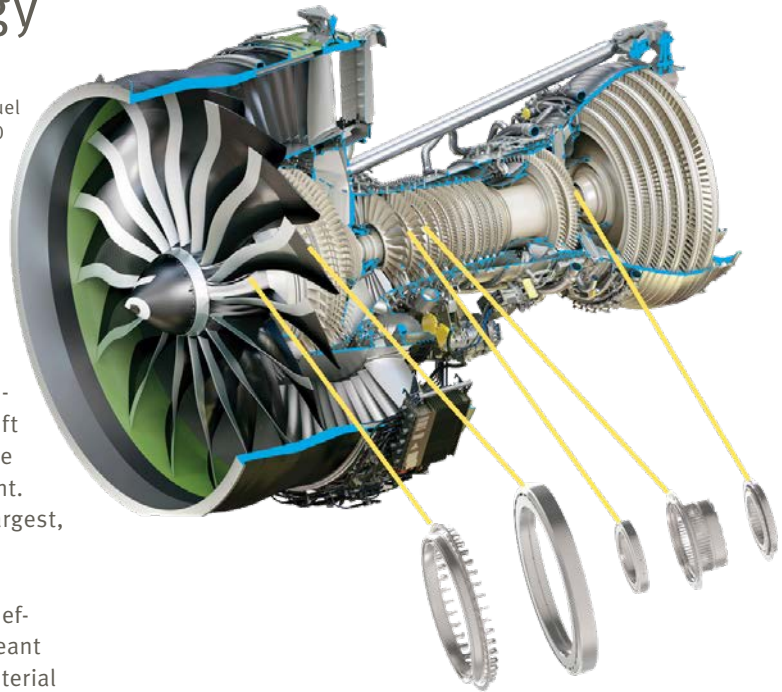


AMERICAS



The most powerful commercial aircraft engine relies on Schaeffler technology

GE Aviation aims to reduce noise, emissions, and fuel consumption by 10 percent compared to the GE90 engine that currently powers the long-haul Boeing 777 family of aircraft. The GE9x engine (image) has been designed to achieve this goal.



The aviation industry strives to become more environmentally friendly and sustainable. Accordingly, aircraft engine manufacturer GE Aviation has set out to reduce noise, emissions, and fuel consumption by ten percent. The result of those efforts is the GE9x – the world’s largest, most powerful commercial jet engine.

Due to the powerplant’s sheer size, however, gaining efficiency from electrification was not possible. This meant that efficiency gains had to come from design and material improvements, as evidenced by the main shaft bearings that support the core of this enormous powerplant. The first GE9x bearing has now been delivered and is slated for full qualification on an engine test in the first half of 2022.

The GE9x bearing applications demand premium-quality M50 and M50NiL bearing steel, nitrided races, high-performance coatings, and ceramic rolling elements. To achieve their unparalleled performance, these bearings feature cutting-edge designs and integrate features such as vibration damping and weight savings into their architecture. Taking on the GE9x program has led to investments to increase Schaeffler Aerospace Canada’s heat-treat and machining capacity in Stratford, Ontario. Schaeffler even developed special gauges for its manufacturing operations to ensure the highest quality standards would be maintained and the exceptionally tight tolerances would be met. (gf)

Schaeffler Brazil and Facens College cooperate

Schaeffler and Facens College are partnering to offer technical knowledge and industry experience to students who have the desire to learn and create. In July, Schaeffler offered a vacation course for students themed “Future of Mobility: Challenges and Opportunities”, that featured dynamic lectures covering the topic of mobility. The course was a success and attended by 100 students. After the success of the vacation course, Schaeffler launched the “Open Innovation Challenge” to students interested in contributing to the future of innovation. Thirty-five students from multidisciplinary groups enrolled in the challenge. (rs)




TU Munich team wins first-ever Indy Autonomous Challenge

It was an exciting weekend for race fans at the first-ever Indy Autonomous Challenge (IAC) held in Indianapolis in late October. Nine teams competed for 1.5 million U.S. dollars in prize money. TUM Autonomous Motorsport from the Technische Universität München (TUM) bested the competition from 21 universities and nine countries for the top spot. For sponsor Schaeffler, this wraps up a significant year-long commitment to advancing the commercialization of fully autonomous vehicles and deployments of advanced driver-assistance systems. Schaeffler provided its Space Drive system – including the necessary hardware, training and support – to all the teams. Over the course of a year,



the IAC teams programmed their own unique software to a modified Dallara

IL-15 racecar with Schaeffler’s Space Drive driving and steering system. (pl)

Executive Speaker		
 Marc McGrath		
DISCOVER DIGITAL INNOVATION – INSPIRING TOPICS + PARTNERS		
New Ways of Working Microsoft	Autonomous Processes UiPath	Digital Design ptc
Digital Revenue SCHAEFFLER	Enterprise Capabilities SCHAEFFLER	Strategy in Digital World SCHAEFFLER
Transformation Journey SCHAEFFLER	Connected Supply Chain SCHAEFFLER	Digital Experience SCHAEFFLER
Executive Panel Discussion		
 Andreas Schick	 Jens Schüler	 Rainer Eidloth

Digital Innovation Day

P&I Americas held its third annual Digital Innovation Day in late September 2021. The virtual event included more than 350 participants across the globe, 30 speakers, and six technology partners, who inspired the employees to use digital technology to generate digital revenue, accelerate productivity and build a world-class employee experience. It also featured Americas Region CEO, CIO, and CDO as keynote speakers, a panel discussion with global executive leaders, lightning talks by a few regional board members, and success stories from the digital business team. (pl)

AAPEX: INA chain kit launch

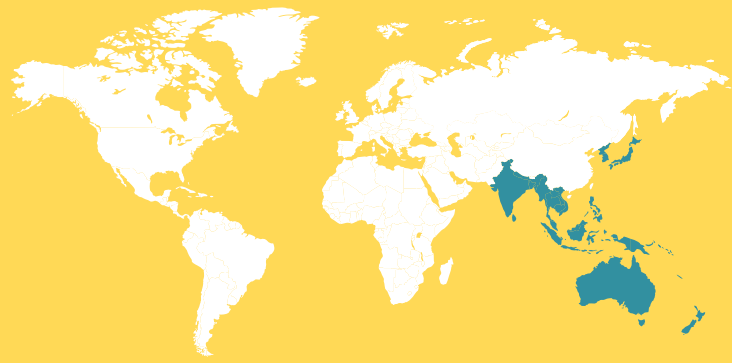


The Automotive Aftermarket division launched a full line of automotive engine timing kits as well as replacement torque converters at the 2021 Automotive Aftermarket Products Expo (AAPEX), held in early November in Las Vegas, Nevada. Visitors also experienced Schaeffler’s 2021 PACE Award-winning P2 Hybrid Module for rear-wheel-drive transmissions, in addition to a full line of wheel bearings and seals for import and domestic vehicles.

Schaeffler has significantly expanded its lineup of automotive engine timing kits and components for customers in the U.S. and Canada. As a result of this initiative, the engine timing product portfolio now covers more than 95 percent of all U.S., Asian, and European vehicles currently on the road in Canada and the United States – one of the most complete coverages of any supplier in the Automotive Aftermarket.

With over 30 in-person customer and supplier meetings, the show was a great success. The Schaeffler team also received two awards: Shelly Stazzone received the Women in autocare Marketing and Communication Award for the REXPART Swag Bag Campaign. Mac Eash was honored as Young Executive of the Year and was presented with the autocare Import Vehicle Community Award. (pl)

ASIA/ PACIFIC



Asia/Pacific Sustainability Challenge 2021



The first-ever **Sustainability Challenge** in the Asia/Pacific region was launched in May. The jury received over 100 entries. Thomas Berthold (Vietnam) and a team from India consisting of Harshad Solanki, Shital Shah Mercy Karukapallil, and Praktik Barot were chosen as winners in the **“Making a difference today”** category. Submissions in this category included completed projects that had contributed to the Schaeffler Group’s sustainability goals. For example, Thomas Berthold modified a furnace in the heat treatment department in such a way that it is now possible to achieve annual energy savings worth more than 50,000 euros

In the **“Ideas for tomorrow”** category, prizes were awarded for ideas and suggestions that help achieve regional sustainability goals. Here, Chintan Talati from India and Allan Dennis Keawploy’s team from Thailand shared first place. To conserve water,

Chintan Talati proposed replacing standard nozzles on production lines with water-saving retrofit nozzles.

In the category **“Sustainability at home”**, the focus was on ideas and initiatives that can be implemented in private life to reduce the ecological footprint. Here, Kaja Doshi from India submitted a particularly convincing solution. Solar cells on the roof of her house ensure sustainable power generation. Her garden functions according to a closed-loop ecosystem, and to water her plants she has installed a drip irrigation system to minimize water consumption.

Every winner received a symbolic tree that will be planted by EcoMatcher, a company with which Schaeffler works. EcoMatcher is a certified company that plants trees together with audited foundations and non-governmental organizations from around the world. (ak)

Savli: New mobile health unit for the region

A **Mobile Health Unit (MHU)** was inaugurated in **Savli** at the end of August. The ambulance is staffed by a doctor, a nurse, a counselor, a field worker, and a data collector and provides free primary health care to beneficiaries in 25 villages in the vicinity of Schaeffler's Savli plant. The specially designed MHU vehicle is fitted with all the equipment needed to diagnose, treat, and care for a patient. In addition to Savli, another Schaeffler-sponsored MHU is in operation in Maneja. (ak)



Thailand: Strong start for Schaeffler Motorsport team



Wuttiphath Kongrittpong (5th from left) with Thai actor and driver Thanapol Thongchua (6th from left) and the Schaeffler team at the Toyo Tires Racing Car Thailand 2021 Series.

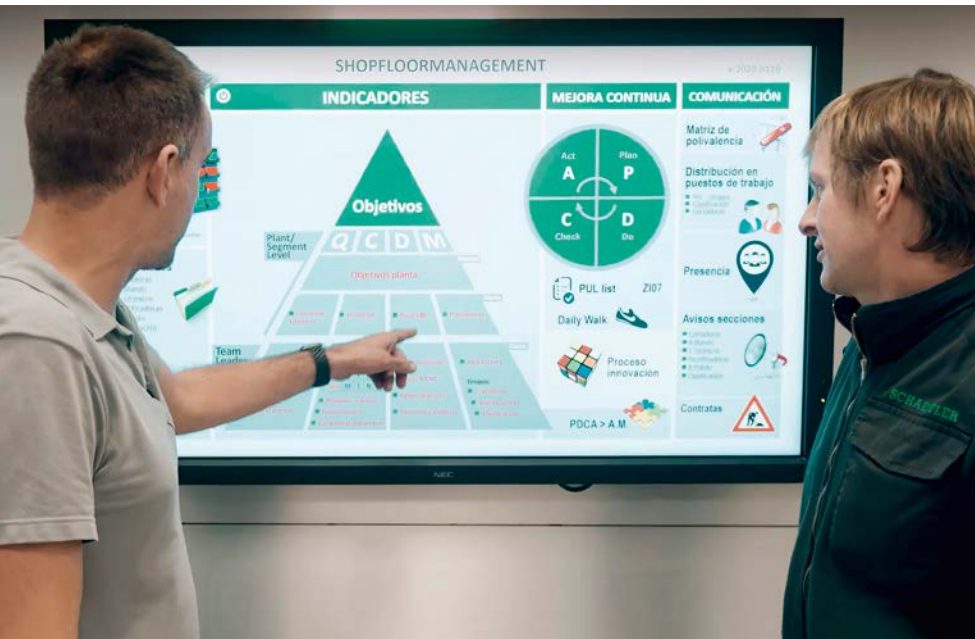
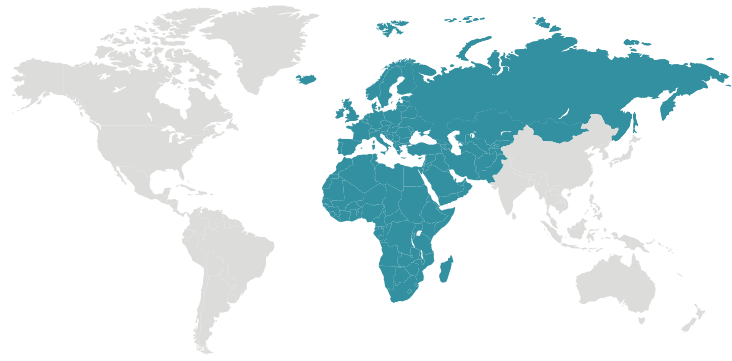
Schaeffler Manufacturing Thailand saw a strong start at the **Toyo Tires Schaeffler Racing Car Thailand 2021 series**: Schaeffler driver Wuttiphath Kongrittpong finished first in three races in Chonburi in the 1.9 L category. In the 3.0 L category, he took 2nd as well as two 4th places. “I am very happy to drive for the Schaeffler Thailand Racing team. Schaeffler has a long history with a successful track record and experience in global motorsport with renowned series such as DTM, Formula E, WEC, and TCR in Australia,” said Schaeffler driver Wuttiphath Kongrittpong at the press briefing. (ak)

Award for Schaeffler Singapore

A testament to its commitment to building “An Even Greater Place to Work”, **Schaeffler Singapore** was recently recognized at the **HR Excellence Awards** for its efforts in building a robust communication framework to uplift employees as the world grapples with new challenges in the new normal. Recognized for its approach towards employee engagement, which focused on the four key areas of Employee Dialogues, Employee Wellbeing, Employee Recognition, and Employee Career Development, Schaeffler Singapore secured the Silver Award for Employee Engagement Excellence at the virtual award ceremony. (gw)



EUROPE



Digital supply chain management in Rodisa

Spanish pilot plant works on solutions for tomorrow's production

When it comes to digitalization at Schaeffler's Rodisa plant, data transparency is one of the keys to semi-autonomous production: Dashboards and visualization tools provide machine operators and other employees with precise information so that they can control production processes, taking into account different order positions.

The Rodisa plant, which produces needle rollers for rolling bearings, has been involved in digitalization projects for years. As part of the "Digitalization & IT" subprogram of Roadmap 2025, which tackles the digital transformation of production processes, Rodisa is one of four pilot plants worldwide within the Schaeffler Group. The plant operates a highly adaptable and customer-driven production in which agility and transparency for the customer play a crucial role. To achieve this, the direct link between production and customer demand is designed to increase responsiveness to changes in orders and enable semi-autonomous planning and control of production. Digital technologies are used in the plant to optimize manufacturing and supply chain processes.

The digitalization project is based on three pillars: a solid IT infrastructure, state-of-the-art production technology, and autonomous intralogistics. By introducing full connectivity of machines and transparency of work in progress, the internal customer is seamlessly connected through an integrated IT system. In addition, various condition monitoring products developed by Schaeffler, such as OPTIME and ProLink, have been installed. All data collected is not only processed, but also made available to every employee involved in production. "This project gives the plant semi-autonomous planning capabilities and control of production. We expect a range of benefits from the data availability and intelligent software solutions in terms of cost reductions, quality improvement, and delivery accuracy," says Álvaro Unanue, Digital Operations Manager at Schaeffler Iberia. (sv/gS)

Haguenau: How cobots promote collaboration

Cobots can be operated easily and on an intuitive basis: Production employees at Schaeffler France in Haguenau control the new cobots using a touchscreen. The collaborative robots save the data for each programmed work step. They repeat their tasks as many times as required – and can ease the burden on employees, particularly in areas where exhausting, repetitive, and physically demanding work has to be done.

The importance of the collaboration between man and machine is constantly increasing at Schaeffler. This is reflected in the form of the Robotic Rollout Program, which is an integral part of the New Production Concepts initiative in the Innovation & Technology subprogram of the Roadmap 2025.

At the Haguenau location, cobots have now enabled the implementation of a new, standardized packaging process, which can be quickly adapted to suit individual customer requirements. Schaeffler's Special Machinery department carried out the design work,



Cobots have recently been deployed to help production employees with the packaging of products at the Haguenau location in France.

construction, and integration. The project improves not only the efficiency of logistical processes, but also professional development: Employees who were previously tasked with the manual packaging of products are now using cobots and have acquired the role of system operators. Because cobots are intentionally designed for collaboration between man and machine, they often

prove to more practical compared to conventional industrial robots. “Cobots are more flexible and can be adapted to suit new areas of application with significantly less outlay,” explains Jean-Marc Jaeger, Project Manager Industrial Engineering in Haguenau. “This makes it easier to respond to individual customer requirements or to adjust the systems to suit modified products.” (ose)

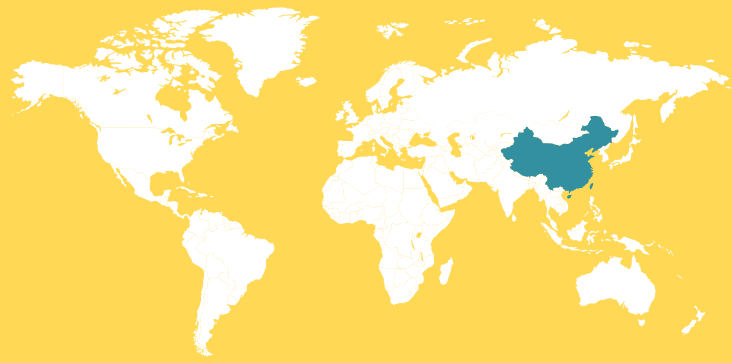
Schaeffler Romania supports school children from Braşov

An opportunity for more education: By means of a CSR project undertaken together with the Romanian Bucuria Darului Foundation, Schaeffler Romania supported school children from rural areas in the region around Braşov. At the start of the new school year, Schaeffler presented 25 children with school backpacks. Numerous Schaeffler employees at the Braşov location also supported the campaign by showing an active commitment of their own: For example, they donated urgently needed materials, such as pens and exercise books, as well as clothing and food for daily needs, and in addition helped to pack the backpacks for the children. In the end, there was more than just 25 well-filled backpacks: Schaeffler employees also presented the foundation with additional financial donations and donations in kind for further social projects. (ose)



Committed to a good cause: Schaeffler Romania packed and donated backpacks for socially disadvantaged school children.

GREATER CHINA



Axlebox bearings for high-speed trains



For many years, Schaeffler has been an important partner of China Railway. Its axlebox bearings are used for example, on China's high-speed trains. Schaeffler's railway bearing localization project was launched at the company's Nanjing plant in 2017 with the aim of shortening delivery cycles and improving the quality of local services.

Recently, **axlebox bearings for high-speed trains** produced at **Nanjing** were successfully installed on the **Fuxing** bullet train and underwent field testing. The tests were carried out on the Shanghai-Nanjing railway line operated by **Shanghai Railway Bureau**. During the trial tests, the maximum speed of the

train reached 350km/h. Despite this high velocity, the operating condition and temperature of the bearings remained stable, thus meeting the formal test requirements. This was an important milestone for the project, marking a key step on the course to axlebox bearing volume production. (mm)

Annual meeting of SAE China

At this year's annual meeting of **SAE China** – **one of the country's top automotive associations** –, Schaeffler was part of several standard draft meetings held with regard to the development of intelligent steering systems for electric vehicles. Schaeffler has extensive expertise and experience in automotive mechatronics and steering systems, providing products such as the **intelligent rear-wheel steering** and **Space Drive** systems. Schaeffler was a co-organizer of the SAE China meeting. (mm)

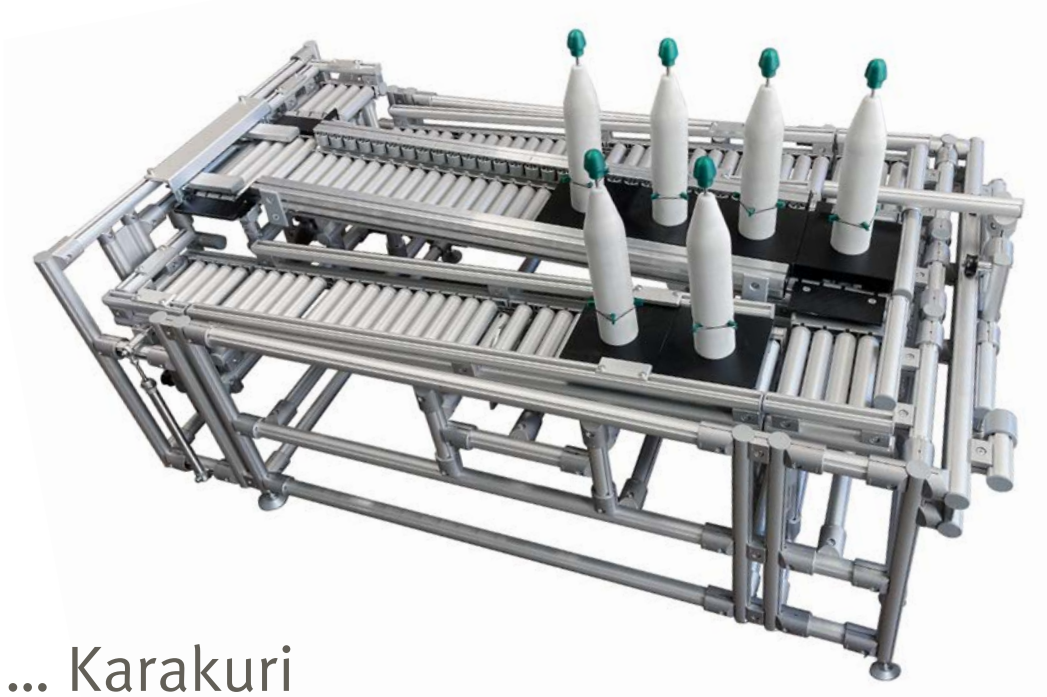


Sustainable supply chain

In the **Green Supply Chain CITI Evaluation**, presented by the non-profit environment research organization IPE in China, Schaeffler was ranked No. 1 out of a total of 23 brands in the automotive parts industry. In the overall ranking, the company secured 30th place out of a total of 613 brands. This excellent ranking is an acknowledgement of Schaeffler's efforts and achievements in building a green and sustainable supply chain in China. (mm)

A colleague provides explanations

WHAT EXACTLY IS ...



... Karakuri

Karakuri plays a key role within the Schaeffler Production System.

Karakuri is a Japanese expression meaning “the mechanism”. It refers to the simple but intelligent automation of processes based on physical principles – without (or with a minimal quantity of) drives, sensors, electricity, or compressed air. In concrete terms, this creates simple and cost-effective automation solutions in production, also known as Low Cost Automation (LCA). The aim is to develop easy-to-use

devices that automate production processes while ensuring high process stability at the same time.

Energy is utilized that would otherwise be lost and remain unused – i.e., kinetic energy and the physical energy used by employees during the course of work. It is of key importance here that only the most minimal amount of external energy is added to the existing process. Levers, gears, or springs, for example, can then be used to store or utilize surplus energy.

One of the most common examples of this process is the clever use of gravity to make the transport of goods faster and safer, for example by means of roller conveyors, thus benefiting employees in a targeted manner. At Schaeffler, a specific training course is currently under development and the first pilot applications are being implemented.

The picture above shows an example of a Karakuri-based solution from segment P24 in Herzogenaurach, where gravity is specifically used to facilitate the transport of goods. (mm)



**Lucas Tadeu
Fernandes**

SPS/MOVE Professional

Location close-up

Schaeffler is a global automotive and industrial supplier and one of the largest family-owned companies in the world. But where exactly is Schaeffler represented throughout the world? Schaeffler **today** takes a look behind the scenes and in this issue, introduces the company's Skalica location.



When did production start?

The plant was established 30 years ago. Along with Kysuce, Skalica is one of two Schaeffler locations in Slovakia. These days, the Skalica site is one of the Schaeffler Group's largest plants worldwide with approximately 4,000 employees and a production area of over 80,000 square meters. Schaeffler is thus one of the largest local employers in the entire Trnava region in western Slovakia.



What is produced?

Schaeffler's Skalica plant manufactures products for both the Automotive Technologies and Industrial divisions. In addition to various cage types, the comprehensive product portfolio for both divisions also includes inner and outer rings, needle roller bearings, tension rollers, control systems, cylindrical bearings, and synchronizer rings. The broad customer base encompasses well-known automobile manufacturers and companies from a wide range of industrial sectors.



Anything else?

Skalica is a district capital with a population of around 15,000 and is situated in northwestern Slovakia near the Czech border. The town is best known for its sacral buildings and cultural-historical monuments – including the St. George rotunda, which dates back to the 12th century and is one of the most important Romanesque buildings in Slovakia. Popular regional specialties include Blaufränkisch wine and trdelník – a kind of spit cake.





The surroundings

1 Brno

From Skalica, it is worth taking a trip to Brno, the second largest city in the neighboring Czech Republic. With a population of about 380,000, it is known for its modernist buildings such as the restored Villa Tugendhat, completed in 1930 by the famous architect Mies van der Rohe in the Bauhaus style and now a UNESCO World Heritage Site. The medieval Spielberg Fortress features a city museum, gardens, and a former prison with vaulted tunnels. St. Peter and Paul Cathedral features Baroque altars and a 14th-century statue of the Madonna and Child.

2 Záhorie region

Thanks to its favorable geographical location and climatic conditions, the Záhorie region is one of the oldest settled areas in the whole of Slovakia. The name Záhorie means “land behind the mountain range of the Little Carpathians”. The region is a popular destination for excursions and offers ideal conditions for tourist activities such as cycling, hiking, and summer stays by the water. As a protected landscape area with extensive pine forests and well-preserved riparian forests with numerous canals, small lakes and other wetlands, as well as a diverse flora and fauna, the Záhorie region is also considered a paradise for mushroom hunters.

3 Little Carpathians

The romantic mountain range of the Little Carpathians is also known as the Wine Carpathians. Apparently, wine was being cultivated on the gentle hills as long as 2,500 years ago – a tradition that is flourishing again today thanks to numerous winegrowers and vineyards. For nature lovers, the landscape offers a large network of hiking and biking trails. Steep rock faces also attract climbing enthusiasts.

4 Bratislava

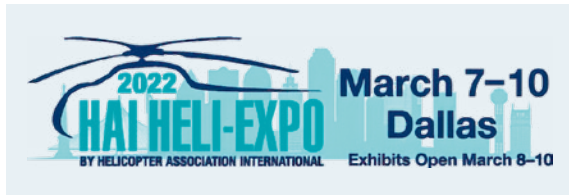
The capital of Slovakia is just over an hour's drive from Skalica. It is located on the Danube River, bordering Austria and Hungary, and has more than 400,000 inhabitants. Bratislava is surrounded by vineyards as well as the Little Carpathians, where numerous hiking and biking trails crisscross the forests. The 18th-century Old Town is pedestrian-only and known for its lively bars and cafes. A well-known landmark is Bratislava Castle, which overlooks the Old Town and the Danube.

5 Vienna

Austria's capital and cultural metropolis can be reached in about two hours by car from Skalica. In Vienna – strongly influenced by the artistic heritage of Mozart and Beethoven – many places are reminiscent of these musical geniuses. The city is also famous for its imperial palaces, including Schönbrunn Palace and the Hofburg Palace. In the Museum Quarter, works by artists such as Egon Schiele and Gustav Klimt can be seen in historic and modern buildings. St. Stephen's Cathedral is a top sight as well.

Save the date

Trade fairs around the world, the annual press conference, and the Schaeffler Symposium: There is a lot going on in the next few months. Here you can find some important dates for Schaeffler:



**Mar.
7-10**

HAI HELI-EXPO

Dallas. The world's largest trade show dedicated to the helicopter industry, HAI HELI-EXPO features more than 600 exhibitors on nearly 1 million sq. ft. of the Kay Bailey Hutchison Convention Center in Dallas, Texas. Schaeffler will be displaying its capabilities that support the rotary aircraft industry.



Mar. 8

Annual press conference

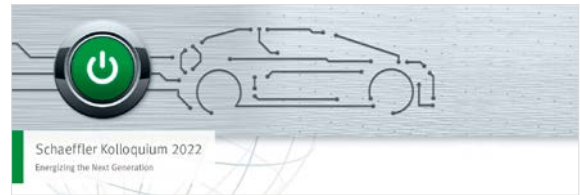
Munich. Schaeffler will present its results for the 2021 financial year at the annual press conference in Munich.



**Mar.
9-12**

International Robot Exhibition 2022

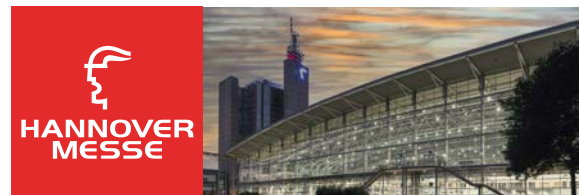
Tokyo. Schaeffler will be presenting its bearing solutions and dynamic motion systems for robot-based automation at The International Robot Exhibition 2022 – highly regarded as one of the largest robot exhibitions in the world. The fair is based on the theme of “The Way towards Friendlier Society, bridged by Robots”, and is being held with the goal of working towards a society where humans and robots can exist and cooperate together.



**Apr.
6-8**

Schaeffler Symposium

Baden-Baden. The 12th Schaeffler Colloquium stands for innovation, full customer focus, and mutual exchange. In an exclusive setting, Schaeffler will present its latest intelligent components and systems to customers as a tangible experience.



**Apr.
25-29**

Hannover Messe

Hannover. The upcoming Hannover Messe will take place from April 25-29, 2022 under the motto “Transforming Industry Together”. Central topics include digital platforms and CO₂-neutral production and energy supply.



**Apr.
26-28**

MRO Americas

Dallas. The largest international trade fair for maintenance, repair, and overhaul in the aerospace industry, MRO Americas brings together professionals from around the world to experience a comprehensive mix of innovative products, technologies and services. Schaeffler will be exhibiting its portfolio of aviation product and system solutions.

Masthead

Schaeffler today

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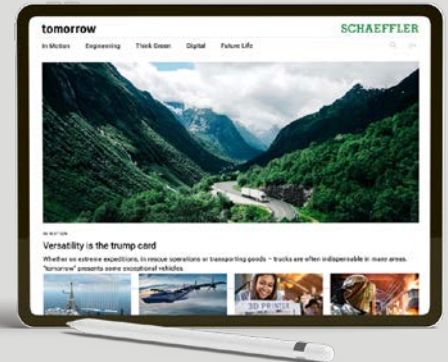
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Moving the world for 75 years.

We have now been keeping the world moving for 75 years. Growing from an innovative idea – the cage-guided needle roller bearing – we are now one of the world's leading automotive and industrial suppliers. And for that, we would like to thank you: our employees, our customers, our partners, and everyone who works with us day in and day out to create sustainable mobility and movement. We are looking forward to the future!

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