



Slovakia

30
years

**This book is published on the occasion of the 30th anniversary
of the founding of ZF Slovakia, a. s.**

ZF Slovakia 30 years
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FOREWORD

In 2015, the ZF Group celebrated its 100th anniversary and we, ZF Slovakia, are a proud member of this family. This year, 2023, we celebrate the 30th anniversary of our company in Slovakia.

When Fichtel & Sachs AG (acquired by ZF Friedrichshafen AG in 2001) invested in a joint venture with the local company Trnavské automobilové závody in 1993, no one could have imagined that it would develop into a company that has employed around 10,000 people over the course of 30 years and which currently has annual sales of almost 1 billion euros. Considering the fact that such investments were only possible after the fall of the Iron Curtain in 1989, ZF Slovakia has been a stable and strong local investor for most of the existence of modern Slovakia.

Our initial product offering revolved around powertrain components. After the takeover by ZF in 2006, the production of chassis components also came to Slovakia. For this purpose, we established a new plant in the Géňa Industrial Park in Levice.

Since 2018, our company has been operating in three other locations - Detva, Šahy and Komárno - which makes us a truly country-wide investor. Local communities benefit from ZF's investments as they bring stable and well-paid jobs to their respective regions. Our vocational training centers not only improve the qualifications of our future workers, but also technically train young people from the surrounding towns. Local companies and service providers have the opportunity to do business with us. Numerous joint activities with schools and universities are proof that we are aware of our social responsibility and that we want to be an active part of the local community. As the 15th largest manufacturing company in Slovakia in terms of revenue in 2022, we are also the 30th largest taxpayer in the country.

Since 2005, ZF Slovakia has not only been engaged in manufacturing activities, but also has a Research and Development Center in Trnava. In this area, we have already gone through the transformation that the automotive industry is currently facing. After decades of developing powertrain components for internal combustion engines, we are now designing components and

assemblies for e-mobility, which is at the heart of ZF's vision of Next Generation Mobility.

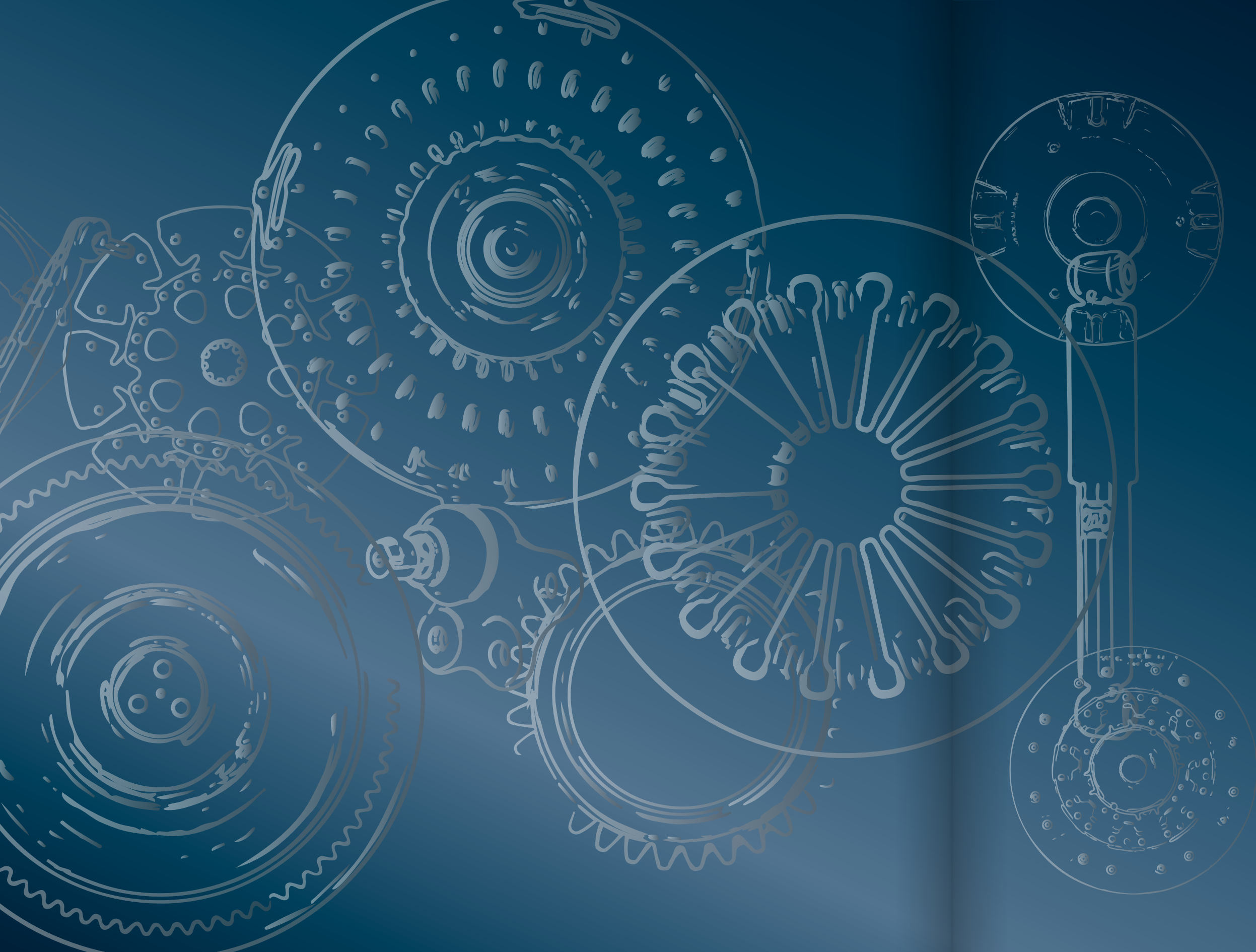
Throughout our history, ZF Slovakia has been supported numerous times by German and other European ZF sites in the start-up of new and relocated production activities. Likewise, local experts, young talent and experienced managers from Slovakia have provided support to ZF plants in Europe, the United States, Mexico and China. Today, more than 100 colleagues from Slovakia have already spent time abroad on assignments within the ZF Group. Some of them have even been offered a permanent position at a ZF plant abroad, which is the proof that Slovak talent can succeed anywhere in the world. In any case, international experience and time spent abroad contribute significantly to local success within a global company.

In the more than 20 years that I have been a part of ZF in Slovakia, I have met dedicated, hardworking and extremely talented people who have been a pleasure to work with. The trust that the ZF Group has shown with the continuous development of its operations in Slovakia is mainly due to them.

Let me thank all the employees who have contributed to the 30-year success story of ZF Slovakia. Well done!

Finally, I would like to thank my long-time, esteemed colleague Roman Pavlovic for taking on the task of compiling this book. After all, who is better suited for this than our former board member responsible for operations, who has been with the company since its inception and is still active as a consultant.

Dr. Dietmar Weigt
chairman of the board of ZF Slovakia, a. s.



HISTORY OF THE COMPANY



1995: Team of SACHS Trnava, s. r. o. with managing director Peter Doll receiving the first Quality Management System Certificate according to ISO 9002:1994.



The history of our company practically began in 1978, when Trnavské automobilové závody bought a license for the production of clutches for trucks TATRA, LIAZ, AVIA and for tractors ZETOR from the West German company Fichtel & Sachs AG.



The official history of our company started with the foundation of the company Sachs Trnava, s.r.o in December 1993 as a joint venture between German company Fichtel & Sachs AG and Slovak company Trnavské automobilové závody, a.s. (TAZ). But it is quite interesting to even look beyond this date to understand what led to this specific decision and location, as in the early nineties, eastern Europe was not really on the automotive map.

Here are the major influencing facts:

- There already was a successful license cooperation dating back to 1978 between Fichtel & Sachs AG and TAZ that produced licensed Sachs clutches for TATRA Kopřivnice, LIAZ Jablonec and subsequently also for ŠKODA Mladá Boleslav since 1983.
- After the change of the political and economic conditions in the former Socialist Bloc some OEMs expressed great interest in investing in Eastern Europe. The front runner here was Volkswagen with its investment in ŠKODA Mladá Boleslav in 1991 and a year later also in BAZ Bratislava, today Volkswagen Slovakia.
- Naturally, the VW group encouraged its major suppliers to invest also in Eastern Europe to create a local supplier base.
- Also motivated by internal plans to globalize its business Fichtel & Sachs was looking for a suitable site in that region. The location Trnava seemed favorable for multiple reasons:
 - Proximity to the Volkswagen investments in Bratislava and Mladá Boleslav.
 - Positive evaluation of the location and the joint venture partner TAZ based on the long term relationship with the license cooperation.
 - Satisfactory infrastructure to the west with motorway and railroad connection as well as Vienna and its airport being quite close.



1998: Celebration of the 5th anniversary of the foundation of the company.

From left to right: **Dr. Norbert Zloch** - member of the board of Mannesmann Sachs A.G., **Konrad Laurer** - commercial director of Mannesmann Sachs A.G., managing director **Peter Doll**, **Roman Pavlovič**, **Marián Mitas**, **Johana Ančicová**, union representative **Anton Mikuláš**



The separation of Czechoslovakia and the resulting uncertainties and fears about the future development and orientation of an independent Slovakia, which launched beginning of 1993, created concerns on the side of the German investor, which delayed the decision for the investment in Trnava. Fortunately, the joint venture was finally founded at the end of 1993.

The joint venture became a 100 percent subsidiary of Mannesmann Sachs AG in 1996, which boosted its development. Apart from the ramping up the original clutch manufacture for passenger cars, our company expanded by producing hydrodynamic torque converters for automatic transmissions in buses, construction machines and trucks as well as dual mass flywheels for passenger cars, a new tool shop was built and the production of clutch facings started in 2003.

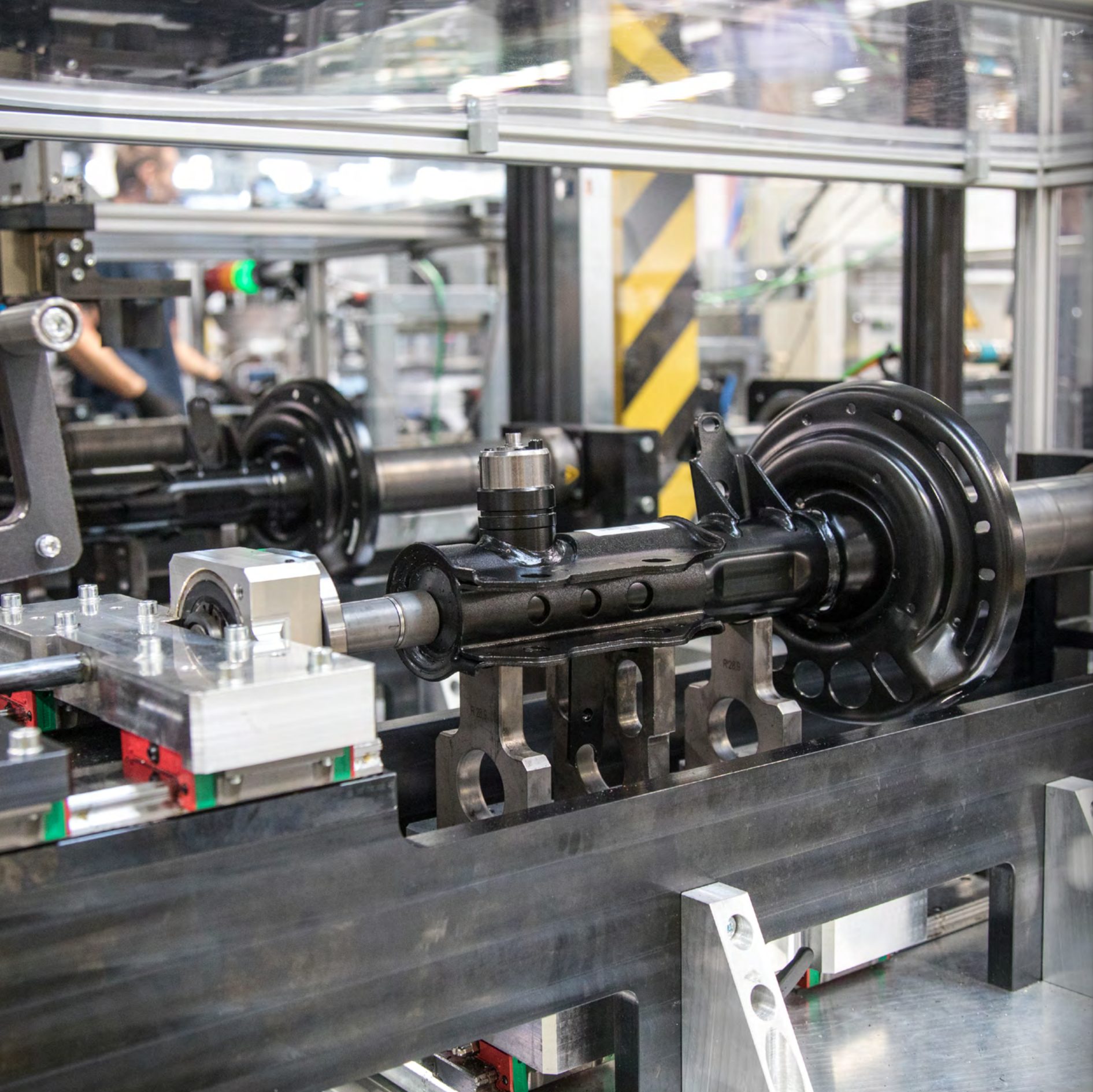
In 2001, our parent company Fichtel & Sachs became a part of the German Automotive Supplier ZF Friedrichshafen AG, causing the name of our company to change to ZF SACHS Slovakia.

In 2003, Peugeot began building its plant in Trnava and in 2004 Kia Motors did the same near Žilina. Both car makers started their serial production as soon as 2006 which indicated a future workforce shortage in these locations. Our company realized that the production has to be redirected to those areas in Slovakia where sufficient qualified workforce is available. For this reason, we decided to develop our business activities also in another location: Levice. In 2006, the ZF Group founded ZF Levice, s.r.o. and started building a new factory in the Industrial Park Levice-Géňa. A year later, the production of conventional shock absorbers for passenger cars as well as the production of ball joints and stabilizer links for passenger cars was ramped up here. In 2010, our company established the second site in Levice in the former industrial area "Levitex", where the production segment of powertrain components located the refurbishment of clutches and later the small-batch production of clutches.

In 1993 the joint venture SACHS Trnava s.r.o. was established.

The joint venture became a 100-percent subsidiary of the company Mannesmann Sachs AG in 1996, which kick-started its development.

In 2001, our parent company Fichtel & Sachs came under the German automotive supplier ZF Friedrichshafen AG, which resulted in a name change to ZF SACHS Slovakia.



In 2014, the two companies of the ZF Group in Slovakia - ZF Sachs Slovakia, a.s. and ZF Levice, s.r.o. – merged, establishing one company called ZF Slovakia, a.s.

The financial crisis hitting the global economy in 2008 and 2009 also had very negative effect on our company. We had to make three hundred redundant leasing and regular associates. Memorable are the words of our general manager Peter Doll that the crisis might slow down business, but it would not discourage the ZF Group from investment plans and activities in Slovakia. The further development of our company only confirmed his words.

Due to the constant rise of production volumes, the availability of qualified workforce became gradually depleted also in Levice. A substantial number of new co-workers could only be provided from more remote locations. When in 2016 the decision to concentrate the European production of adaptive shock absorbers in Slovakia was taken, ZF decided to radically resolve the labor issue by building new satellite plants in the locations Šahy, Detva and Komárno. So along the line of “work follows people and not people follow work”, we brought the work directly to places where the people live.



Since 2018, the Šahy plant has been producing welded outer tubes for a whole range of conventional and adaptive shock absorbers. Painting, assembly and shipping is performed in the lead plant in Levice, which was also extended to host the additional business. In our new plant in Detva, we have been producing chassis components for passenger cars, such as control arms and inner and outer rods, wheel suspensions and ball joints since 2019. In the same year, the small-batch production of clutches for passenger cars was relocated from Levice to Komárno.

In the years 2020 and 2021, the world was hit by the global pandemic Covid-19 which had also a negative impact on our company. In these unsettling times, it was crucial for us to maintain employment at all cost taking every available measure and thus not to lose any qualified associates. In 2020, there was a sales drop for the first time in the history of our company. In the following years 2021 and 2022, we managed to go back to a path of continuous sales growth, despite the war in Ukraine breaking out in February 2022.



ZF decision to relocate inner and outer tie rod business from Germany to Slovakia supported our growth story in 2023. The site in Levice was again extended to host this production.

While setting up the second site in Levice, ZF established local shared services for HR, Finance, Purchasing and IT in Slovakia. These activities, as well as the growing relevance of its operations, attracted ZF entities outside Slovakia to take advantage of our qualified and motivated local people in and outside of our company. Today our company hosts more than 100 employees not working directly for the local plants but for resorts like R&D, Purchasing, Sales, Industrial Engineering, Logistic and IT.



Our company realizes that its further development is also inevitably connected to the development and training of its future employees. Therefore, we started cooperating with vocational schools since 2005 in Trnava and since 2010 in Levice to satisfy the increasing demand for qualified labor in production. In 2016, we joined the dual education system recently established in Slovakia and have gradually built vocational training centers directly in the production plants in Trnava, Levice and Detva. This school year, more than 250 pupils are being trained in these centers in terms of six job profiles.

Apart from the cooperation with high schools, there is also a long-term and intensive cooperation with technically oriented universities, such as the Faculty of Materials Science and Technology of the Slovak University of Technology in Trnava, the Faculty of Mechanical Engineering of the Slovak University of Technology in Bratislava, the Slovak Agricultural University in Nitra and the Faculty of Mechanical Engineering of the University of Žilina. Future engineers have the possibility to intern at our company and acquire production experience as well as work on their bachelor and diploma theses on topics close to practice.



In 2005, our company started with the establishment of the research and development department in Trnava. Today, 70 highly qualified engineers work here conducting research and development of electric engines, hydrodynamic torque converters, torsional vibration dampers and clutches. The prototype shop and the validation department that takes care of simulations and testing of the developed designs regarding their function and durability are also an inseparable part of the development.

Thanks to the e-mobility portfolio already being the largest part in our R&D activities this department has already managed the transformation towards the future of the automotive industry. This still needs to be done in our operations but the plan is set and the first component of e-mobility went into serial production earlier this year: For German premium car maker the rotor of the electric engine for automatic transmissions of hybrid versions car models is produced in Trnava.



In the first economic year of 1994, our company had 200 employees and, converted to euros, and achieved a turnover of 7 million. After thirty years of business in Slovakia, we built a company active in five production locations - Trnava, Levice, Šahy, Detva and Komárno that achieved a turnover of 670 million euros with 3600 employees in 2022. Today, our company can be proud of delivering automotive parts to European and global car makers such as VW group, BMW, Mercedes-Benz, Ford, GM, Mazda, Honda, PSA, Hyundai/Kia, Volvo and of course also for the German parent company ZF.

ZF Slovakia is a long-term member of the TOP 10 of companies in the mechanical engineering industry of Slovakia and a reliable and competitive partner for its customers in the automotive industry in Europe and around the world.



Dr. h. c. Peter Doll

managing director
and chairman of the board
of ZF Slovakia, a. s.
from 1995 to 2021

“In 1995, our parent company was looking for a managing director for its subsidiary Sachs Trnava. Exactly in that time, my family was thinking about coming back to Europe after spending 11 years in America. My first visit to Slovakia was a business trip in January of 1995. In September 1995, I was already made an employee of SACHS Trnava. At that time, our joint venture employed 210 associates reaching a turnover of around 300 million Slovak crowns (10 million €). The task I got was simple: double that number. Some colleagues were very skeptical at that point and it was not easy to believe that it could be done. Today, we only laugh thinking about those times, because the goals have been exceeded manyfold.”

PERSONALITY PETER DOLL



25.11.2014: rector of Slovak University of Technology in Bratislava prof. Ing. Robert Redhammer PhD. presented managing director Peter Doll with the highest university award „Doctor honoris causa“.

“After my arrival to Slovakia, I was pleasantly surprised by the good level of the local workforce. I found a team of qualified and flexible team members with high commitment to the job, who had already adopted the western understanding of quality and reliability of deliveries. At that time, this was our competitive advantage compared to the established western European automotive sites, which boosted further growth of the company.”

During his whole time in Slovakia, Peter Doll promoted close cooperation with regional institutions such as local government authorities and especially schools. He always considered the cooperation with schools as his obligation as a local business man. He understood that such an activity ensured a positive and well appreciated contribution to the school, to the local community and finally to the company ZF Slovakia.

Peter Doll was awarded several times for his significant role in the economic development of the Trnava and Levice region as well as for activities in the long-term cooperation with educational institutions:

- 2001: “Honorary citizenship of Trnava”
- 2010: “Mayor of Levice award”
- 2014: “Doctor honoris causa” from the Slovak Technical University in Bratislava.
- 2016: “Medal of the Slovak University of Technology in Bratislava”

Peter Doll, our chairman of the management board for many years left the company in the Summer of 2021 after 26 years of active work in Slovakia and went into retirement. Thanks to his exceptional determination and entrepreneurial skills, our company has grown from a small business to a company ranking among the TOP 10 companies in the automotive industry of Slovakia for many years now it is a reliable and competitive partner for its customers in the automotive industry in Europe and around the world.

“In my professional life, which I spent solely in the ZF Group, I worked several years in Germany at first, then eleven years in America and finally 26 years in Slovakia. Therefore, I consider this country my second home. On the occasion of the 30th anniversary of ZF Slovakia, I would like to thank my colleagues for 26 years of cooperation and wish the company many more successful years in Slovakia.”

2017: Visit of Andrej Kiska, the president of the Slovak Republic, in ZF Slovakia in Levice. Everybody was in a good mood during the president’s visit.

Peter Doll was mainly responsible for the development of our company gradually expanding the portfolio from the original production of clutches in Trnava since 1995. Production of other powertrain components such as torque converters and dual mass flywheels was located in Trnava. Also the insourcing of component production such as clutch facings, stampings, gears, hubs, etc. was fostered. And, with the 2nd site in Levice also chassis components such as shock absorbers, ball joints and stabilizer links were added to the production program.

Other important decisions by Peter Doll were the establishment of the company’s own tool shop in 2000 and the clutch development department in 2005.

With his personal engagement Peter Doll significantly contributed to the establishment of the sister company Boge Elastmetall Slovakia, a.s. in Trnava in 2000. The original intention of the Boge headquarter was to locate this company in Poland.

From 2006 to 2007, Peter Doll was the main promoter of setting up a 2nd site in Slovakia by establishing a new company ZF Levice, s.r.o. and building up a plant in the Industrial park Levice-Géňa. Later on an affiliated plant in the former Levitex industrial complex in the same town was set up.





Trnava
 110.000 m²
 1420 employees



Levice
 135.000 m²
 1620 employees



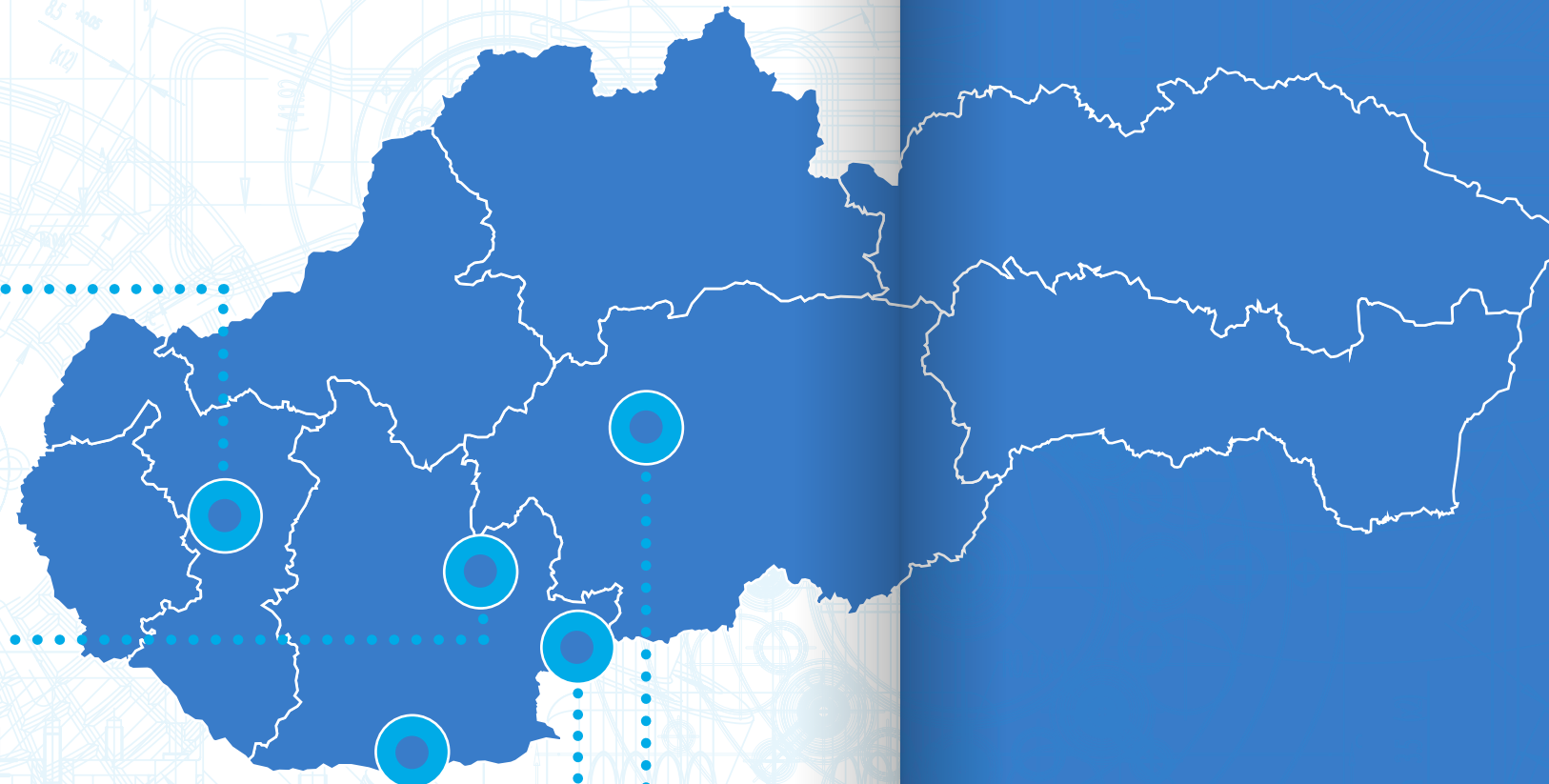
Komárno
 30.000 m²
 120 employees



Šahy
 30.000 m²
 290 employees



Detva
 12.000 m²
 280 employees



ZF Locations in Slovakia

The operations of our company ZF Slovakia are distributed over five cities in the south-western part of Slovakia.



1993

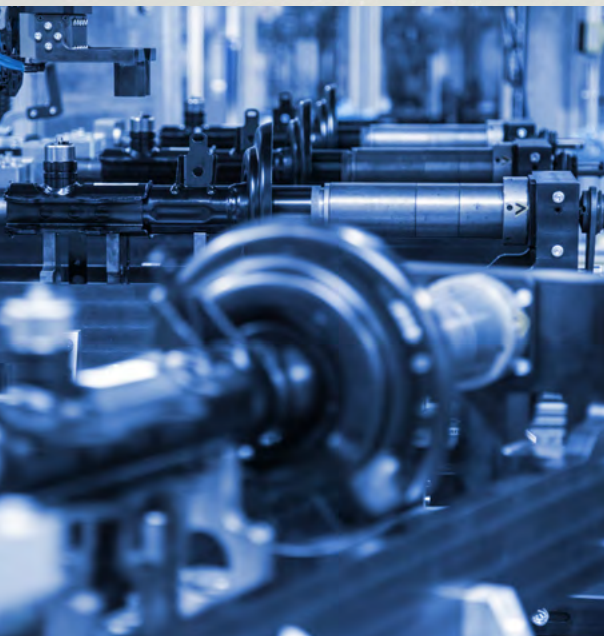


Trnava

Our company was founded in Trnava in 1993 and Trnava is until today the company's local headquarter. This city is more than 800 years old, it is the seat of an archbishop and is called "Slovak Rome" because of its many churches. The plant with its 110,000 m² is situated in the former TAZ areal in the south western part of the city. It produces powertrain components starting from steel coils and finishing with the assembly lines. In 2016, a former school building in Razusova street, which is close to the city center was rented by ZF Slovakia to host most of its shared services. Today, around 1400 employees work at our sites in Trnava.



2006



Levice

In 2006, the Industrial Park Géňa in the city of Levice was chosen as the location for ZF's second site in Slovakia. Levice was first mentioned in 1156, is a former textile industry center and hosts the ruins of the "Turkish Castle", dating back to the wars with the Turks in that area. Our plant in Levice-Géňa produces shock absorbers and chassis components for passenger cars on a 95.000 m² premises. In 2009, we established another site in the Industrial Complex Levitex, which produces components for clutches and dual mass flywheels as well as shock absorber modules on 40.000 m² of rented space. Today, ZF Slovakia is the biggest employer in Levice with its team of 1600 men and women.

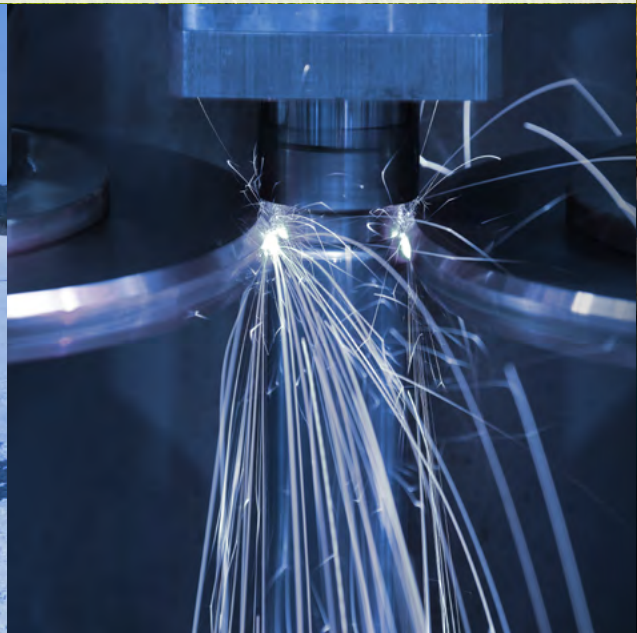


2017



Šahy

Šahy is a small town, nearly 800 years old, at the border to Hungary at the river Ipeľ, 40 km away from Levice. ZF activities in Šahy started in 2018. Our plant is built on 30,000 m² plot at the northern edge of the city producing welded tubes for our shock absorber assembly in Levice. Almost 300 employees work in our Šahy plant on state-of-the-art welding lines.





2018



Detva

Our plant in Detva is located in the Punch Campus at the eastern edge of the city. Detva, which is around 400 years old, is best known as a center of Slovak folklore and corresponding festivals. Established in 2018, the plant in Detva produces structural chassis parts as well as inner and outer tie rods. Our team in Detva consists of nearly 300 individuals working in an area of more than 10.000 m² of rented space.



2018



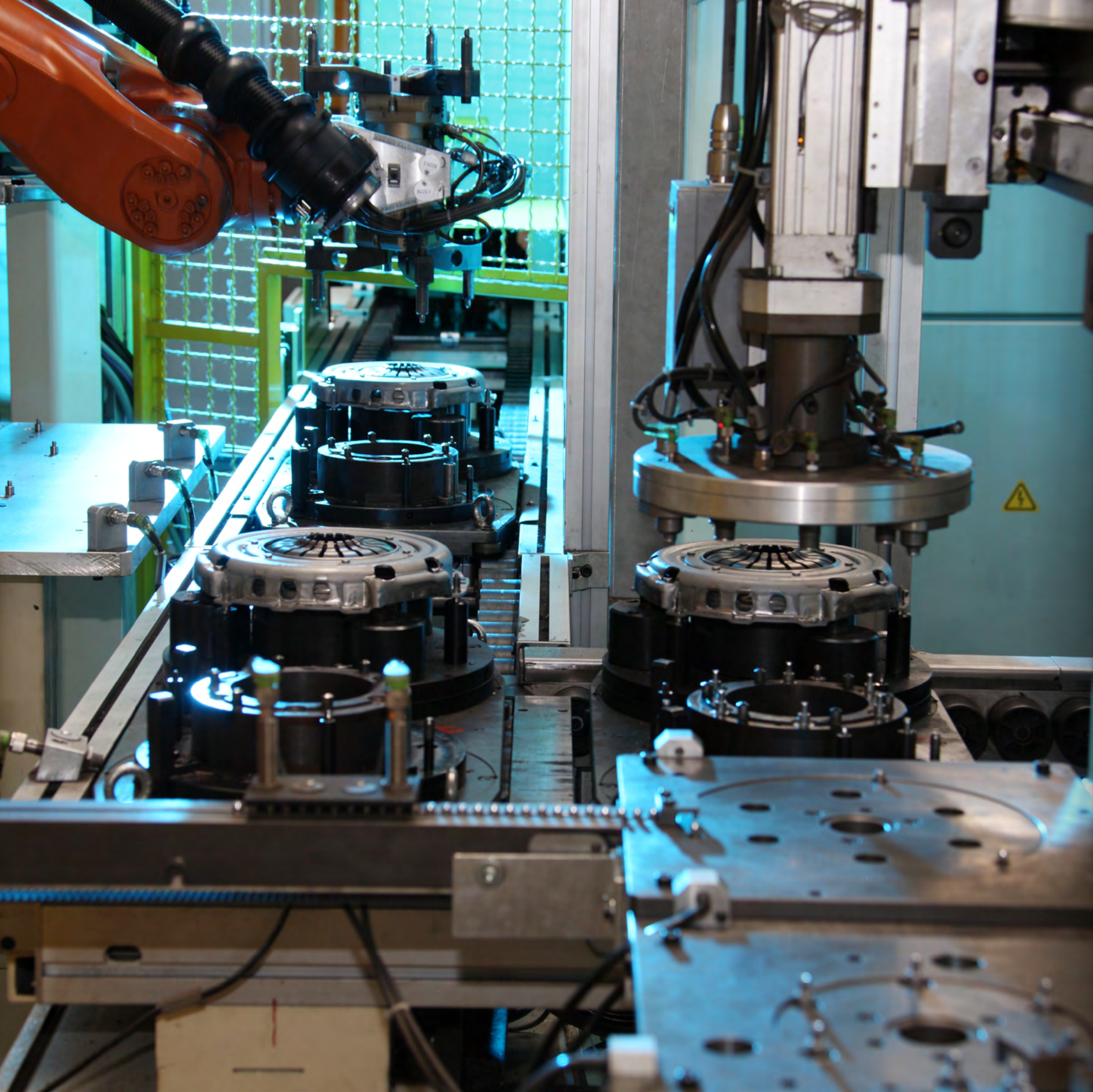
Komárno

Our plant in Kormano focuses on the assembly of passenger car clutches for the Aftermarket since 2018. It is located in the most north-eastern part of the city on 30,000 m² of rented space. The city of Kormano, first mentioned in 1075, is situated at the banks of the river Danube, which also is the border to Hungary here. More than 100 employees work in our plant in Komárno.



Product Portfolio

Our company ZF Slovakia has a wide ranging product portfolio of powertrain and chassis components, which represent traditional products from ZF, especially its acquisitions Fichtel & Sachs AG as well as Lemförder Met allwaren AG. Regarding current development and changes in the automotive industry this is the subject to change



COMPONENTS FOR MANUAL TRANSMISSIONS

Clutches

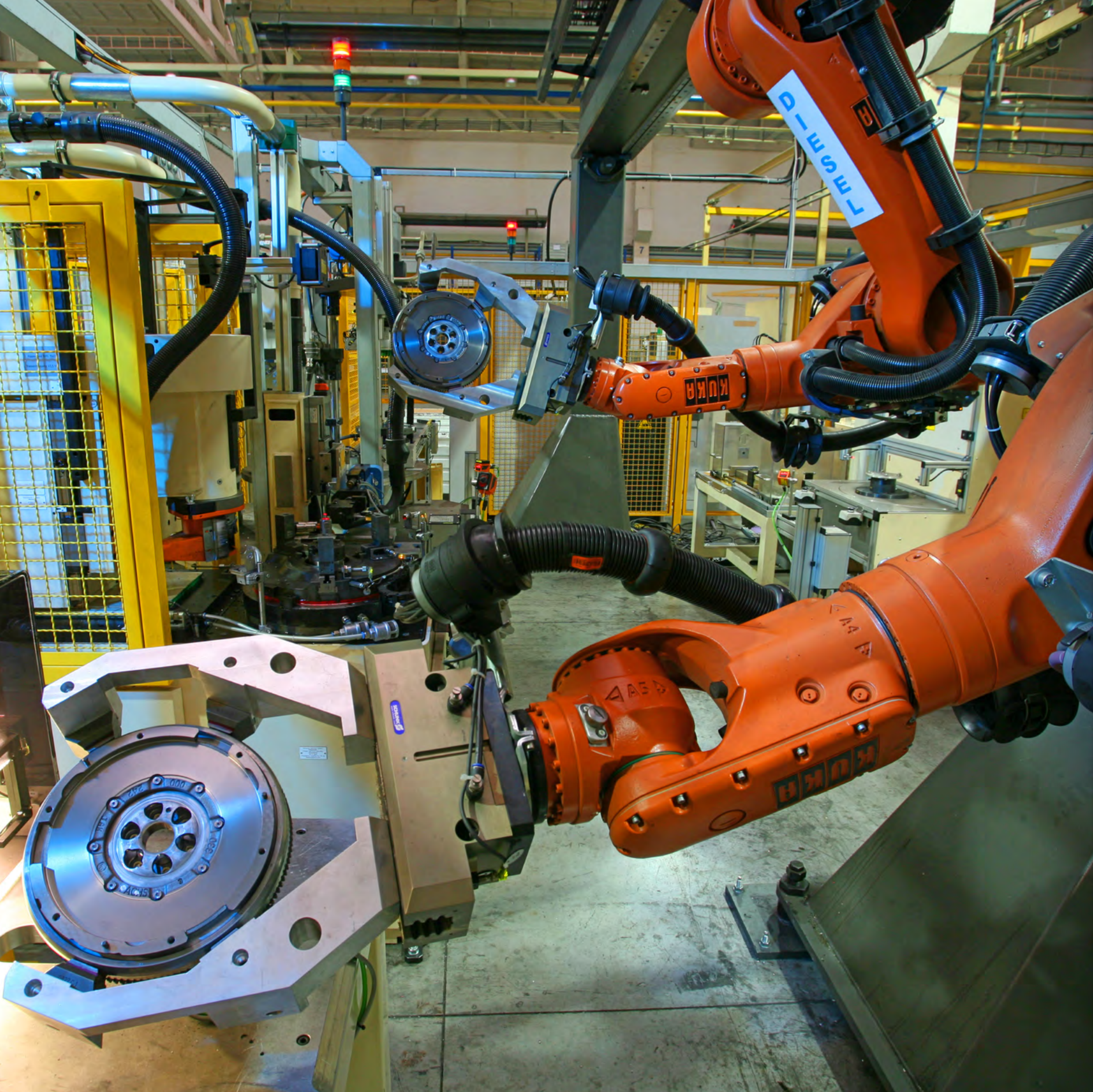
Clutches were the first products of our company when it was still a joint venture with Trnavské automobilové závody (TAZ) and they are produced until today.

When our company became a wholly owned by the parent company Fichtel & Sachs in 1996, clutch sales steadily increased, as the parent company established a best cost country site for one of its signature products at the time.

To improve the profitability of the clutch business, we decided to produce clutch facings inhouse. By 2003, our site in Trnava was ready to supply first facings to its clutch assembly lines. The friction material of the facing was not made of steel, the material the team in Trnava used to work with. The successful ramp-up of this production is one of the examples where entrepreneurship, industrial engineering expertise and dedication to get a job done can be clearly seen. Gradually, the production volume of facings increased due to the ramp-up of new OEM and aftermarket projects as well as supplying to other ZF sites abroad. In the peak year 2017, 9 million facings were produced.

In 2013, ZF decided to gradually concentrate all the European clutch production to Trnava, making our company the biggest clutch production unit within ZF by 2017 with a peak production volume of 3.2 million.

The main function of the clutch is the short-term disengagement of the torque between the engine and the manual gearbox in order to change the gear and to provide a smooth move off of the vehicle. The main components are the clutch cover and the clutch disc with the friction facing.



The primary function of the dual mass flywheel is to damp torsional vibrations generated by the combustion engine. The dual mass flywheel consists of a primary and a secondary part which are interconnected by a set of coil springs.

Today, we can produce around 1.5 million of those torsional dampers.

Dual-mass flywheels

When supercharged combustion engines, especially diesel engines, entered the car market in the early 1990, the need for special torsional dampers became obvious. The new engines produced such high torsional vibrations that just connecting them to the given powertrains would damage the transmission quite quickly. That is why Fichtel & Sachs also entered the business of dual mass flywheels starting production in Germany first. By 2007, the first assembly line was launched in Trnava for aftermarket variants. First OEM projects were launched with the second assembly line in 2009. In 2019, ZF took the decision that our Trnava plant would host almost all of the dual mass flywheel production in Europe. Today, we can produce around 1,5 million of those torsional dampers.

To cope with the ever increasing growth combined with the limitations of the labor market in Trnava, the powertrain business initiated the search for the second site in Slovakia which was finally found in Levice. The manufacturing of components, especially in the machining area, was gradually also relocated to Levice from 2017 on together with the small-lot assembly of clutches.

In the second step in 2018, the site in Komárno was established to host the small-lot assembly of clutches for the aftermarket.



COMPONENTS FOR AUTOMATED TRANSMISSIONS

Torque converters

The hydraulic torque converters connects a combustion engine with a planetary automated gearbox. The component supports the powertrain during drive off and gear shift.

Production of torque converters for truck, industrial and off-road applications started in Trnava as early as 1997 after relocation from the Fichtel & Sachs headquarter in Schweinfurt. One year later, a similar relocation took place, when - at that time a ZF customer - outsourced its torque converter production for city busses to Slovakia.

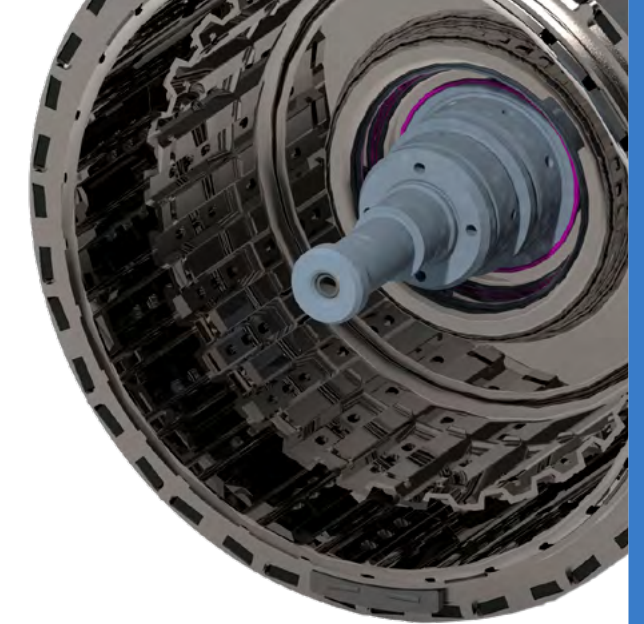
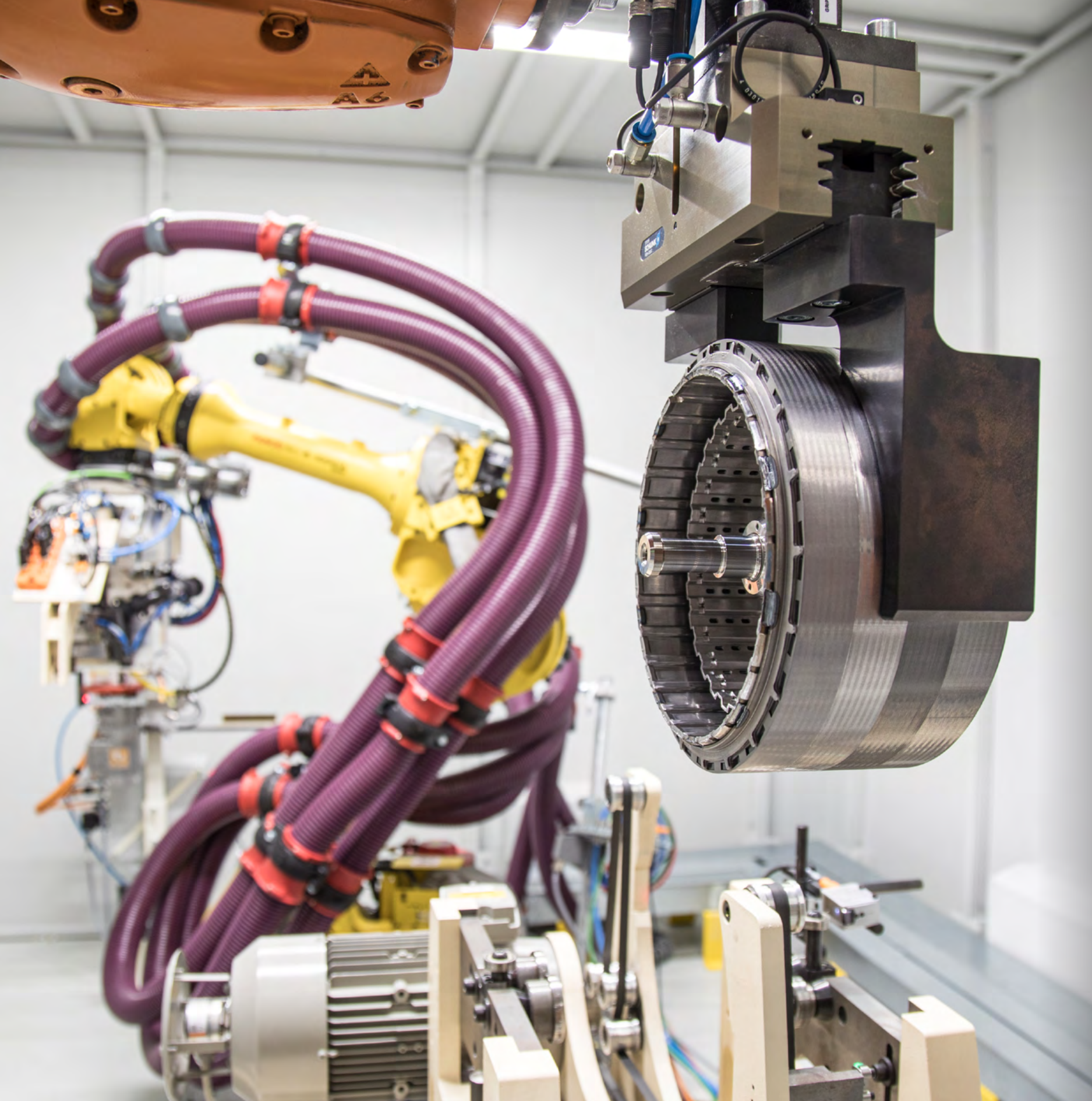
In 2009, production of torque converters for passenger cars for 2 French car makers started in Trnava. The positive experience with this project qualified the site to also host production for torque converters for the ZF 8HP automatic transmission, one of the mother company's signature products. Most recent highlight is the start of production of torque converters for ZF's EL 58 transmission targeted at the medium-heavy truck, heavy pick-up and bus market.

The production of torque converters includes a set of very different manufacturing technologies such as MAG, laser and electron beam welding as well as gear cutting, heat treatment, deep drawing and soldering. Our teams can master such a variety and deliver complex powertrain components to our customers on time, with the expected quality and at a competitive price.

In the last years, the production of torque converters stabilized with yearly volumes of around 60,000 torque converters for trucks, construction machinery and buses, and around 200,000 torque converters for passenger cars.

Torque converter components were also a part of the relocation to Levice starting in 2007. The team there developed over the years a unique expertise around machining a portfolio of more than 1000 different parts.

The basic function of the hydrodynamic torque converter is to provide a smooth transfer of the torque between differently rotating parts of the combustion engine and the gearbox during the vehicle move off and gear changes. This is managed by the hydraulic oil flow from pump blades towards the turbine.



ROTOR FOR E-MOBILITY

At the beginning of 2021 ZF took the decision to allocate the production of Rotor and input shaft in Trnava for hybrid double clutch transmission for a German premium car maker. Since that moment, a dedicated interdisciplinary project team in Slovakia has worked with lots of effort on planning and executing the industrialization of ZF Slovakia's first ever e-mobility products.

The production of rotors now takes place on a state-of-the-art assembly line, exclusively developed and sourced for this application. The assembled product is delivered to the ZF gearbox manufacturing site in Brandenburg, where, the Rotor is integrated with the Stator to create the e-motor for the electrified double clutch gearbox, a crucial component in high-performance cars of our customer.

Despite challenging global conditions as the chip crisis and COVID-19 pandemic, the project-team successfully developed, validated, and ensured the assembly line's readiness, culminating in the delivery of the first serial condition prototypes in autumn 2022. Iterative optimization of processes resulted in an initial delivery of serial parts one year later.

The serial production is now ramping and our first e-mobility product will hit the road in customer cars in 2024. This underscores ZF Slovakia's ability in industrializing new technologies and actively participating in ZF's transformation. The knowledge and experience gained by the project team will be transferred into upcoming projects and crucially contribute to the plant-transformation towards e-mobility and a sustainable future of ZF Slovakia.

The main components of the electric motor are the stator and the rotor. The purpose of the electric motor is to convert electrical energy into mechanical energy, while the electric energy creates an electromagnetic field in the stator which causes the rotor to rotate.

The serial production is now ramping and our first e-mobility product will hit the road in customer cars in 2024.



SHOCK ABSORBERS

ZF shock absorbers OEM market share belongs among the top 3 globally. Along with brands like Sachs and Boge they are also the first choice for our customers in the aftermarket.

Today ZF Slovakia hosts the biggest European shock absorber operation in Levice and Šahy. The lead plant in Levice started as a green field project in 2006. In 2018 a new plant to host the outer tube production for shock absorbers was built in 40 km distant Šahy. Today almost 900 employees in Levice and nearly 300 employees in Šahy produce around 9 million shock absorbers annually with a variety of functional features and for a wide range of international customers.

State of the art production technology, digital tools and a qualified and motivated team ensure the best in class quality and efficiency. Our deep understanding of welding, painting and assembly processes, 15 years long experience of continuous improvement, lessons learnt and innovations on shock absorbers production have made us a very competent and capable production site in our business. In addition, unique product features and outstanding damping performance help our customers in offering exceptional ride and handling for their vehicles.

The future actions of the operations in Slovakia are focused on adaptive and later even active shock absorbers. This market is constantly growing as technical requirements towards chassis components and systems are ever increasing. They should provide a comfortable and safe ride especially for big SUVs, heavy electric cars and autonomous driving vehicles.

The Slovak team is ready to face this challenge: ZF Slovakia has produced more than 75 million shock absorbers until today and is looking forward to shaping the future of vehicle motion control.

The main function of hydraulic shock absorbers is to damp the transmission of vibrations towards the vehicle body, to always keep the wheels in contact with the road and to make the ride comfortable. Conventional shock absorbers only provide a fixed damping characteristic, while adaptive shock absorbers can change the damping characteristic in milliseconds based on the continuous information from sensors or the intervention of the driver.





CHASSIS COMPONENTS

Stabilizer links and ball joints are vital chassis components as they help to stabilize and precisely control the vehicle. When ZF decided to build a plant for those components in eastern Europe, this product portfolio became part of the new site in Levice starting production in 2007.

The production volume increased steadily year over year and in 2012 an extension to the production hall was built. In 2015 12.5 million stabilizer links and 12.5 million ball joints were produced in Levice.

At the same time, the manufacture went through its development and new manufacturing technologies such as the resistance welding of ball pins as well as the introduction of plastic stabilizer links were introduced. Our team was able to manage those changes as well as innovating in managerial aspects. The chassis component plant in Levice was the first to introduce a shop floor management within ZF, where the teams met in production on daily basis to discuss incidents and results of the last 24 hours and decide on the plan for the next 24 hours.

At a certain point the expansion of the production in Levice was no longer possible due to the limitation of the local labor market. That is why in 2017 a new plant for structural chassis parts as well as inner and outer tie rods was built in Detva. Tie rods are vital parts of a car's steering system. Their production started in 2018 and the plant is ramping up volume significantly reaching 2.5 million structural parts and 6.7 million inner and outer tie rods in 2023.

As part of a revitalisation of our production footprint in Slovakia, the site in Levice -Géňa will become a chassis components only production and powertrain parts will be relocated to our Trnava site. These changes will provide the room to locate additional chassis business in Levice. We have just finished a warehouse extension to an existing production hall and we are in the middle of relocating inner and outer tie rod production from Germany. When the connected activities are finished, Detva will be our center for those big structural parts, while Levice will be our hub for producing smaller parts such as stabilizer links, ball joints and rods.

The main function of chassis components is to fulfill complex tasks in the chassis system such as reducing the tendency of the vehicle to roll when cornering (stabilizer links), transmitting the driver's steering movements to the front wheels and reducing wear on tires (control arms / tie rods), or potentially transmitting longitudinal and lateral forces in the axle (ball joints). These components provide driving safety for the passengers.





AFTERMARKET

Although clutches were the first product to be produced in our company, we have to face the fact, that this business is becoming smaller and smaller every year. The decades long shift towards automated transmission as well as the recent shift to electric powertrains make clutches obsolete in cars. ZF decided years ago that components, that can only be applied in cars with a combustion engine are no longer developed and quoted. That is why – on the one hand - our OEM business significantly decreases year over year and becomes less and less attractive. On the other hand, we know that clutches, as one of the parts which might not last until the car's end of lifetime, are a very significant business in the aftermarket from the point of creating significant revenues in the future.

As ZF has one of the strongest aftermarket organization within the automotive supplier industry, it was a logic decision to keep the production within ZF but move responsibility from the division doing powertrain business with OEM customer to the Division taking care about our aftermarket business.

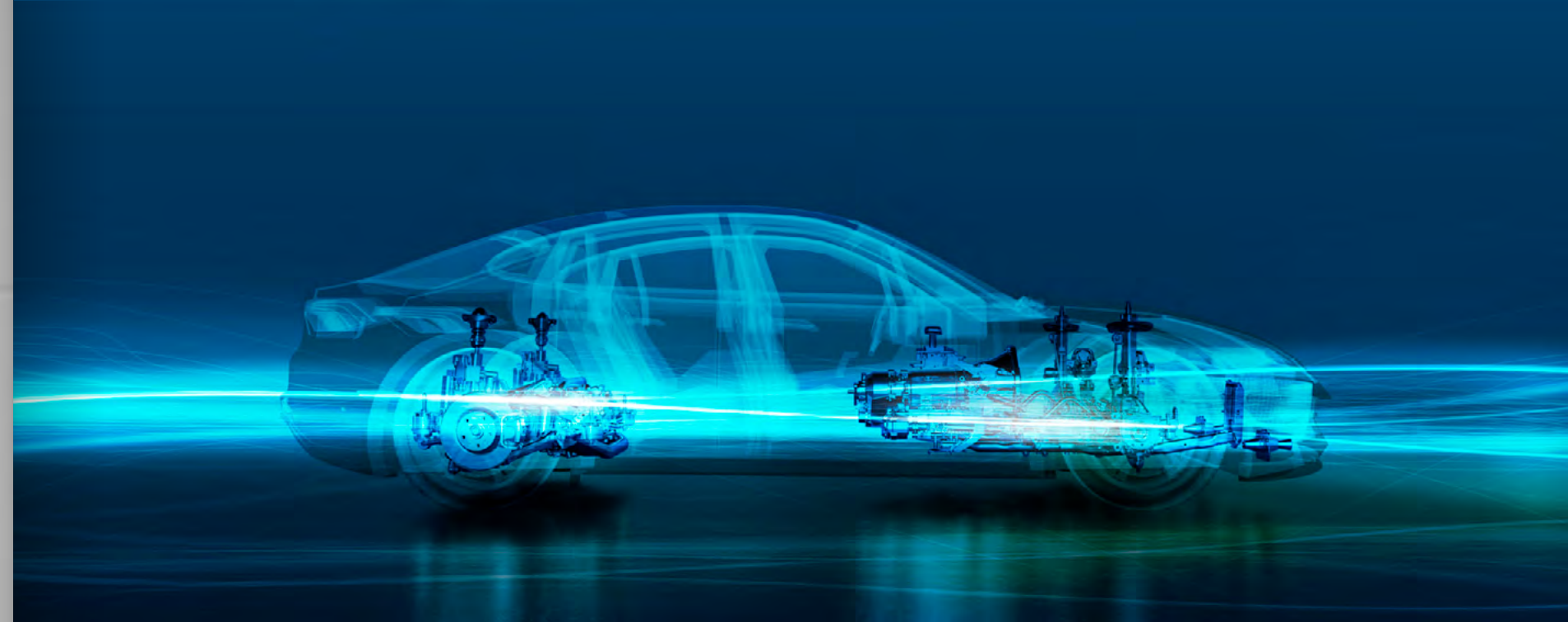
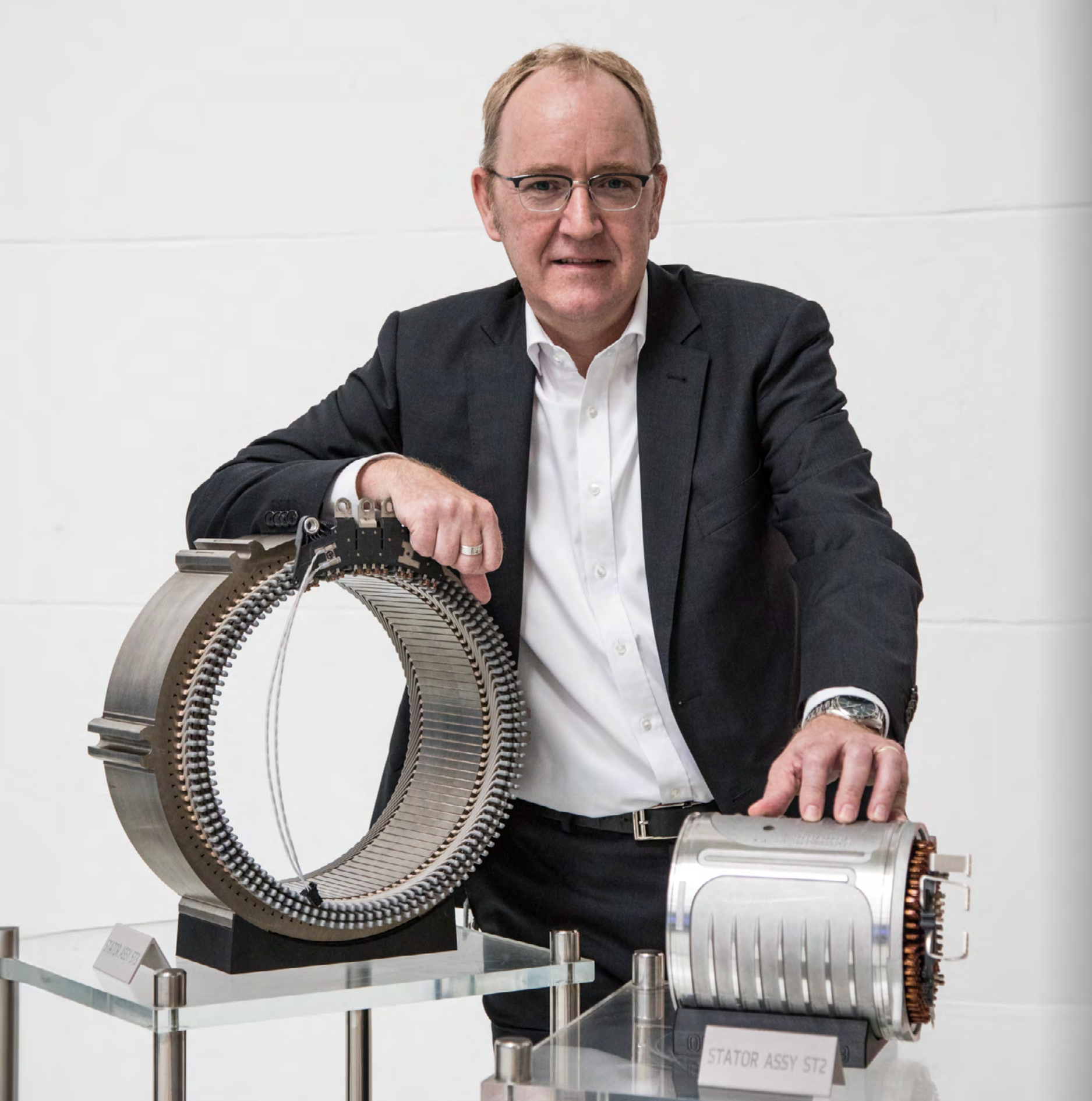
With that decision, a third ZF division next to our Electrified Powertrain Technology and Car Chassis Technology division will become a part of ZF Slovakia. With the start of 2024 the Division Electrified Powertrain Technology will transfer its production sites in Komárno and Levitec in Levice to the Division Aftermarket. The later will also be responsible for the clutch assembly in Trnava.

About 600 of our employees with their decades long experience with the production of clutches and their components only little will change as they keep being a vital and integral part of ZF Slovakia and the whole ZF group.

ZF decided years ago that components that can only be used in internal combustion engine vehicles will no longer be developed and offered.

Transformation with added value for employees and customers.

As of January, 1st 2024, the new Division Aftermarket starts operating in ZF Slovakia.



THE FUTURE OF OUR COMPANY

Since its foundation 30 years ago, our company has been experiencing constant growth. The product portfolio has been constantly expanded. Over time, some projects came to an end, but our established product families remained. Due to the also publicly much discussed transformation in the automotive industry from the combustion engine to the electric engine as well as the introduction of more and more autonomous driving, things will change for us, too. However, changes always come with new chances. And we seized those ...

ZF has recognized the changes in our market and around it early and adapted its strategy accordingly. Our vision "A clean, safe, comfortable and affordable mobility for everyone, everywhere" encompasses e-mobility as one of the four fields of action. The ZF Group has introduced appropriate measures to realize this strategy. We can follow a lot of it in our group-wide intranet or on the ZF websites. At the latest since 2021, we have been a part of this transformation. It started with our development department. Since this year, we also feel the change in the production, especially in Trnava, but we are not done yet: ZF has decided to invest big in the Trnava site, so that we are able to mass-produce electric engine components. This means that the newest production technology for e-mobility will be installed in Trnava and that our employment is ensured. Of course, such development means that there will be different

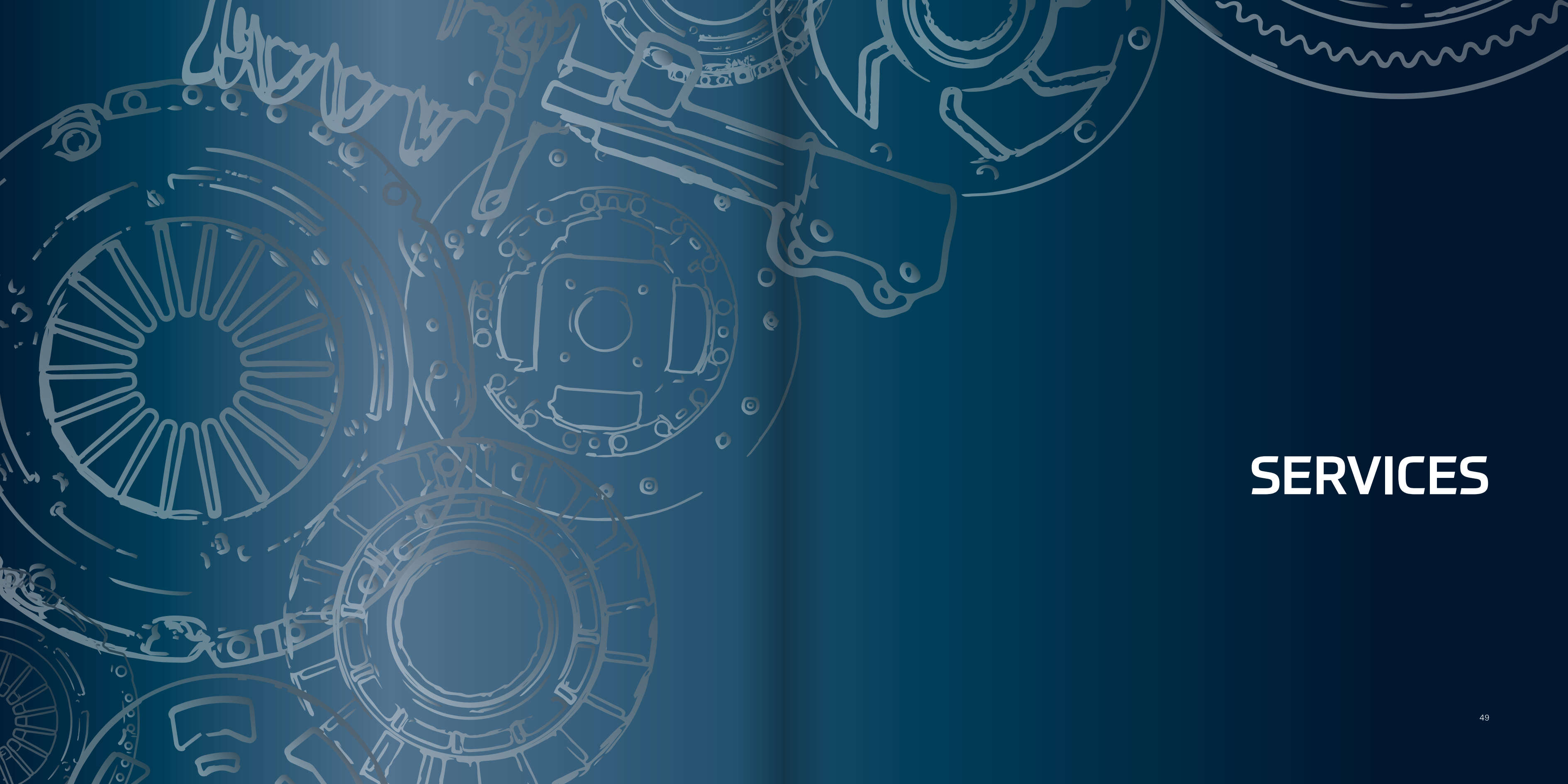
demands towards qualification, working environment and work contents of many employees in the production and in the office. Automatization, digitalization and complexity will rise noticeably. We have to respond to this openly and positively.

The changes in the automotive industry also open new market opportunities for our chassis products. Heavy electric cars with no more engine sounds make much higher demands on the built-in chassis components. As a technology leader, ZF knows the right answers to these issues today and they come in a form of production in Slovakia. Autonomous driving, where not all of the passengers necessarily sit in the driving direction and look at the road, can lead to the increase in travel sickness. This requires adaptive shock absorbers with fast regulation to minimize undesired vibrations of the vehicle body. Products like these also constitute a large portion of the product portfolio of our company.

We are an experienced, qualified and motivated team in ZF Slovakia. After 30 years of growth, the course is still set for a successful future. On our way there, we will proceed together and get ZF's "Next Generation Mobility" up and running.

Jürgen Heinrich Bölt

member of the board of ZF Slovakia, a. s.



SERVICES



TOOL SHOP AND PRODUCTION OF FIXTURES

The second half of the 1990s was already marked by the fast development of our company. The growth in volume brought new challenges in the area of providing tools and measurement equipment for production. With gradually increasing volume and complexity of our demands external suppliers eventually could not meet our requirements regarding knowhow, speed, service and accuracy. That is why the idea of establishing an inhouse tool shop was born and put to reality in the beginning of 2001.

At the start, the tool shop included 13 associates, 11 dedicated machines and a little bit more than 200 m² shop floor space. As internal customers quickly took opportunity of the inhouse capabilities and drastically shorten delivery times to meet industrialization deadlines, we knew we made the right decision. Based on the initial success a development plan for a full size tool shop was set up. That was the reason for introducing services such as technical consulting in the design phase and make or buy decision making. A self-sufficient production unit taking care about logistics, production planning, quality assurance and cost control had to be set up.

Today, we have a clean and modern production area of 2500 m² with high-end production equipment consisting of 70 machines. We built on 22 years of experience with the design and production portfolio consisting of stamping tools and fixtures for machining, assembly and quality control.

Our greatest asset has always been the team of meanwhile 100 carefully chosen and constantly trained associates. The high level of technical knowledge and the average age in the mid 30ties allows us to look into the future with optimism. We are a part of our company's transformation towards e-mobility providing already tools for our e-motors projects to our internal customers within the ZF group.

We are also proud to be a part of our vocational training center in Trnava right from the beginning. We gave a professional home for a big share of its graduates over all those years. We are convinced that investing in young people is the right way of creating the brighter future for all of us.

Today, the tool room has a modern production area of 2500 m² and state-of-the-art production facilities that include a total of 70 machines and more than 22 years of experience in the design and manufacture of a large range of stamping tools and fixtures for machining, assembly and quality control.

Today, we also produce tooling for our e-motor projects for our internal customers within the ZF Group.



Xylene recycling equipment. Xylene is used as a solvent while producing clutch facings. Through this process, up to 93% of xylene is recycled.



Seat of Technical Services

TECHNICAL SERVICES

Technical Services constitute a central technical team that is responsible for the following areas in all plants and reporting units of our company.

Facility management

Apart from taking care about present buildings and infrastructure our employees in Facility Management plan and supervise the construction and building of new production halls, office buildings, infrastructure installments as well as renovating and refurbish existing structures. With that inhouse expertise ZF Slovakia was able to support its growth by extending its premises on time and on costs.

Major milestones have been:

2006-2008: Building a new multidivisional plant in the industry park in Levice-Géňa.

2011: Extending the production hall for chassis components in Levice-Géňa.

2016: Building a 4-storey building to host our vocational training center in Trnava.

2017: Extending the production hall for shock absorbers in Levice-Géňa.

2018: Building a new plant in Šahy.

2023: Building a warehouse extension for chassis components in Levice-Géňa

Our Facility Management team was also involved in planning and realizing modern cooling systems in several production halls.

Technical Services constitute a central technical team that is responsible for the following areas in all plants and reporting units of our company.

- Facility management
- Environment, Health and Safety (EHS)
- Energy management



Construction of the skeleton of the warehouse hall in the Géňa Industrial Park in Levice in March 2023.



Dual Education Center in Trnava.

Environment, Health and Safety (EHS)

The area of EHS is essential in our company, because there is nothing more important than the health of our employees and protecting the environment we all live in. Safety is the first item in our daily agenda and our central EHS team helps us to train our employees, to introduce new systems and methods, audit existing ones and have lessons learnt across the company. All our sites are certified according to ISO 45001 to have an effective safety and health protection system in place.

Energy management

A central part of ZF's strategy is to become climate neutral by 2040. Under the guidance of our Technical Services we established a team of experts to help us to identify new technology to save energy, reduce consumption where ever possible and to involve every employee in these efforts. As early as 2016 we successfully certified our energy management system according to ISO 50001.

Installing LED lighting with automatic intensity regulation in our production halls, using heat pumps to use otherwise wasted heat and installing xylene recycling in our clutch facing production belong to major activities in energy savings.





Seat of Shared Services in Trnava.

- HR
- Finance
- IT
- Purchasing of non-production material
- Facility Management including Environment, Health and Safety (EHS)

SHARED SERVICES

While planning the second production site and setting up the third ZF company in Slovakia – at that time Boge Elastmetall Slovakia in Trnava was still a part of ZF – the group decided to introduce locally shared services in Slovakia.

That involved:

- HR
- Finance
- IT
- Purchasing of non-production material
- Facility Management including Environment, Health and Safety (EHS)

With this setup, starting in 2007, the new company ZF Levice could focus on ramping up its operation while relying on our experienced colleagues knowing ZF systems and procedures around the services mentioned above. By locating additional business, equipment and employees in Levice, we also had to grow our shared service teams even placing team members there. This story continued when we established additional sites in Šahy, Detva and Komárno.

Moving forward, we even increased the scope of our shared services by introducing Purchasing of production material, Transport

Management and Supplier Quality into that portfolio, where we wanted to bundle expertise, create synergies and save costs. When the ZF group started to look where to locate certain elements of its corporate functions in eastern Europe, our shared service teams were one place to go. Starting with the Purchasing of non-production material, today nearly every shared service is hosting colleagues, who are mainly not working for the local operations but for a ZF entity located outside of Slovakia.

In 2014, the two remaining ZF companies in Slovakia merged to create ZF Slovakia. This made it also easier for the local shared service teams in Slovakia to conduct their business. Our extended shared services became bigger and bigger, so that we had to create additional office space outside of our factories. In 2017, the ZF Shared Service location at Razušova street in Trnava was established. Today, around 100 employees work there, while another 50 are still located in our plants.

The expertise and experience we gathered in our shared service teams are immense and are a great support for our local operations. Job rotation between shared service and operations is also a great benefit for ZF Slovakia having already been the start of the one or the other managerial career.

QUALITY



In the automotive industry, excellent quality is the prerequisite for achieving success. ZF Slovakia is dedicated to deliver exceptional quality to all its customer. The quality of manufactured products and provided services is very closely connected to the quality management system. That is why setting up a robust and effective quality management system (QMS) was one of the main tasks of our company and its associates right from the beginning. The result of this effort was the QMS certificate according to the ISO 9002:1994 standard obtained in 1995.

Thanks to the certificate, we strengthened the trust in our organization and enabled ourselves to enter into new markets with new customers. If anybody thinks that this means that the building up of the quality management system is finished at this point, they are very much mistaken. With the expansion of production, the increasing number of products, new customers and the development in quality management, new requirements for the quality management system were constantly emerging.

Find listed the standards according to which our company was certified from the time of its establishment until the present:

- 1995:** ISO 9002:1994
- 1998:** VDA 6.1, QS 9000:1998, ISO 9001:1994
- 2004:** TS 16949:2002, ISO 9001:2000
- 2010:** TS 16949:2009, ISO 9001:2008
- 2018:** IATF 16949:2016, ISO 9001:2015

Apart from the obtained certificates, the company was also awarded by our customers regarding our quality performance. During the course of its history, we have received the quality award from our customer VW Škoda several times and also awards from customers Daimler Chrysler, Ford, PSA, GM, JLR, Opel, Hyundai, Volvo and others. In 1997, the company also received the Quality management system excellence acknowledgement from the Ministry of Economy of the Slovak Republic.

Today, we have state-of-the-art measuring equipment and staff with the knowledge of our customer's requirements, quality planning and systematic problem solving at our disposal, to master the challenges of a dynamically changing automotive industry.





Ing. Denis Beláček, an R&D engineer at ZF Slovakia, alongside of an electric drive for Mercedes Benz. The production of electric motor in this drive is set to commence in 2024 at our plant in Trnava.



RESEARCH AND DEVELOPMENT

In 2005, ZF Slovakia marked a significant milestone by establishing its Research and Development (R&D) department. This strategic move was driven by the need to foster localized capabilities for application development and series production support across a diverse product portfolio including dry friction clutches and torque converters. The department evolved to include the domain of designing clutches for the aftermarket business and gained product responsibility over time.

In 2011, recognizing the growing influx of projects, we established a dedicated Project Management Team. This specialized team is ensuring the seamless industrialization from development to serial production. In 2020, these colleagues were separated from the development department while retaining their role within the plant.

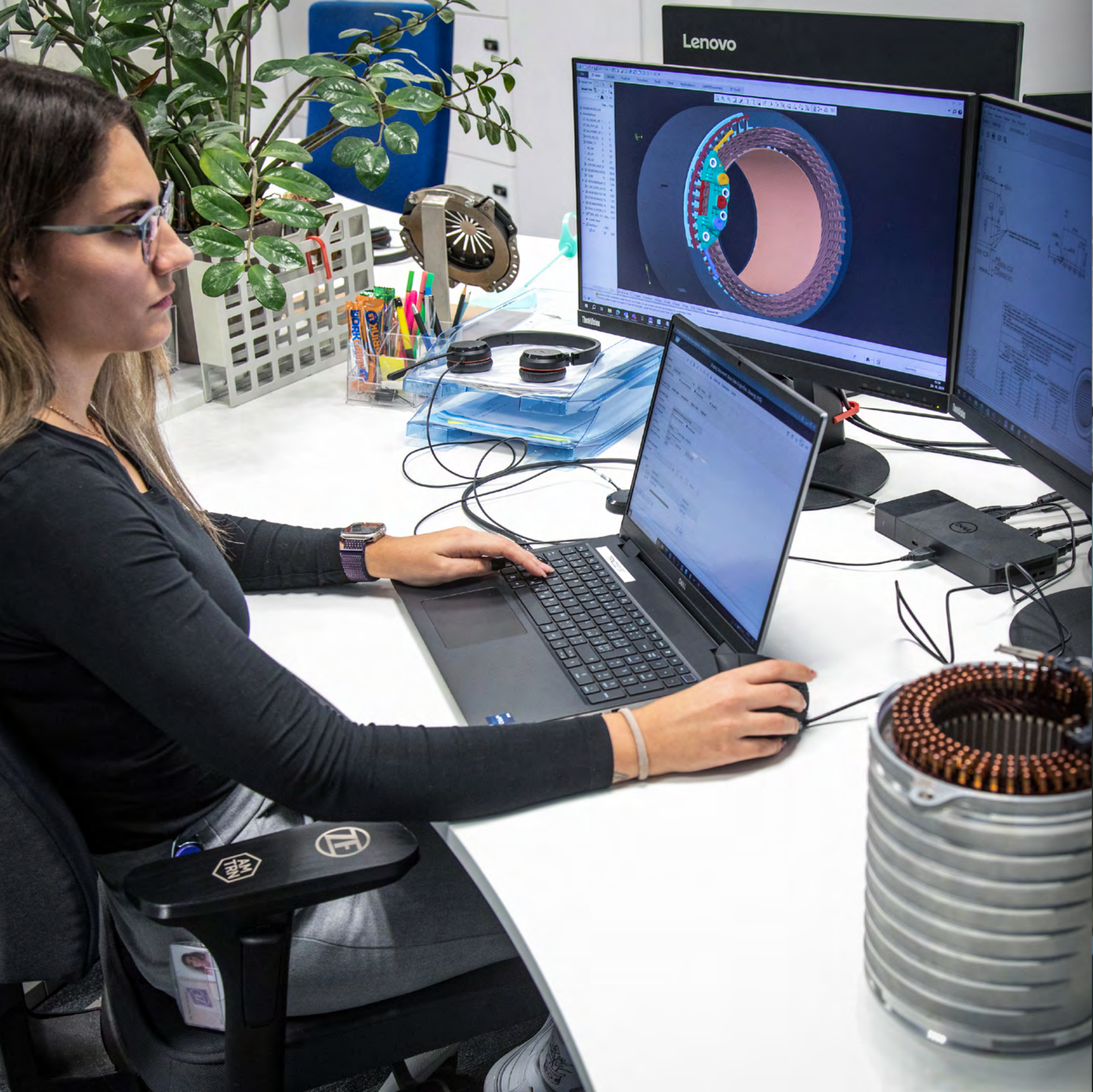
In 2015, the Hydrodynamic Torque Converter Development Team enhanced its skills with extensive training in Germany, leading to taking over product responsibility.

In 2017, we have launched another initiative to offer local support for the production of dual-mass flywheels. Additionally, this newly established team took over product development responsibilities for international and aftermarket businesses.

Every new designed product or change requires some form of validation. That is why we founded the validation department (simulations and testing) in 2019. The team acquired proficiency in NVH simulation and durability calculation. Today, we offer mechanical testing services for dry friction clutches, hydrodynamic torque converters, dual-mass flywheels, and we are ready to extend our expertise to E-Motors.

Charting a course for continued growth and innovation, ZF Slovakia embarked on the E-Mobility area in 2021, spawning the E-Motor Development Team. Based on experience across diverse product lines, we engaged in single components and assemblies development for rotor and stator. Recently, we formed a team that assumed responsibility for serial production.





The present-day development team, led by department head Dr. Igor Kister, MBA.



The department's good reputation amongst our international partners, resulted in the launch of two new departments here in Trnava during 2022: Technical Project Management and System Engineering. The latest milestone is the formation of the Synergy Group Eastern Europe, a collective initiative aimed at fostering collaboration among Eastern European R&D departments in the E-Mobility.

Since its start in 2005, our R&D department's talented designers have played a pivotal role in solving numerous projects, contributing to multiple innovations, and earning recognition through numerous patents under the ZF company banner. These contributions have propelled ZF Slovakia's dedication to design and deliver top-notch products.



Our beginnings. Head of development department Mrs. Gerda Rudolph with her team in 2007.



Model of an electric motor printed using FMD technology, the whole assembly consists of more than 60 parts produced by 3D printing.

PROTOTYPE PRODUCTION AND TECHNOLOGY DEVELOPMENT

During the development phase of a product it is vital to build physical prototypes for testing purposes and understanding manufacturability at an early stage. For this reason, a prototype shop for powertrain components was established in 2012 in Trnava and for shock absorbers in 2020 in Levice. Our product scope has gradually increased so that today e-mobility components and adaptive shock absorbers prototypes are built here, too.

Both prototype shops extended their abilities year over year significantly to produce and measure samples independent from our serial production capabilities. So we are able to internally test new designs quickly and to meet customer expectations regarding fast and reliable sample delivery for their testing.

3D printing is a very suitable technology to do rapid prototyping, create unique fixtures and tools in and outside of our production lines. That is why we established a 3D printing team in our prototype shop in Trnava in 2016. The team is able to develop a suitable design for the task at hand, print prototypes in different materials and even mass produce if needed.

Today 34 employees work in our prototype shops, which hosts 44 machines and around 50 3D printers.



DUAL EDUCATION

Constantly growing since the beginnings our company realized in the early 2000s that its further development is inevitably connected with the development and training of future employees. The start of our cooperation with vocational schools dates back to 2005 when we started providing practical training for students of the automotive vocational school in Trnava in our own onsite vocational training center.

The second stage of the successful and long-term cooperation with high schools has its roots in 2016 when we decided to enter the new dual education system recently established in Slovakia. This stage has led from certification, recruitment and selection of students to the 1st of September 2016, when we welcomed our first 52 dual education students from three vocational schools in Trnava and Levice. As soon as 18th of October 2016 in Trnava and a day later in Levice, we had a festive opening of the new dual education centers.

Today, our company currently cooperates together with five high schools: Automotive vocational school in Trnava, Electrotechnical vocational school in Trnava, Technical vocational school in Tlmače, Vocational school of technology and services in Levice and Economic academy in Levice.

The dual education system in our company offers the students financial and non-financial benefits and provides regular practical training in modern workshops in the dual education centers directly at our production plants in Trnava, Levice and Detva. The centers are equipped with state-of-the-art CNC milling machines, lathes, 3D printers, handling robots and training tools in the area of pneumatics, hydraulics and PLC programming. The students of the fourth-year-class may also work directly in the production and get to know the industrial work environment of the plant, the company culture, quality requirements and work safety. Our own qualified foremen in production and instructors inside the Dual Education center are responsible for the practical training of students, who share their knowledge and practical experience with them.

The onsite resources of our Dual Education centers are also used to train our existing staff on focus topics like systematic trouble shooting and special inside into pneumatic, hydraulic and electric and electronic components of our production lines.

In 2023/24 school year, we have more than 250 students in our Dual Education centers in six job profiles: mechanic, setter/mechanic, mechatronic technician, mechanic/electrical technician, mechanic / automotive production specialist, metal machinist and programmer of machining and welding equipment.

Our Dual Education centers supported the growth of the company effectively and ensures, that the ever increasing demands from modern production technology are met with qualified colleagues on the shop floor.

Today, our company already works together with five high schools:

- Secondary Vocational Automotive School in Trnava
- Secondary Vocational School of Electrical Engineering in Trnava
- Technical Secondary Vocational School in Tlmače
- Secondary Vocational School of Technology and Services in Levice
- Business Academy in Levice.

COOPERATION WITH UNIVERSITIES

Apart from the cooperation with high schools, there is also a long-term and intensive cooperation of our company with technically oriented universities. This cooperation takes place on multiple levels and in multiple areas.

One of them is the cooperation with research and development centers in partnering universities and faculties and the other one is the cooperation with students working on their bachelor and diploma theses.

We also must not forget the students interning or temping at our company who work on specific projects in the area of development, quality, logistics, purchasing or production technology.

The last but not least is the promotion of our company at universities. All of these areas of cooperation are equally important and help the ZF brand in getting qualified employees and spreading the good name of our company in the academic community and among their fellow students and friends.



In the summer of 2017, our company hosted Summer Camp for STU students, engaging in exciting competitions and winning valuable prizes.



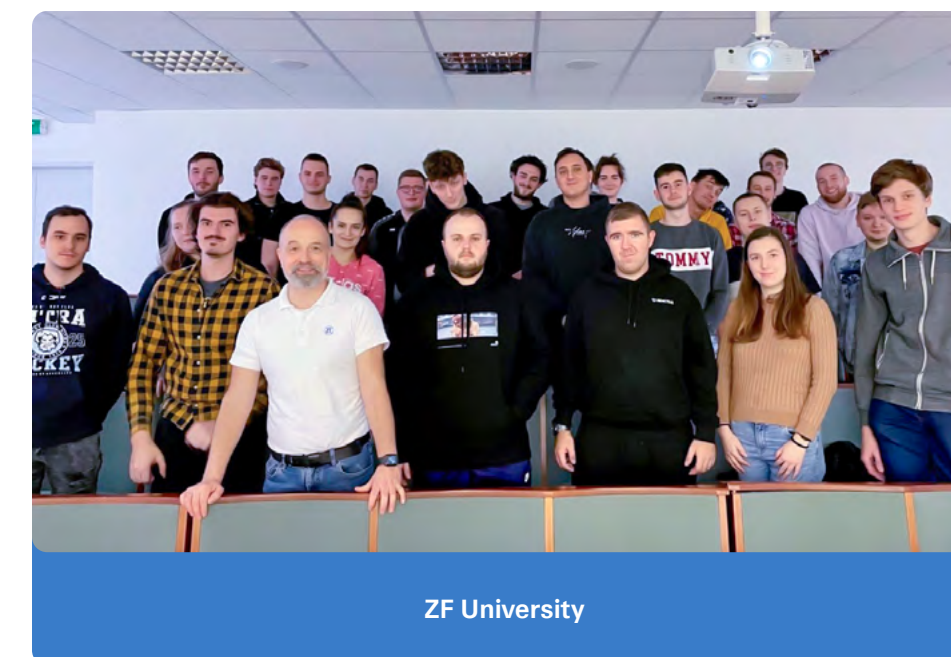
In 2022, a landmark conference brought together technical universities from Slovakia and the Czech Republic in Kočovce.

From left to right:
doc. Ing. Ľuboš Magdolen, CSc.
head of the Institute of Transport Technology and Construction at FME of STU in Bratislava;

prof. Ing. Josef Štětina, Ph.D.
director of Institute of Automotive and Transport Engineering at FME of BUT in Brno;

Dr. Igor Kister, MBA
Director of R&D at ZF Slovakia;

Ing. Norbert Káčer
Head of E-Motor Development at ZF Slovakia in Trnava.



To date, more than 120 topics for bachelor and diploma theses have been offered to students of five universities. Each year, we have new students interning and doing long-term temp work, where they improve their skills in terms of their specializations. Currently, we are mostly collaborating in fields of mechanical and electric engineering, technology, and materials science with technology faculties of universities from the following cities: Bratislava, Košice, Nitra, Púchov, Trnava and Žilina.

In each academic year, we have whole study groups making excursions to our plants. They are offered a look at our state-of-the-art production technology like full and semi-automated machining and assembly, robot MAG welding, laser welding, cathodic dip painting, heat treatment, stamping, in-line testing and quality controls as well as applied lean production methods.

Students also have the chance to meet our employees who try to paint them a picture of their work. For this purpose, we use the ZF University platform. So far, we have had 4 successful years. ZF University presents a series of lectures and workshops where the students receive relevant knowledge about procedures and methods in planning, development, production, logistics, quality, purchasing and other areas connected with an industrial company as well as information about our company and its product portfolio.

Naturally, we are also a frequent participant in various job fairs organized by universities for their students every year. As a technology leader in our industry we need to attract motivated and qualified young talents to support our future growth in Slovakia.



Medical office in the Trnava plant: doctor MUDr. Martina Bínovská and nurse Mgr. Terézia Riedlmajerová.



Sport to health: A team of ZF Slovakia employees took part in the SPARTAN RACE on May 13, 2017 in Nitra.

HEALTHCARE OF OUR EMPLOYEES

Above-standard preventive medical examinations

As an responsible employer we take care of the health of our employees. Base on an regular and intensive dialogue with the trade union organization, we have been providing above-standard medical examinations in the ProCare medical center in Nitra since 1995. All of our employees in permanent employment can make use of this benefit while employees under 50 are entitled to the medical examination once every two years and employees over 50 once a year. Everyone of us should take part in the medical examinations regardless of whether we feel healthy or sick. This is because many serious illnesses are not manifested in any special way in the early stages, although it is easier to cure them in this period. Thanks to the early diagnosis of a health problem during preventive medical examinations,

many of our employees managed to save their health. You can also collect helpful information regarding changing your diet, starting some sport activities or review some of your long-held habits based on the examination result.

Company doctor

It is also our priority to have our own medical office in each of our production sites, or at least to have contracts with concrete doctors nearby who provide pre-employment, post-employment, periodic and extraordinary medical examinations for our employees. This arrangement saves a lot of time for the employee as well as for the company.



2019: Open Day in Trnava



2015: Christmas ice rink for children in front of the town hall in Trnava. The ice rink was co-sponsored by ZF Slovakia.

ENTERTAINMENT

A positive relationship between our employees and the company is not just based on exciting products, interesting and challenging work content and fair remuneration. It is also built by spending time together outside of the work environment, involving other family members and being visible as a company in the local community.

The company has promoted numerous team buildings for its associates ranging from workshops in external locations up to tours to the country side.

ZF Slovakia opened its gates for a family day once a year to give family members of its employees insides into their work place and environment. Additionally, especially children could enjoy many attractions all around our premises and have a first glance on production technology sparking interest into a technical education. Family Days started at our Trnava site and were expanded to Levice when that side started production in 2008. Up to 6,000 participants visited one event in the past. During the years of the Covid-19 pandemic we were forced to refrain these events, but we would like to revive this tradition any time soon.

Our company is a part of local events such as job fares, Christmas markets and competitions in schools. We invite local media to our premises whenever newsworthy matters occur to keep the public informed about the company's development.





CONGRATULATIONS



Philip Schuster
chairman of the supervisory board
of ZF Slovakia, a. s.

PHILIP SCHUSTER

Dear colleagues,

ZF Slovakia turns 30 years old. My warmest congratulations on that.

I have only been accompanied the Slovak subsidiary of ZF Friedrichshafen AG as chairman of the supervisory board for just over a year now. But in this comparatively short time I got a good insight into the history of the company and was able to get to know many colleagues during my on-site visits.

I was impressed by the wide range of products and technologies in the Slovak locations as well as the diverse, often international experiences that the employees in Trnava, Levice, Šahy, Detva and Komárno have gained. This is an excellent basis for mastering the current and future challenges in the automotive industry and compensating the dwindling location advantage of Eastern Europe.

The construction of 5 locations, an R&D center, two prototype production facilities and a tool shop in Slovakia in the past shows the outstanding commitment of the local team, which you can rightly be proud of. The establishment of corporate functions that no longer just support the local operations but work within the group also shows the importance and trust that ZF places in its Slovak organization. All of this makes me confident, that ZF Slovakia can continue to develop positively and I wish us all success in winning the right projects for that. I would like to thank you very much for your contribution over the past 30 years and wish you all the best for the future.



Martina Bílá
chairwoman of the union organization
OZ KOVO ZF Slovakia since 2007
has been with the company
since its establishment in 1993

MARTINA BÍLÁ

It is unbelievable that it has been 30 years, since I became a part of ZF Slovakia. I started working in passenger car clutches in Trnava and after a 2.5 year long maternity leave I was training a completely new team of women while ramping-up the production aimed at the refurbishment of clutches. After the refurbishment of clutches was relocated to the new plant in Levice, I went back to the production of passenger car clutches as an interoperation controller.

When I began working in Trnavské automobilové závody, it was considered natural for each employee to be a member of the trade union. Thus, I was a member from the very first day in the company.

How did I get to organizing work in the trade union? It started 18 years ago, when I worked in clutch refurbishment. There were ongoing elections to the OZ KOVO committee and my colleague proposed me as a candidate. I had a hunch what I was getting myself into, but I was not ready for it being so exhausting at times. Mainly mentally. But I saw it as a challenge. I dedicated a large portion of my life to the trade union work, I met great people and gained new friends. I am happy

that I could also work with Mr. Doll, our former managing director. Also for our employees, I would like to thank him for his benevolence, approach and acceptance of the trade union as a partner.

And if someone asks why should one be in the trade union?

We have to realize constantly that the trade union is a very important part of every company. We have a lot of duties, but also authority. And we can never have that taken away from us. Trade unions are not just about trips and gifts. Thanks to the trade union, we have a collective agreement, regular wage and salary increases, we help you submit motions, remarks and complaints. It is not enough to just keep your fingers crossed and ride along. Therefore, I am very grateful to trade union members. It is their commitment that makes our foundation grow and new members are always welcome. We can achieve much more together as one big team.



JUDr. Peter Bročka, LL.M.
mayor of Trnava

PETER BROČKA

“Since 1993, when ZF Slovakia settled in Trnava, the city together with the company has experienced significant growth and transformation in multiple areas.

Your company, which is now one of the most stable pillars of Trnava’s economy, brought not only thousands of jobs but also modern production technologies to Slovakia over the years. ZF Slovakia has significantly contributed to employment in Trnava with its focus on local employees, thereby raising the living standard of many families in Trnava for years. In addition to basic production activities, the company started creating new qualified job positions, attracting experts from all over the country. Evidence of this is the establishment of an R&D department right in Trnava. The effort to create conditions for improving educational capacities and flexibly responding to market signals is one of the many admirable characteristics of the company.

ZF Slovakia is not only one of the main employers in the city but also a stable partner that has long supported various activities and projects in Trnava. The company actively participates in cultural, sports, and educational events, raising awareness of the city and contributing to its prosperity. The production technologies that ZF Slovakia brought to Trnava are top-notch. The company continuously invests in modernizing its equipment and developing new products. Currently, new products in the field of electromobility are being prepared in Trnava, showing that the company is ready for future challenges in the automotive industry.

When speaking of ZF’s success, we must also mention the name of the company’s former general manager, Mr. Peter Doll, without whom this success story would never have become a reality. Peter Doll is not only a top manager but also a man of truly European stature, not just in terms of experience and visionary foresight but also through hard work and immense humanity. All these attributes make him a true honorary citizen of Trnava, not just on paper.

As the mayor of Trnava, I would like to express my pride in what ZF Slovakia has achieved in our city over the past years. I believe your company will continue to grow and innovate, which will not only enrich the city but also advance the entire industry.

I wish ZF Slovakia and its employees all the best for the future and look forward to further cooperation!”

JÁN KRTÍK

The arrival of ZF Slovakia to Levice in 2006 influenced and changed not only our town, but the whole region in a substantial manner.

We became a modern industrial center of the region, a sought-after location for new investors that certainly took the presence of another strong investor into consideration while making their decision.

Our town cares a lot about mutually favorable cooperation which has many forms.

A significant employer contributed to the employment level by creating positions for qualified co-workers and at the same time gave the opportunity of professional growth on all levels of management in a multi-national company. They brought modern technology thanks to which the Levice plant generates products that are competitive in the world market.

Concurrently, ZF Slovakia provides the perspective of an attractive employment also thanks to the cooperation with vocational schools in terms of the dual education system.

For the future years, I wish ZF Slovakia the successful fulfillment of their development intentions, satisfied customers and employees.

It goes without saying that our town will support all of the development intentions in our region and that our mutual relations will continue to serve as an example of how the cooperation between the self-government and a significant investor should look like.

I wish you a lot of success.



RNDr. Ján Krtík
mayor of Levice



Prof. Ing. Miloš Čambál, CSc.
dean of Faculty of Materials Science
and Technology of the Slovak
University of Technology in Trnava

MILOŠ ČAMBÁL

Dear management, dear employees of ZF Slovakia a.s!

It is an honor that I can personally and on behalf of the whole Faculty of Materials Science and Technology of the Slovak University of Technology residing in Trnava (MTF STU) join the other congratulants and congratulate you on the 30th anniversary of the establishment of your company.

Our faculty is bound with ZF Slovakia not only through regional activities and long-term cooperation, but also "similar age". Just like ZF Slovakia, the MTF STU can be classified in the category of "in their thirties", from the generation viewpoint also designated as "millennials". This generation is very capable in the use of modern technology and its practical application, it is confident, and has a positive approach to innovations and environmental sustainability; the mentioned characteristics are also associated with your company.

ZF Slovakia is a company recognized by the professional community and a highly respected employer in Slovakia. We appreciate the long-term cooperation with such a significant company. The cooperation between our organizations is extensive in multiple focus areas of the company and the faculty formalized in several mutually favorable agreements. As an example, we can mention the transfer of innovations in additive technology, metallographic analyses of materials, ergonomic analyses etc.

We consider your help with the education and training of the students of our faculty a very important area of cooperation. At the MTF STU, we emphasize the development of practical skills of students and building a relationship with a potential future employer. ZF Slovakia helps us fulfill the given goal by means of internships and excursions, offering topics for bachelor and diploma theses and dissertations, and specialized scientific activity of students. Apart from the mentioned "standard forms" of cooperation with industrial plants, your company offers something "extra" with its active participation in JOB Day of the MTF STU and the very successful projects Summer Camp and ZF University. The proof of the cooperation bringing results is the high quality of MTF STU graduates. We are glad that several of them develop their professional career in your company even in significant positions.

As a sign of recognition, respect and gratitude for the long-term systematic support, the MTF STU presented the main representative of the above-mentioned cooperation Peter Doll, the managing director and chairman of the board, with the highest university award of "doctor honoris causa" in 2014. Almost ten years have passed since this ceremonial event, but the recognition, respect and gratitude towards your company still persist at the MTF STU.

For the years to follow, we wish ZF Slovakia mostly health in the company, satisfied customers and a lot of success resulting therefrom!



Dr. h. c. Ing. Jaroslav Holeček, PhD.
former board member
of Volkswagen Slovakia a. s.

president of Automotive Industry
Association of Slovakia
from 2012 to 2015

JAROSLAV HOLEČEK

My relationship with ZF Slovakia started to form as soon as in the second half of the eighties. In this period, the former Trnavské automobilové závody bought the license to produce clutches for trucks from the German company Fichtel & Sachs and I accompanied the experts and managers of TAZ 12 times as an interpreter in meetings with Fichtel & Sachs in their company in Schweinfurt.

When I found out in 1993, by that time working as a manager in VW Slovakia, that Sachs was establishing its plant in Trnava, my heart skipped a beat. I knew right away that things were looking up for the former TAZ at least in one of its parts. Gradually, Sachs Trnava extended not only its spaces, but also its portfolio. Sites in Levice and later in other towns of south and middle Slovakia were added.

I used to visit the Open days in Trnava and in Levice every year with my wife. It was not only a chance to see the plant grow, but also to meet my former colleagues from TAZ who made a career in ZF.

In 2011, I became the president of the Automotive industry association of the Slovak Republic and my first steps in this function lead me to the then managing director and my very good friend Peter Doll with the request for ZF to become a member of ours. He did not hesitate a minute. Since then, ZF Slovakia - a leading automotive supplier in Slovakia - has become a significant member of the subsupplier division.

I must mention one more area where ZF has the leading position in terms of the automotive industry in Slovakia. It is among the founders of the reintroduced dual education in the Slovak school system. Today, ZF Slovakia has three well-equipped centers in Trnava, Levice and Detva and a model cooperation with several vocational schools in Slovakia.

As a citizen of Trnava, I am very glad that ZF has a strong foundation in the town and I wish ZF Slovakia many more successful years in Slovakia.



Ing. Johana Ančicová
board member of ZF Slovakia, a. s.
until 2012

JOHANA ANČICOVÁ

I worked in the company since its establishment until the end of my professional career in 2012. It was an interesting and hectic time marked not only by changes in society, but also by changes in the company itself. The introduction of these changes was only possible to manage under the premise of accurately determined goals and the engagement of all employees. I am very glad that I was a part of it. I have fond memories of the time.

For the future, I wish the company a lot of new, interesting projects and its associates to successfully manage them.



Ing. Roman Pavlovič
board member of ZF Slovakia, a. s.
until 2012

ROMAN PAVLOVIČ

It is unbelievable, how time flies. On 1st December 2023, our company ZF Slovakia will celebrate its 30th anniversary.

My first personal connection with the future joint venture SACHS Trnava dates back to 1991 when the license provider – the German company Fichtel & Sachs – made an offer to Trnavské automobilové závody to follow up on the successful 10-year-long license cooperation and establish a joint venture.

As vice-president of technology in Trnavské automobilové závody, I received the task to coordinate the activities of the Slovak and German team regarding this project. It was an interesting and hectic two years of joint venture project work that eventually - despite many obstacles - came to a successful conclusion and in December 1993 the team of 240 former employees of Trnavské automobilové závody started writing the history of our company.

Already in the first economic year of 1994, we proved as a new team that we can work together and be successful. We gradually gained the trust of our German parent company, which launched the development of our company.

Today, we can look into the past with pride and remember our beginnings and first major projects that we - also thanks to the selfless help from our German colleagues from the parent company - managed successfully.

It fills me with joy to look back at what we achieved together in the last 30 years and to see the position we are in now in Slovakia as well as within the ZF Group.

I am glad that I had the privilege to actively participate, meanwhile as an external employee, in the success story of our company from the beginning until now.

For the years to follow, I wish our company ZF Slovakia many new projects and our employees a lot of energy and health to manage them successfully.



Martina Lojová
project manager in HR
has been with the company
since 1997

MARTINA LOJOVÁ

I started working in ZF Slovakia as a fresh university graduate in July of 1997. Back then, it was not called ZF, but SACHS, the name all the people in Trnava still know and refer to today.

When I came to work here, the company had about 330 employees. It was my first job. I worked in the financial accounting department at first and then I started working in the HR department. There were two of us in HR. Mrs. Baranovičová and me. My older colleague gradually taught me how to handle all the tasks. I also had the opportunity to train and develop my skills.

In the company, everyone knew almost everyone no matter what department they worked in and the same applied to the people from production. It was a beautiful and nice time. As one family. And for me, it was family. I do not come from Trnava or a place close to it. Therefore, I had no one who was like family to me. SACHS and my colleagues became one. Several of them, if it is my former classmates from university or first colleagues - friends, are now successful members of company management not only in Trnava, but also in other ZF sites.

Our company has gradually grown, new production sites emerged, the name changed a couple of times and now it is called ZF Slovakia. The year is 2023 and I am still working here. There is not 330 of us, but a few thousand more and they are distributed over five sites in Slovakia. We may not know every single employee, but I am glad that I could have been a part of this growth of the company.

I have worked here for 25 years. I value the stability of the company, good relationships with people and a good company environment. I am old school - I like order, I respect principles, rules and their observance and acting respectably - and this is what ZF still delivers today. Of course, I have been through good and bad times. Things were not always great, but it was never that bad that I would not hold my head up and continue my journey in ZF.

I would like to congratulate ZF on its 30th anniversary and I wish the company at least another 30 successful years.



Marian Ďurčať
resident engineer
of ZF Mobility France SAS
has been with the company
in 2007-2011 and 2016-2017

MARIAN ĎURČAŤ

Dear ZF Slovakia Family,

As we gather to commemorate the 30th anniversary of ZF Slovakia, I am filled with gratitude and pride for the journey I have had the privilege to undertake with all of you. My career with ZF has been an exciting and enriching one, spanning various roles and departments, and I am eager to share a glimpse of this incredible adventure.

My ZF journey began at the greenfield ZF Levice plant in June 2007, where I served as an Engineer for assembly, a Project Engineer, and later as a Quality teamleader. These roles laid the foundation for my career, emphasizing the values of quality and efficiency that continue to guide my work.

In 2012, I took on one of the most significant challenges of my life relocating my family to France. My journey here began as a Resident Engineer for PSA and Renault-Nissan. It was an opportunity that not only tested my capabilities but also allowed me to contribute to the success of our company on an international scale.

Returning to Slovakia in 2016, I rejoined ZF Slovakia in Levice as a Global Program Manager for FCA and Sales Back-Office Manager. Here, I managed global shock absorber programs and led a talented team in the Sales Back-Office.

My journey took me back to France, this time to TRW Paris, a part of the ZF Group, where I became the Sales Key Account Manager

for PSA dealing with shock absorbers and other chassis components. My time in France offered international exposure and a deeper understanding of the global automotive market. It was an incredible learning experience and an honor to represent ZF in a different cultural and business context.

Since June 2022, I have had the privilege of working closely with Stellantis as a Resident Engineer for shock absorbers in France, staying connected to our ZF chassis products and technologies and ensuring their seamless integration into our partner's operations.

As we celebrate this 30th anniversary, I'd like to express my gratitude to all my bosses and mentors at ZF who have been instrumental in shaping my career journey. Your guidance and support have played a crucial role in my growth.

To all ZF colleagues and friends, your motivation, and collaborative spirit have made my time at ZF remarkable. Together, we have created an environment conducive to personal and professional growth.

I look forward to continuing our journey together, driven by the same dedication and passion that has brought us this far. ZF is more than a workplace; it's a family where we learn, grow, and succeed together.

Thank you for being a part of my ZF story, and here's to many more years of shared achievements and success.



Dipl. Ing. Jens Münchow
board member of ZF Slovakia, a. s.
from 2021 to 2023

JENS MÜNCHOW

Congratulations to all the employees of ZF Slovakia on the now 30-year-long success story. You have all made your contribution and I am also proud to have been a part of it. At the beginning of 2020, I had the honor of succeeding Dr. h.c. Peter Doll as managing director. These were exciting days and weeks, since we still found ourselves in lockdown with a contact ban due to Covid-19. It was in this unusual situation when I came to particularly appreciate the employees in Slovakia. They fully supported me at all times and so we could overcome even this complicated phase. Moreover, the changes in the automotive industry caused that the future path of ZF Slovakia was not defined anymore.

Phasing out the combustion technology in automobiles meant no new projects anymore for ZF Slovakia in the area of clutches, double mass flywheels and torque converters. But the Trnava site has a lot to offer: A motivated and qualified staff, a broad technological know-how, a tool and prototype shop as well as an R&D center. It was clear as daylight to me that ZF could not disregard this potential.

At first, we still profited from the volume increases from the “old” mobility in case of passenger car torque converters and double mass flywheels. Yet we also wanted to be a part of the “new” mobility.

To achieve this, we did our homework together: The layout in Trnava was optimized to relocate machining from Levice to Trnava. In doing so, we also contributed to the adjustment of the

production footprint in Slovakia, as the site of Levice - Géňa will soon produce chassis products only. Apart from that, a portfolio adaption was initiated while handing over the clutch production to the Business Unit ZF Aftermarket.

The first step regarding the transformation towards e-mobility could be made as a result of the outstanding foundation and potential of our R&D team. We could offer the respective resources to the colleagues of the electric engine development in Schweinfurt; they were utilized and even expanded. With this, we gained attention and with the broad know-how of the employees in the Trnava plant as well as the available spaces the decision on the production of electric engine components could be brought about. A great success.

It fills me with pride and joy that we walked this road and achieved this prospect for the company together. I will always remember the time here, since I had the opportunity to get to know a fantastic country and its pleasant people. A sincere thanks goes to all of you who gave me a friendly welcome and support. I would like to give a special thanks to Thomas Schütz who has been a congenial partner in this.

For the future and the continuing success with managing the upcoming challenges, I wish you and your families a lot of strength, health and joy.

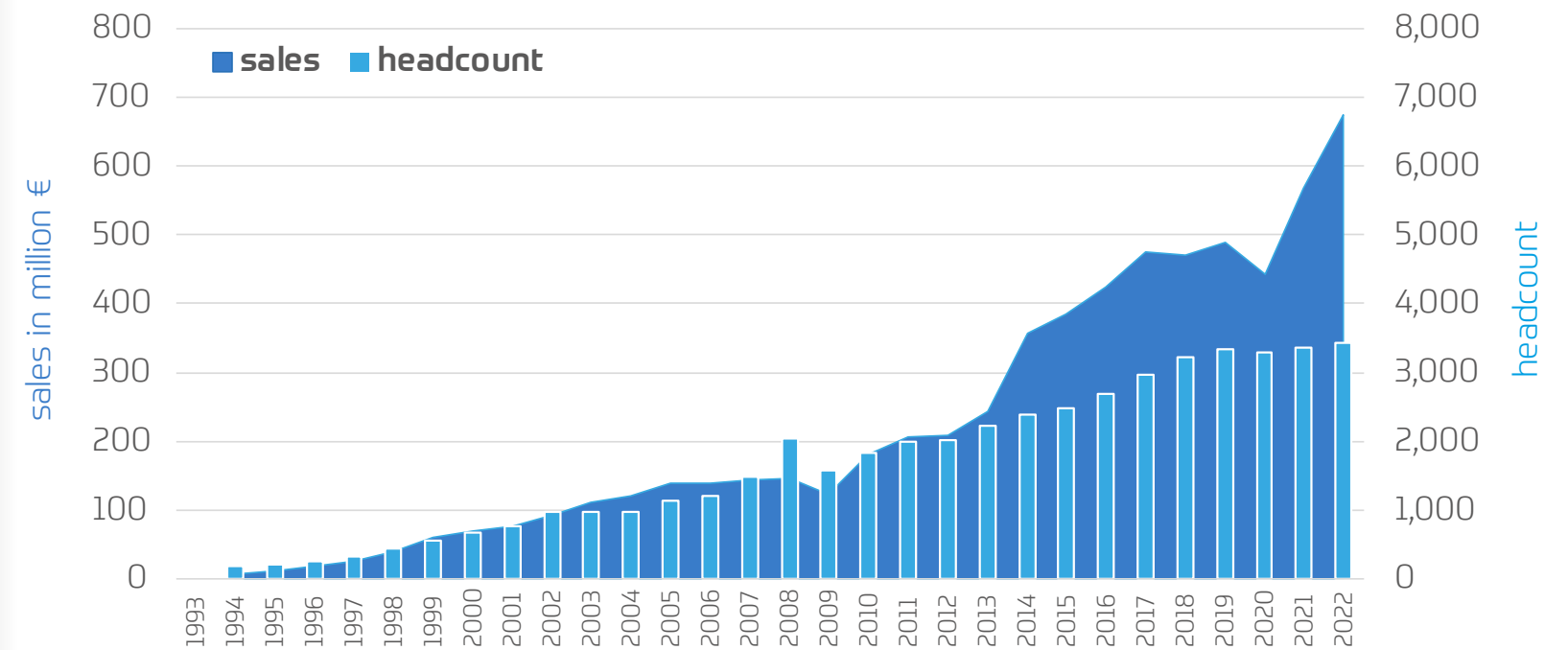


The Board of Directors thanks all employees for 30 years of successful cooperation in building our company and wishes them good health and strength for the next years of working together.

History of ZF Slovakia - milestones

- **1978** Trnavské automobilové závody (TAZ) buys the license to manufacture clutches for trucks and tractors from the German company Fichtel & Sachs, AG
- **1993** The history of ZF Slovakia, a.s. starts with the establishment of a joint venture of Trnavské automobilové závody (TAZ) and the German company Fichtel & Sachs AG, known under the commercial name SACHS Trnava, s.r.o.
- **1996** SACHS Trnava becomes a 100% subsidiary of Mannesmann Sachs, AG
- **1997** Production of hydrodynamic torque converters for automatic transmissions for construction machinery, earth works machinery and buses begins in Trnava
- **2000** The company is transformed into a stock cooperation named SACHS Slovakia, a.s.
- **2000** A tool shop is established in Trnava.
- **2003** After the takeover by ZF Friedrichshafen AG the name of the Slovak subsidiary changes to ZF SACHS Slovakia, a.s.
- **2004** The production of clutches now includes the manufacturing of facings.
- **2005** A research and development department for clutches and hydrodynamic torques converters is setup in Trnava.
- **2006** A second production site in the Industrial Park in Levice is built. A new company ZF Levice, s.r.o. is established to host its operations.
- **2007** ZF Group introduces local Shared Services for both companies in Slovakia in the area of human resources, finance, IT, purchasing of non-production material and facility management.
- **2007** In Trnava production starts for double mass flywheels for passenger cars.
- **2009** Production space in the industrial complex Levítex is rented to manufacture powertrain components.
- **2014** ZF Sachs Slovakia, a.s. and ZF Levice, s.r.o are merged to become one single company ZF Slovakia, a.s.
- **2016** The production hall for shock absorbers in Levice-Géňa is doubled to host future growth.
- **2017** Construction Work for the new plant in Šahy, which will produce welding outer tubes for shock absorbers, begins.
- **2018** The product portfolio in Levice is expanded towards adaptive shock absorbers for the premium and luxury car segments.
- **2018** Production of clutches starts in a refurbished plant in Komárno.
- **2018** In Detva the construction of a new plant for chassis components is started.
- **2018** A separated warehouse for shock absorbers and its components is built in Levice-Géňa.
- **2023** A production hall in Levice-Géňa is extended to host a warehouse for chassis components.
- **2023** In Trnava the production of e-mobility components starts.

Development of ZF Slovakia, a.s.



Current production program and production volume in 2022

The production volume of our company in 2022 is summarized in the following table:

Product	Yearly production volume (in pcs.)
Clutch discs and covers	6 000 000
Torque converters	300 000
Double mass flywheels and torsional dampers	900 000
Stabilizer bars and ball joints	23 000 000
Control arms and rods	4 000 000
Wheel suspensions	160 000
Shock absorbers	8 000 000

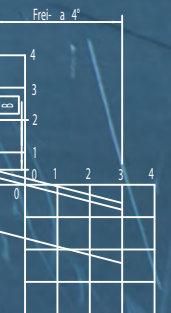
The production program of our company is subjected to the demands of our main customers - **VW, Stellantis, Ford, Mercedes, BMW, GM, Hyundai, Volvo and ZF** – which are the end producers of automobiles or suppliers of complex automotive components.

ZF Slovakia has got the following product portfolio:

- clutches for manual transmissions
- torque converters for automatic transmissions for buses, construction machinery and passenger cars
- double mass flywheels
- conventional and adaptive shock absorbers and shock absorber modules for passenger cars,
- ball joints, stabilizer bars, control arms and rods, wheel suspensions
- production of machined and pressed parts for own final products
- clutch facings
- production of pressing tools and fixtures

PRE DAMPER CHARACTERISTIC WITH FRICTION
AFTER HAVING COMPLETED THE TOTAL ASSEMBLY

A BASIC FRICTION: 0.02 NM
MEASUREMENT DRIVE SIDE UP TO 7
BACK TO 4 → AND A LOOP OF 4
B STEP OF FRICTION: 1.25 NM



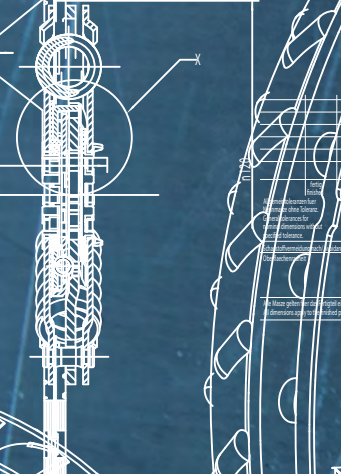
RELEASE-NO.	STATUS	SACHS-PART-NO.	INVOLE-SPLINE	REMARKS	WEIGHT [KG]	Kennzeichen	Material	Handelsbezeichnung	Teilenummer	TYPE	FIRM.
62340		081878003512	3216-4-20		0.738	001830957000	Alu	Handelsbezeichnung	081878003512	4	FIAT / LEBER

U.S. Zug	U.S. Schub	Nm ^a	Reibmoment	Reibmoment	H.D. M.D.	Nm ^a	Reibmoment	Reibmoment
1st STAGE	1st STAGE		Nm	TESTING POINT			TESTING POINT	TESTING POINT
0.26	0.3	0.26	0.04..0.2	4	3.15.8	5.9	3.6	9

entspannter Zustand
RELAXED CONDITION

Kontrollvorschrift:
Mass A = 6.7 ± 0.3 bei Belastung mit 3500 N
Federung 0.6 - 0.9 mm bei Entlastung von 3500 N auf 70 N. Freigang aus belasteter Stellung A nach Abhub von 1.2 mm max. Schlepptomment 0.3 Nm (Messung zwischen zwei parallelen Ebenen und Aufnahme im Profil)

CHECK INSTRUCTION:
DIM A = 6.7 ± 0.3 WHEN LOADED WITH 3500 N.
RESILIENCE 0.6 - 0.9 MM. WHEN RELEASED FROM 3500 N TO 70 N FREE MOVEMENT FROM LOADED POSITION A 1.2 MM MAX.
DRAG TORQUE MAX. 0.3 NM
(MEASURE BETWEEN TWO PARALLEL PLANES AND MOUNT IN PROFILE)

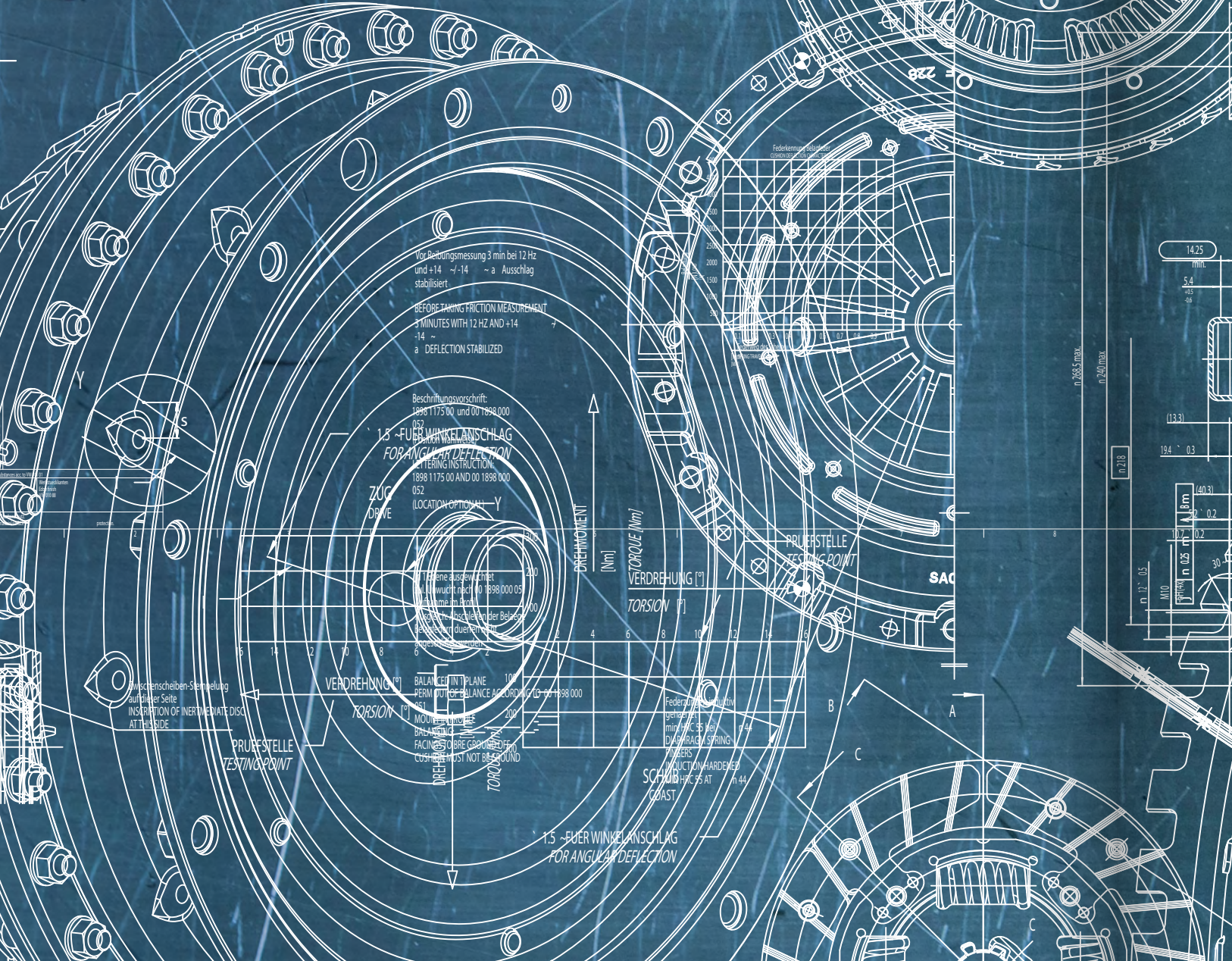


Inertienischen-Scheibenstellung
auf der Seite
INSPECTION OF INERTIAL DISC
ATTN: SIDE

1.5-GRAD WINKELANSCHLAG
FOR ANGULAR DEFLECTION

1.5-GRAD WINKELANSCHLAG
FOR ANGULAR DEFLECTION

1.5-GRAD WINKELANSCHLAG
FOR ANGULAR DEFLECTION



1.5-GRAD WINKELANSCHLAG
FOR ANGULAR DEFLECTION

U.S. Zug	U.S. Schub	Nm ^a	Reibmoment	Reibmoment	H.D. M.D.	Nm ^a	Reibmoment	Reibmoment
1st STAGE	1st STAGE		Nm	TESTING POINT			TESTING POINT	TESTING POINT
0.26	0.3	0.26	0.04..0.2	4	3.15.8	5.9	3.6	9



H.D. M.D.		THEOR. ANSCHLAGS-MOMENT	THEOR. ANSCHLAGS-STOP TORQUE	PRUEFSTELLE TESTING POINT	REIBMOMENT BEI PRUEFSTELLE FRICTION AT TESTING POINT	REIBMOMENT BEI PRUEFSTELLE IM TROCKENLAUF FRICTION AT TESTING POINT DRY	REIBMOMENT BEI PRUEFSTELLE IM TROCKENLAUF FRICTION AT TESTING POINT WET	REIBMOMENT BEI PRUEFSTELLE IM TROCKENLAUF FRICTION AT TESTING POINT WET	REIBMOMENT BEI PRUEFSTELLE IM TROCKENLAUF FRICTION AT TESTING POINT WET
ZUG DRIVE	0	14.5	14.5	10.0	3.180	1.5	5.20	16.6	246
SCHUB COAST	0	14.5	14.5	10.0	3.548	1.5	5.20	16.6	246

VD. PD.	Nm ^a	Reibmoment	Reibmoment	H.D. M.D.	Nm ^a	Reibmoment	Reibmoment
1st STAGE DRIVE	0.9	0.5	0.104	2	3.255	7.9	3.6
1st STAGE DRIVE	0.9	0.5	0.104	2	3.255	7.9	3.6
2nd STAGE DRIVE	0.9	0.5	0.104	2	3.255	7.9	3.6
1st STAGE COAST	0.9	0.5	0.104	2	3.255	7.9	3.6



VD. PD.	Nm ^a	Reibmoment	Reibmoment	H.D. M.D.	Nm ^a	Reibmoment	Reibmoment
1st STAGE DRIVE	0.9	0.5	0.104	2	3.255	7.9	3.6
1st STAGE DRIVE	0.9	0.5	0.104	2	3.255	7.9	3.6
2nd STAGE DRIVE	0.9	0.5	0.104	2	3.255	7.9	3.6
1st STAGE COAST	0.9	0.5	0.104	2	3.255	7.9	3.6



VD. PD.	Nm ^a	Reibmoment	Reibmoment	H.D. M.D.	Nm ^a	Reibmoment	Reibmoment
1st STAGE DRIVE	0.9	0.5	0.104	2	3.255	7.9	3.6
1st STAGE DRIVE	0.9	0.5	0.104	2	3.255	7.9	3.6
2nd STAGE DRIVE	0.9	0.5	0.104	2	3.255	7.9	3.6
1st STAGE COAST	0.9	0.5	0.104	2	3.255	7.9	3.6



VD. PD.	Nm ^a	Reibmoment	Reibmoment	H.D. M.D.	Nm ^a	Reibmoment	Reibmoment
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1st STAGE DRIVE	0.9	0.5	0.104	2	3.255	7.9	3.6
2nd STAGE DRIVE	0.9	0.5	0.104	2	3.255	7.9	3.6
1st STAGE COAST	0.9	0.5	0.104	2	3.255	7.9	3.6



ZF Slovakia, a. s.

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